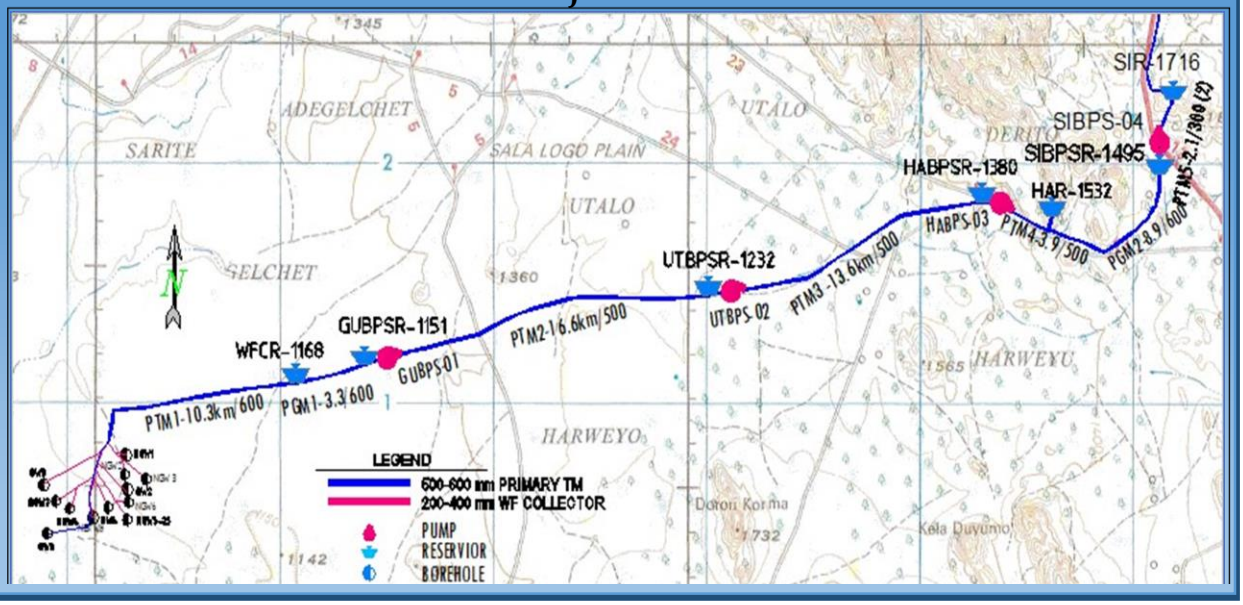
NATIONAL REGIONAL STATE OF OROMIA
WATER AND ENERGY BUREAU

Environmental and Social Impacts Assessment (ESIA) Report for Borana-Resilient Water Development for Improved-Livelihoods Program (BRWDLP)

Phase-I Project of BRWDLP



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Addis Ababa

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PHASE–I PROJECT OF BORANA RESILIENT WATER DEVELOPMENT FOR IMPROVED LIVELIHOOD PROGRAM (BRWDLP)
BORANA ZONE, OROMIA, ETHIOPIA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

By

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PHASE-1 Project of BRWDL Program

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LIST OF ABBREVATIONS AND ACCRONYMS

AfDB	African Development Bank
EA	Environmental Assessment
EPA	Environment, Forest Climate and Change Commission
EPC	Environmental Protection Council
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management
ESMoP	Environment and Social Monitoring Plan
ESF	Environmental and Social Standards
ESS	Environmental Social standard
FDRE	Federal Democratic Republic of Ethiopia
GBV	Gender Based Violence
IEF	Information Education and Communication
LULC	Land Use Land Cover
MoA	Ministry of Agriculture
NBA	National Biodiversity Policy
OS	Operational safeguards
SEA	Sexual Exploitation Abuse
SH	Sexual Harassment
VAC	Violence against Children

EXCUTIVE SUMMARY

Oromia Water and Energy Bureau (OWEB) planned water sector development program that aims in providing safe and reliable water supply that covers multi-districts under the Borana-Resilient Water Development for Improved Livelihoods Program (BRWDLP) phase by phase. The program is designed to alleviate climate change induced adverse impacts of recurrent drought and water supply shortage for human and livestock of Borana Zone of the Oromia National Regional State of Ethiopia.

The water sources for the intended program are from boreholes located at *Ade Galchet* and *Sarite* area which is about 80 and 60 kilometers from the Borana Zonal capital, Yabello Town, respectively. This part of the program is Phase-I project that covers the Gelchet-Sarite wellfields wellfields in Elewaya District to Main Reservoir aimed at Simu Hilltop in Yabello District. The phase comprises developing the Wellfields and constructing infrastructures starting from boreholes, pumps and pump houses construction to water collection, transmission to booster reservoirs and then finally to the Main Reservoir at Simu Hilltop from where the water supply distributions are to be sourced for the districts under the program. This Environmental and Social Impact Assessment (ESIA) study of the project was conducted on these areas environmental and social conditions of the program.

The general objective of the Environmental and Social Impact Assessment (ESIA) study of the phase-1 project of the Borana-Resilient Water Development for Improved-Livelihoods Program (BRWDLP) is to identify and evaluate environmental and social impacts associated with implementation of the project and recommend mitigation and/or enhancement measures for the identified impacts that enable in harmonizing the impacts with the social, economic and ecological conditions of the project areas from Galchite-Sarite wellfields to Simu Hilltop Main Reservoir near Yaballo Town of Borana Zone.

The general approaches and methodologies of the ESIA study of the project include policies and relevant documents review, undertaking field observations in the wellfield, the transmission lines and the proposed main water reservoir areas, undertaking stakeholders' consultations, primary and secondary data collection, compilation, evaluation and ESIA report writing.

The topography of the phase-1 project of the program and the program area of the Borana Zone as a whole is at most flat extensive semi-arid lowland of southern part of Oromia. The hills are spotted at certain intervals with variation of ground elevations that ranges from 1,100 up to 2,495 m.a.s.l. The geology of the area is dominated by four major geological formations; Precambrian basement complex of crystalline rocks (consisting of granite, gneisses and migmatite); Sedimentary deposit (sand stone, and lime stone), Volcanic (Tertiary and quaternary) basalt and tuff), Quaternary deposit (alluvial deposit, alluvial-in situ weathering rock).

The climate of the project area is characterized by semi-arid and sub moist lowlands with annual average rainfall ranging between 450 mm to 600 mm and with average temperatures ranging

from 17°C to 27.5°C. There are four seasons; the Long rainy season Ganna (March-May), the cool dry season Adoolessaa (June to August), the short rainy season Hagayya (September to November) and the dry season Bona (December to February). As to the drainage system, there project area comprises two basins; the rift valley lakes, and Genale Dawa basins. No perennial rivers/streams in the project area; all the available streams are seasonal.

The major and dominant plant type identified in the project area is acacia species. The species is widely found in rangelands and almost everywhere in the project area. In term of biodiversity, the vegetation in the total project area is considered to have of low importance and value.

Wild animals commonly observed in lowland areas of the country such as Bush-pig, Warthog, Anubis baboons, fox, hyena and other small wild animals were observed during the well field site observations. There is no park or wildlife reserved areas in and adjacent or across the raw water main transmission line from the wellfields to the main reservoir.

The Borana Zone in general and the project area in specific community settlements is generally scattered with mix of mobile and sedentary clusters close to nearby roads. The livelihood of the people is agriculture; Livestock husbandry, as a major occupation and also crop farming in agro-pastoral mode of life. The crop production is a very risky due to erratic rainfall and recurrent droughts. Maize sorghum, teff and haricot bean are the major crops grown in the project area.

Regarding water supply, the rural areas mainly depend on shallow wells, pond, small earth dams, few boreholes and rainwater harvesting. Most part of the project area dwellers use water from unprotected sources. Water collection is a major work burden for women and children as they can spend up to several hours per day fetching water.

Consultations were conducted at different levels; at district, kebele and village levels specifically at Ade Galchet, Karsaa Dambii and Horboro kebeles. The methods employed are focal group discussion and village meetings. In addition, the consultation is also conducted with key institutions. These meetings were done mainly in the form of key informant interviews, one to one discussion and brainstorming sessions with the respective representatives of the institutions. Essential issues both benefits and adverse impacts of the project, their concerns and views were expressed during the consultative meetings and consultations.

Potential positive and negative environmental and socioeconomic impacts of the project were also identified during the field assessment. With regard the project benefits; the participants were raised that the project will improve the quantity and quality of drinking water of the area, improve the health and sanitation services, promotes productive time for women and girls and reduces negative consequences of mobility, creates job opportunities, etc.

As general negative impacts of the project on the area and the area on the project include Impact on topography and landscape, soil erosion, land contamination, air pollution, solid waste generation, construction activities noise, water pollution, COVID-19 impacts and other communicable diseases cases are among the major ones. However, these impacts are very

localized, short-lived and mitigable by implementing the proposed measures in mitigation plan. Vegetation clearing and invasive plants expansion were also considered as most adverse impacts of the project in line with transmission lines and reservoirs construction sites.

Construction phase negative impacts on the socio-economic environment include population influx, impacts on roads, waste generation, increased COVID-19 and other communicable diseases, pressure on water and sanitation facilities, public health and safety issues and occupational health and safety. With this phase-1 project of the program, no physical and economic displacements expected as concluded from the field observations of the areas.

The identified impacts rating of the phase-1 project of the Program shows that few adverse impacts exist compared with expected significant social and health benefits. The aforementioned adverse impacts can be avoided or reduced by adhering to the proposed mitigation measures. As indicated above, physical and economic displacements are not the main concern in this phase of the project as there is no physical or economic displacement identified during the assessment.

As the project area is deprived of perennial surface water, groundwater is the only option to satisfy the demand of the phase-1 project area and the whole Borana-Resilient Water Development for Improved-Livelihoods Program (BRWDLP) areas. Different alternatives have been considered for siting of the wellfields and main command reservoir at Simu Hill top from which the water is to be distributed later for districts included in the program. The Simu Hilltop was selected based on its strategic location, adequate elevation and technical evaluation on gravity based water supply.

Possible mitigation and enhancement measures were also recommended for all identified most possible adverse impacts of the project. For the identified most possible negative impacts, their mitigation measures were recommended by considering sectors and implementers roles and responsibilities. Finally the environmental management and monitoring plans implementation budget was estimated at Birr 2,535,000.00 (two million, five hundred thirty five thousand birr) and included in the report for the phase-1 project of the program.

On comparing the project benefits and adverse impacts, it is concluded that the adverse impacts are found by far less compared to the socio-economic benefits and thus the project is found environmentally feasible, socially acceptable and helps in attaining the water supply development of the phase-1 project areas of the program. Therefore, in order to achieve the intended project benefits, it is recommended that the proposed mitigation and enhancement measures should be implemented as indicated in the management and monitoring plans of project.

1. INTRODUCTION

1.1 Background

Borana Zone is one of the Oromia Zones frequently affected by drought as a result of erratic and unpredictable rainfall and rising temperatures. Nowadays, the frequency of extreme weather events such as floods and droughts are increasing and seriously affecting the livelihood of the peoples of the area. Based on the zonal agriculture and natural resources office data, the recurrent drought cycle is narrowed, occurrence of recurrent drought is every two to three consecutive years is becoming very common. From this perspective, climate change is more likely to make the water supply situation even more precarious than it is today**.** Water supply scheme based on large and reliable water sources, therefore, contribute to alleviate these adverse impacts of the prolonged droughts and other climate change problems prevailing in the area.

With regard to livelihood bases, majority of Borana people are agro-pastoralists and they often migrate to different areas for searching of water and pasture for their livestock as an adaptation mechanism to drought. The harsh climatic conditions not only affects human populations, but also has serious effects on the livestock populations of the area. Because of this, the livestock productivity is highly reduced as a result of long migration and associated disease exposures and severe livestock deaths as a result of the drought.

Apart from this, conflicts over resource uses with neighboring communities and inability to provide basic social services are also common problems among the Borana pastoralists because of their mobility. Therefore, provision of sustainable water supply for the community and their livestock is not simply water supply but it is about improvement of the whole livelihood and living standards of the zonal peoples.

To overcome the problem and ensure livelihoods of the peoples, the Oromia Water and Energy Bureau has planned to implement a water supply project, Phase-1 project of the Borana-Resilient Water Development for Improved-Livelihoods Program (BRWDLP), in order to address the critical water supply problems of the area. As part of this phase-1 of the Water Supply Project of the program, ESIA study was integrated and studied in order to identify, evaluate and manage possible environmental and social impacts of the project based on the national legal requirements and international safeguard standards, including the financer, the AfDB.

1.2 ESIA Study

Environmental and Social Impact Assessment (ESIA) study is an interactive process that contributes to formulation of sound environmental and social management and planning strategies in achieving sustainable development. Environmental and social issues considerations and the study has started getting considerations in every sector of development programs since the 1995 constitution. Currently, the study became mandatory for projects based on their

categories and their impacts significances in order to ensure the project's activities harmony with its area environmental and social baseline conditions so as to ensure sustainability.

1.3 Objectives of ESIA Study

1.3.1 General Objective

The general objective of the Environmental and Social Impact Assessment (ESIA) study of the phase-1 project of the Borana-Resilient Water Development for Improved-Livelihoods Program (BRWDLP) is to identify and evaluate environmental and social impacts associated with implementation of the project and recommend mitigation and/or enhancement measures for the identified impacts that enable in harmonizing the impacts with the social, economic and ecological conditions of the project areas from Galchite-Sarite wellfields to Simu Hilltop Main Reservoir near Yaballo Town of Borana Zone.

1.3.2 Specific Objectives

The specific objectives of the ESIA study of the project include:

- Review existing policies, legislations, institutional frameworks of the country and line funding agency or agencies;
- Identify and describe baseline physical, biological and socio-economic environmental conditions of the project on the identified well field, along the main line to the main reservoir and under the main reservoir construction site;
- Evaluate alternatives to the proposed project, including the no action or without project alternatives;
- Identify potential environmental and social impacts arising from the project construction and operation activities on the well field sites, on the water transmission line and the intended main reservoir sites;
- Undertake consultative meetings with the inhabitants of the well field site, along the main water transmission line from the well fields to the main reservoir and with those at the main reservoir site communities on the processes undertaken to inform the Project Affected People (PAP) as well as the attitude of the PAP towards the project;
- Determine and recommend appropriate mitigation and/or enhancement measures that can protect or minimize or eliminate expected possible environmental and social impacts of the water supply project, and
- Develop appropriate environmental and social management and monitoring plans with estimated implementation budget which can ensure that the proposed mitigation and management measures are fully adopted or implemented.

1.4 Scope of the ESIA Study

The scope of the project ESIA study is limited to Phase-1 of the program. It is from the Galchit-Sarite wellfields to the main reservoir at Simu Hilltop near Yaballo Town of Borana Zone. Accordingly, the scope of the ESIA study is limited to the water source or well field areas, booster

sites, along the main transmission line to the main water reservoir site and the main reservoir site overall environmental and social issues under the direct and indirect impact areas.

1.5 Study Approaches and Methodologies

The consultant followed environmental and social impacts assessment guidelines of the Federal Democratic Republic of Ethiopia and internationally accepted rules and guidelines for conducting the ESIA study of the project. Hence, the study was conducted in compliance with African Development Bank Integrated Safeguards System (ISS), Environmental and Social Appraisal Procedures (ESAP) and Operational Safeguards, National Policy and Standards and also in accordance with the established National Procedures and Regulations which basically include:

- Establishing present environmental and social scenarios of the project sites;
- Study specific activities related to the Phase-1 project and the existing environmental and social conditions under the project areas.
- Evaluation of possible environmental and social impacts of the project, and
- Recommending appropriate mitigation and enhancement measures.

In line with the aforementioned standards and practices, different techniques were used to collect and analyses baseline conditions and data required for this ESIA study, including comprehensive literature review, project area field visit and direct site observations, surveys and interview with key concerned respondents. The detail methodologies and general approach employed by consultant for this ESIA study are specified hereunder.

1.5.1 Baseline conditions and data establishment

The environmental and social baseline conditions of the proposed phase 1 project of BRWDLPs were analyzed and the baseline data established for all environmental and social components such as:

- Geo-physical environment; (Topography, geology, hydrogeology, and hydrology, climate, ambient air, water, land/soil quality, land use pattern and etc.)
- Ecological/biological environment (Fauna, flora, etc.), and
- Socio-economic environment (People, economic activities, culture and cultural heritage site, healthy, poverty level, etc.).

1.5.2 Analysis of impacts and mitigation measures

The following major tasks carried out under impacts analysis and mitigation measures.

1) Analysis of the extent of all impacts:
    - Optimization of the positive impacts;
    - Controlling of unavoidable negative impacts within an acceptable national and international norms and standards etc.

2). Identification of the most critical environmental and social impacts (positive and negative):

- Arguing them within all the effects of water supply project and environmental scenario; and
- Attempting to draw an independent conclusion about the area over all environmental and social impacts status.

1.5.3 Field survey

An intensive two rounds field works were carried out in the proposed project site from 20/10/2021 to 30/10/2021 with all sectors study team and from 03/04/2022 to 07/04/2022 by the consultant to conduct direct site observation with the purpose of in-depth identification of anticipated environmental and social impacts and risks associated with the proposed project and carry out consultation with the concerned stakeholders and project affected community.

During the field survey, site-specific baseline data on the environmental and socioeconomic characteristics of the project area were collected through observations. In addition, relevant government offices were contacted and sector related data was collected. Therefore, both primary and secondary data were collected from all possible sources. The collected data have been used to provide clear description of the baseline environmental and socioeconomic conditions of the project influence areas in order to assess potential environmental and social impacts of the intended water supply project. The study team also undertook preliminary flora assessment in order to establish species richness and associated impacts from the project. The study also employed remote sense techniques to determine vegetation covers of the area.

1.5.4 Review of documents

Review of the expected Project Activities from Developer‘s feasibility study documents was also done to understand about the project action and components. The phase-I project design review was used for identification of expected project activities and their impacts on existing bio-physical and socio-economic environment of the project areas. In addition, Ethiopia national environmental and social policies and strategies, national proclamations, and policies applicable to the proposed project, African Development Bank’s policies and standards, World Bank’s Operational and Safeguard Policies, ESIAs of similar projects and other project documents were also collected and reviewed.

1.5.5 Impact prediction

Impact forecasting and proposal for impact minimization, mitigation, remedy and control strategies have been conducted by using data from multiple sources namely, base line survey, ESIA documents of similar projects from within and other countries, executive interviews, expert opinion, and experiences put together into a coherent and executable actions during the project design, construction and operation phases.

1.5.6 Public and stakeholders consultations

During the environmental field survey, formal as well as informal consultations were conducted with concerned officials, experts and representatives of the local community. Accordingly, stakeholders’ Focus Group Discussions were conducted with Borana Zone key stakeholders on 14/04/2022 with Borana Zone key Stakeholders at Yabello and on 16/04/2022 with wellfield

kebele main reservoir construction area (see Annex -2 to Annex-8) for list of participants and minutes).

In addition, Borana Zone Administration, Borana Zone Water Resources, Mines and Energy; Borana Zone Environmental Protection Authority as well as their line district sectors in target water supply areas were contacted during the preliminary fieldwork of the project. Different methods were employed by the ESIA team during the stakeholder's consultation process which include consultative and public participatory meetings, personnel interviews and focus group discussions. The consultations were done mainly with administration bodies and general public/community elders of the localities at three locations; Ade Galchet, Karsa Dambi and Horboro localities. Consultation minute is attached (Appendix 2). In addition, public consultative meetings were conducted in in order to evaluate for the environmental, social, cultural and economic implications of the intended water supply project.

1.5.7 Use of data generated by other Disciplines

Relevant data generated/collected by other disciplines such as the socio-economy assessment, hydro-geological survey and Geo-technical investigation studies were used to supplement the environmental data and understand the proposed technical features of the project so to render the impact assessment as comprehensive as possible.

1.5.8 Data Analysis

Collected data and information from all sources were categorized and analyzed to describe the existing environmental and social set up of the project area and assess and predict potential positive and negative impacts of the proposed Phase 1 project. Finally, feasible enhancement and mitigation measures which may eliminate or minimize and/or compensate the identified adverse impacts were recommended with proper environmental and social management and monitoring plans.

1.5.9 Report Preparation

Concise ESIA study report containing all essential parts addressing the water supply project areas physical, biological, social and economic environmental baseline conditions, findings, management and monitoring plans, conclusions and recommendations was prepared with its full contents.

1.6 Environmental and Social Impact Report Structure

The report was organized and prepared based on ESIA guideline of the country. It consists twelve chapters.

- *Chapter one* is the introduction part under which the background of the project, the ESIA study objectives, study scopes and methodologies, data analysis, report writing and also the report outline are included.

- *Chapter two* of the report summarizes the national policy, legal and administrative frameworks with the international environmental and social agreements that the country signed and the African Development Band and the World Bank Policies and guidelines.
- *Chapter three* of the report is project description section in which the project location and its components are detailed.
- *Chapter four* describes the baseline environmental and social conditions of the Phase-1 project of the program areas physical, biological and socioeconomic environmental conditions.
- *Chapter five* of the report also describes the stakeholders' consultations, consultative approaches and findings of from consultative meetings.
- *Chapter six* of the report also details with possible project positive and negative environmental and social impacts of the phase-1 project of the program. The negative environmental and social impacts are presented with their possible mitigation measures. Evaluations of the project impacts significances were also included in the chapter.
- *Chapter seven* is analysis of the project alternatives. Here possible alternatives for the proposed phase 1 project activities are included.
- *Chapter eight* of the report addresses the project environmental and social management plan in which management principles, aspects and plans by project phases including short- and long-term plans are addressed.
- *Chapter nine* of the report also addresses the project environmental and social monitoring plans in which monitoring principles, aspects and possible short- and long-term monitoring programs are included.
- *Chapter ten* is the conclusion and recommendation part under which concluded remarks are presented with recommendations.
- *Chapter eleven* consists of references used during the study and the final
- *Chapter twelve* is appendixes which consist minutes of consultative meetings, a lead study team professional license and CV, consulting level-I firm legal documents, and 2013 E.C (2021/22) clearance.

2. POLICY, LEGAL, STRATEGES AND ADMINISTRATIVE FRAMEWORKS

The project proponent needs to ensure that its project activities are in line with all relevant national policies, legislations and standards operating in Ethiopia, African development Bank's policies, procedures and standards and other relevant international standards. In this chapter relevant policies, legal and administrative framework that are relevant to this project are covered. The project proponent shall observe these frameworks in the designing and implementing the proposed project activities.

2.1 Constitution of FDRE

As a supreme law of Ethiopia, all national policies, laws and regulations as well as institutional frameworks of the country must comply with the constitutional provisions. The constitution of FDRE, proclamation 1/1995 contains a number of articles, which are relevant to environmental matters in connection with development objectives as well as to the Environment in general. The Constitution specifically deal with the right to development, environmental rights, and environmental objectives respectively, and some of the main provisions are listed as follows:

Article 25- Right to Equality: All persons are equal before the law and are entitled without any discrimination to the equal protection of the law. In this respect, the law shall guarantee to all persons equal and effective protection without discrimination on grounds of race, nation, nationality, or other social origin, color, sex, language, religion, political or other opinion, property, birth or other status.

Article 35- Rights of Women: The historical legacy of inequality and discrimination suffered by women in Ethiopia considered, women, to remedy this legacy, are entitled to affirmative measures. The purpose of such measures shall be to provide special attention to women so as to enable them to compete and participate on the basis of equality with men in political, social, and economic life as well as in public and private institutions

Women have the right to full consultation in the formulation of national development policies, the designing, and execution of projects, and particularly in the case of projects affecting the interests of women.

Women have the right to acquire, administer, control, use and transfer property. In particular, they have equal rights with men with respect to use, transfer, administration, and control of land. They shall also enjoy equal treatment in the inheritance of property.

Women shall have a right to equality in employment, promotion, pay, and the transfer of pension entitlements.

Article 37- Right of Access to Justice: Everyone has the right to bring a justifiable matter to, and to obtain a decision or judgment by, a court of law or any other competent body with judicial power.

Article 39- Rights of Nations, Nationalities, and Peoples: Every Nation, Nationality, and People in Ethiopia has the right to a full measure of self-government which includes the right to

establish institutions of government in the territory that it inhabits and to equitable representation in State and Federal Governments.

Article 40- The Right to Property: This Article stated that:

- "Private property", for the purpose of this Article, shall mean any tangible or intangible product which has value and is produced by the labor, creativity, enterprise, or capital of an individual citizen, associations which enjoy juridical personality under the law, or in appropriate circumstances by communities specifically empowered by law to own property in common.
- The right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities, and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange.
- Ethiopian peasants have right to obtain land without payment and the protection against eviction from their possession. The implementation of this provision shall be specified by law.
- Ethiopian pastoralists have the right to free land for grazing and cultivation as well as the right not to be displaced from their own lands. The implementation shall be specified by law.
- Every Ethiopian shall have the full right to the immovable property he builds and to the permanent improvements he brings about on the land by his labor or capital. This right shall 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. Particulars shall be determined by law.
- Without prejudice to the right to private property, the government may expropriate private property for public purposes subject to payment in advance of compensation commensurate to the value of the property

Article 41 Economic, Social, and Cultural Rights (Social development, inclusion, consultation, and participation)

- Provides the rights of citizens in engaging freely in economic activities, choose livelihoods, create and expand job opportunities for the unemployed including to find gainful employment.
- Ensure improved living standards and sustainable development to the nations, nationalities and peoples of Ethiopia.
- Ensures Ethiopians have the right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nation/s, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange.
- Every person has the inviolable and inalienable right to life, the security of person and liberty.
- Ensure Ethiopian farmers and pastoralists receive fair prices for their products, obtain an equitable share of the national wealth commensurate with their contribution.
- Vulnerable groups support and assistance encompass the physically and mentally disabled, the aged, and to children who are left without parent or guardian.

- Equal access to public social services, with FDRE obligation to allocate resources to provide to the public health, education and other social services.
- Ensure participation and meaningful consultation of the nations, nationalities and peoples of Ethiopia to enhance the capacity of citizens for development and to meet their basic needs.
- The constitution provides the right to hold opinions without interference to seek, receive and impart information and ideas and freedom of association for any cause or purpose.
- Protect and preserve historical and cultural legacies, and contribute to the promotion of the arts and sport

Article 43 right to development Article 43 of the FDRE constitution states, that:

- The peoples of Ethiopia as a whole and each Nation, Nationality and people in Ethiopia in particular have the right to improve living standards and to sustainable development; Nations have the right to participate in national development and, in particular, to be consulted with respect to policies and projects affecting their community;
- All international Agreements and relations concluded, established or conducted by the state shall protect and ensure Ethiopia‘s right to sustainable development;
- All international Agreements and relations concluded, established or conducted by the state shall protect & ensure Ethiopia‘s right to sustainable development; &
- The basic aim of development activities shall be to enhance the capacity of citizens for development and to meet basic needs.

Article 44 states about Environmental right as below:

- All persons have the right to live in a clean and healthy environment; and
- All persons who have been displaced or whose livelihoods have been adversely affected as a result of state programs have the right to compensation, including relocation with adequate state assistance.

Article 92 of FDRE also includes the following Environmental objectives:

- Government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment;
- The design and implementation of programs and development shall not damage or destroy the environment;
- People have the right to full consultation and 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.

In general, the constitution has laid down the policy and legal bases regarding environmental management, to harmonize and integrating environmental considerations into a decision-making process in a manner that promotes sustainable development.

2.2 National Policy Frameworks

2.2.1 Environmental Policy of Ethiopia (EPE)

The Environmental Policy of the Federal Democratic Republic of Ethiopia (EPE) was approved by the Council of Ministers in April 1997 (EPA/MEDAC 1997). It is based on the CSE, which was developed through a consultation process over the period 1989-1995. The policy has the broad

aim of rectifying previous policy failures and deficiencies, which in the past have led to serious environmental degradation. It is fully integrated and compatible with the overall long term economic development strategy of the country, known as Agricultural Development Led Industrialization (ADLI), and other key national policies like the National Population Policy and the National Policy on Women.

The overall EPE's goal is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the adoption of sound management and use of natural, human-made and cultural 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. To this end, the Government of Ethiopia has issued several sectoral policies.

Some of the specific objectives of the Policy include sustainable utilization of non- renewable resources, identifying and developing natural resources that are currently underutilized, accounting for the full costs and benefits of natural resource development and empowering and encouraging public participation in environmental management issues.

The section of the EPA concerning EIA sets out a number of policies, key elements of which may be summarized as follows:

- The need for EIA to address social, socio-economic, political and cultural impacts, in addition to physical and biological impacts, and for public consultation to be integrated within the EIA procedures.
- Incorporation of impact containment measures within the design process for both public and private sector development projects, and for mitigation measures and accident contingency plans to be incorporated within environmental impact statements (EISs).
- Creation of a legal framework for the EIA process, together with a suitable and coordinated institutional framework for the execution and approval of ESIAs and environmental audits.
- Development of detailed technical sectoral guidelines for ESIA and environmental auditing, and
- Development of ESIA and environmental auditing capacity and capabilities within the EPA, sectoral ministries, and agencies, as well as in the regions.

The Policy has been developed as a national instrument for enhancing the objectives of the Constitution and setting out clear cut directions with respect to environmental concerns particularly in terms of regulatory measures adopted as well as in the process of design, implementation and operation of development projects. Its recognition of the significance of addressing cross-sectoral environmental issues in the context of a national approach to environmental assessment and management integrates the efforts of a wide range of institutions across the country. It provides a sound and rational basis for addressing the country's environmental problems in a coordinated manner

2.2.2 Water resource policy

Ethiopian Water Resource Management Policy, Proclamation No 197/2000, was formulated in 1998 for comprehensive and integrated water resources management towards efficient, equitable, and optimal utilization of the available water resources for socio-economic development on sustainable basis. The specific objectives of the policy include:

- To promote development of the water resources of the country for economic and social benefits of the people, on equitable and sustainable basis;
- To allocate and apportion the water, based on comprehensive and integrated plans and optimum allocation principles that incorporate efficiency of use, equity of access, and sustainability of resources:
- To manage and combat drought as well as other drought associated impacts, and disasters through efficient allocation, redistribution, transfer, storage and efficient use of water resources; and
- To conserve, protect and enhance water resources and the overall aquatic environment on sustainable bases.

The document includes policies to establish and institutionalize environment conservation and protection requirements as integral parts of water resources planning and project development.

2.2.3 Public Health policy

Ethiopia in general, has a low level of health, even in comparison with other Sub-Saharan countries. This is largely related to low levels of income and widespread poverty, low levels of education, nutritional deficiencies, poor environmental conditions, and inadequate access to health services. The government has therefore, assigned a very high priority to significantly improving health care and, in 1998, issued a health policy based on the following main principles:

- Democratization and decentralization of the health care system;
- Promotion of disease preventive components;
- Ensuring accessibility to health care for the whole population;
- Promotion of private sector and NGO participation in the provision of health care;
- Development of appropriate capacity based on needs assessment, and
- Promotion and strengthening of inter-sectoral activities through a national self-reliance program.

The priority areas of the policy are in the field of Information Education and Communication (IEC) of health to create awareness and behavioral change of the society towards health issues, emphasis on the control of communicable disease, epidemics, and on diseases that are related to malnutrition and poor living condition, promotion of occupational health and safety, the development of environmental health, rehabilitation of health infrastructures, appropriate health service management system, attention to traditional medicines, carrying out applied health research, provision of essential medicines, and expansion of frontline and middle level health professionals.

2.2.4 National Policy on women

This Policy was issued in March 1993 emphasizing that all economic and social programs and activities should ensure equal access of men and women to the Country ‘s resources and in the decision-making process, so that Women can benefit equally from all activities carried out by the Federal and Regional Institution. The Policy objectives are:

- Laws, regulations, systems, policies and policies and development plans that are issued by the Government should ensure the equality of men and women; special emphasis should be given to the participation of rural women;
- Economic, social and political policies and programmes, as well as cultural and traditional practices and activities, should ensure equal access of men and women to the country ‘s resources and the decision-making process; and
- The central government and regional administrations should ensure that women participate in and benefit fully from all activities carried out by central and regional institutions.
- Development institutions, programmes and projects should ensure women‘s access to and involvement in all interventions and activities.

2.2.5 National population policy

This Policy was issued in April 1993 and aims at closing the gap between high population growth and low economic productivity through a planned reduction in population growth combined with an increase in economic returns. With specific reference to natural resources, the main objectives of National Population Policy are:

- Making population and economic growth compatible and the over-exploitation of natural resources unnecessary;
- Ensuring spatially balanced population distribution patterns, with a view to maintaining environmental security and extending the scope of development activities;
- Improving productivity of agriculture and introducing off-farm/nonagricultural activities for the purpose of employment diversification, and
- Maintaining and improving the carrying capacity of the environment by taking appropriate environmental protection and conservation measures.

2.2.6 National biodiversity policy

The National Biodiversity Policy (NBP) was established in 1998 based on a holistic ecosystem approach to conserve, develop and utilize the country's biodiversity resources. Integration of biodiversity conservation and development in federal and regional sectoral development initiatives, and mobilization of international cooperation and assistance, have been identified as the principal strategies for implementation of the policy.

The policy provides for guidance towards effective conservation, rational development and sustainable utilization of the country’s biodiversity, and contains comprehensive policy provisions for the conservation and sustainable utilization of biodiversity. Protection of biodiversity-related traditional indigenous knowledge and communities' benefit sharing arrangements are not yet effective. Similarly, the potential of biodiversity-related opportunities has not yet been exploited to

enhance sustainable livelihood to the desired level. However, there is a general understanding with respect to changing the management approach in order to bring about the desired benefits.

Wetlands are considered among the most productive type of ecosystem in the world, providing benefits far in excess of those obtained from alternative uses to which they are subjected. Ethiopia is endowed with vast wetlands, including a tract in the project area; however, efforts towards their conservation and sustainable utilization are very limited, and no clear policy and legislative framework have been designed.

2.2.7 Land Tenure Policy

The Constitution of the Federal Democratic Republic of Ethiopia (FDRE) states that the right to ownership of rural and urban land, as well as all-natural resources, is exclusively vested in the State and People of Ethiopia. Article 40 of the Constitution indicates that land is a common property of the Nations, Nationalities and the People of Ethiopia, and shall not be subjected to sale or to other means of transfer. Buying and selling of land is prohibited but leasing rights is allowed. Moreover, it is the right for existing land owner to be compensated fully and satisfactorily if land is expropriated by the state.

The Land Policy of Ethiopia strongly supports that project plans must include attractive and sustainable resettlement strategies to the people who are going to be displaced because of the development plan, and they must be fully convinced, compensated and have to participate in all phases of the project implementation. Hence, this policy has laid a foundation in building trust-ship among the people who are going to be displaced as a result of the development (in this case people displaced for the proposed Borana water network project activities) and the implementers who have powers and duties specified under relevant regulations. Consequently, for effective implementation of the policy intent, the FDRE has proclaimed the Expropriation of Landholdings for Public Purposes and Payment of Compensation (Proclamation No. 455/2005), Regulation on Payment of Compensation for Properties Situated on Landholdings Expropriated for Public (Regulation No.135/2007) and Rural Land Administration and Land Use Proclamation (Proclamation No. 456/2005).

2.2.8 National Social Protection Policy of Ethiopia

The main objectives of Social Protection Policy of Ethiopia are the following:

- Protect poor and vulnerable individuals, households, and communities from the adverse effects of shocks and destitution;
- Increase the scope of social insurance;
- Increase access to equitable and quality health, education and social welfare services to build human capital thus breaking the intergenerational transmission of poverty;
- Guarantee a minimum level of employment for the long term unemployed and under-employed;
- Enhance the social status and progressively realize the social and economic rights of the excluded and marginalized; and,
- Ensure the different levels of society are taking appropriate responsibility for the implementation of social protection policy.

2.2.9 Wildlife Policy

The main strategy and policy that addresses wildlife conservation is the Wildlife Policy and Strategy of 2005 (WPS). This policy emphasizes development-oriented conservation. The main objective of the WPS is to create a conducive environment whereby the country's wildlife and their habitats are protected and developed in a sustainable manner, and to enable the sector to play an important role in the economic development of the country. The policy aims to protect wildlife through proper administration of wildlife protected areas, conservation of endemic and threatened species, and prevention of disasters and promotion of wildlife health services. It also seeks to establish proper systems to control trafficking in wildlife and wildlife products as well as to promote sustainable wildlife utilization. Some of the strategies to stop trafficking include establishing check points at entry and exit points and regulation of national and international trade in wildlife and wildlife products in accordance with national and international conventions.

The Wildlife Policy also states that the wildlife resources of the country will be properly utilized for sustainable tourism, hunting, trade, ranching and food. Eco-tourism will also be promoted in protected areas and international conventions regarding wildlife and wildlife trade will be implemented. The income secured from wildlife resources will be used to benefit local people and will be reinvested in wildlife conservation endeavors. The income from wildlife will also be used to enhance the overall growth of the national economy. The wildlife policy covers a wide range of policies and strategies relating, amongst others, to wildlife conservation and protected areas. It is developed by the forms Ministry of Agriculture /MoA/, whose prime objective is the preservation, development and sustainable utilization of Ethiopia's wildlife resources for social and economic development and for the integrity of the biosphere. The Policy has the following objectives:

- To conserve, manage, develop and sustainably utilize the wildlife resource so that the country can derive the socio-economic and ecological benefit from the resource; and
- To enable the country to discharge its obligations assumed under the international treaties regarding the conservation and utilization of wildlife and pass the resource and benefits to the coming generation.

2.3 Strategies

2.3.1 Conservation Strategy of Ethiopia

The Conservation Strategy of Ethiopia, which was approved by the Council of Ministers, provided a strategic framework for integrating environmental planning into policies, programs and projects. With regard to development of alternative energy resources and their utilization, the relevant strategies include the following:

- Develop alternative energy sources such as solar power, wind, biogas, agricultural bio-fuel, liquid bio-fuel or small hydroelectric plants for towns and villages remote from the national grid;
- Acquire, develop, test and disseminate appropriate and improved energy use technologies (e.g. improved stoves, charcoal kilns, solar powered cookers & heaters) and

- Demonstrate and support the use of other energy sources (e.g. geothermal, solar, etc.) in the various economic sectors where it is currently little used such as in transportation, irrigation, crop-drying, food processing, fish drying, and thermal heating.

2.3.2 Ethiopia's Climate-resilient Green Economy Strategy

The Government of the Federal Democratic Republic of Ethiopia has initiated the Climate-Resilient Green Economy (CRGE) initiative to protect the country from the adverse effects of climate change and to build a green economy that will help realize its ambition of reaching middle-income status before 2025. Ethiopia's green economy plan is based on the following four pillars:

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

2.3.3 Gender mainstreaming strategy and guideline (2010)

This strategy was adopted at policy, program and project level by government and development partners to ensure the outcomes of development to be shared equally between men and women; both men and women enjoy equal opportunities, status and recognition.

The ratification of the Family Law and amendments made to the criminal code significantly support to fight abuses committed against woman and children. Proclamation No, 1156/2019 gives special attention to woman and young workers. The proclamation provides protection for woman in general and pregnant woman in particular from hard work and long hours. The law clearly states that women should not be discriminated against as regards to employment and payment on bases of her sex. Gender norms in Ethiopia vary widely depending on geographic location, ethnicity, and religion, especially related to property ownership, inheritance, and the division of assets after divorce. However, the new Family Code has changed all that. Passed in 2000, it gives equal rights to women in marriage and it requires all assets be divided equally among both partners in the case of a divorce. By now, all the states in Ethiopia have approved this new Code. Ethiopia is one of many developing countries implementing gender policy reforms, especially regarding women's equal access to assets and resources.

2.4 Regulations, Proclamations and Procedural Guidelines

2.4.1 Establishment of environmental protection organs

The objective of this Proclamation (No.295/2002) is to assign responsibilities to separate organizations for environmental development and management activities on one hand, and environmental protection, regulations and monitoring on the other, in order to ensure sustainable use of environmental resources, thereby avoiding possible conflicts of interest and duplication of

effort. It is also intended to establish a system that fosters coordinated but differentiated responsibilities among environmental protection agencies at federal and regional levels.

This Proclamation re-established the EPA as an autonomous public institution of the Federal Government of Ethiopia. Furthermore, the Proclamation states that each regional state should establish an independent regional Environmental Protection Authority that shall be responsible for environmental monitoring, protection and regulation in their respective regional states.

2.4.2 Proclamation on Environmental Impact Assessment (EIA)

The aim of the Environmental Impact Assessment (EIA) Proclamation (Proc. No. 299/2002) is to make an EIA mandatory for specified categories of activities undertaken either by the public or private sectors and is the legal tool for environmental planning, management and monitoring.

The Proclamation elaborates on considerations with respect to the assessment of positive and negative impacts and states that the impact of a project shall be assessed on the basis of the size, location, nature, cumulative effect with other concurrent impacts or phenomena, trans-regional context, duration, reversibility or irreversibility or other related effects of a project. Categories of projects that will require full ESIA, not full EIA or no EIA are provided. To affect the requirements of this Proclamation, the EPA has issued a Procedural and Technical EIA Guidelines, which provide details of the EIA process and its requirements.

2.4.3 Proclamation on Environmental pollution control

This Proclamation, Proc. No. 300/2002, is mainly based on the right of each citizen to have a healthy environment, as well as on the obligation to protect the environment of the Country and its primary objective is to provide the basis from which the relevant ambient environmental standards applicable to Ethiopia can be developed, and to make the violation of these standards a punishable act. The Proclamation states that the “polluter paysll principle” will be applied to all persons. Under this Proclamation, the EPA is given the mandate for the creation of the function of Environmental Inspectors. These inspectors (to be assigned by EPA or regional environmental agencies) are given the authority to ensure implementation and enforcement of environmental standards and related requirements.

2.4.4 Proclamation on Ethiopian Water Resources Management

The Proclamation on Ethiopian Water Resources Management (Proc. No. 197/2000) was issued in March 2000 and provides legal requirements for Ethiopian water resources management, protection and utilization. The aim of the Proclamation was to ensure that water resources of the country are protected and utilized for the highest social and economic benefits, to follow up and supervise that they are duly conserved, ensure that harmful effects of water use prevented, and that the management of water resources is carried out properly.

The Proclamation defines the ownership of water resources, powers and duties of the Supervising Body, inventory of water resources and registry of actions, permits and professional licenses, fees and water charges. According to the Proclamation, all water resources of the country are the common property of the Ethiopian people and the State. As provided in the Proclamation, the

Supervising Body [the Ministry pertaining to water resources at central level, or any organ delegated by the Ministry] shall be responsible for the planning, management, utilization and protection of water resources. It shall also have the necessary power for the execution of its duties under the provisions of this Proclamation. According to Article 11 (1), no person shall perform the following activities without a permit from the Supervising Body without prejudice to the exceptions specified under Article 12:

- Construct water works;
- Supply water, whether for his own use or for others;
- Transfer water which he/she abstracted from a water resource or received from another supplies; and
- Release or discharge waste into water resources unless otherwise provided for in the regulations to be issued for the implementation of this Proclamation.

As defined in Article 12, any person shall utilize water resources for the following purposes without requiring a permit from the Supervising Body:

- Dig water wells by hand or use water from hand-dug wells;
- Use water for traditional irrigation, artisanal mining and for traditional animal rearing, as well as for water mills.

2.4.5 Expropriation of Land Holdings & Compensation Payment Proclamation

Proclamation No. 1161/2012, issued in September 2005, deals with appropriation of land for development works carried out by the government and determination of compensation for a person whose landholding has been expropriated. It includes provisions on power to expropriate landholdings, notification of expropriation order, responsibility for the implementing agency, and procedures for removal of utility lines.

The proclamations shall apply throughout the country in rural and urban centers in matters related to land expropriation. Payment of compensation, resettlement of the landholders whose land is expropriated for public purpose. As to the principles; the proclamation includes:

- Expropriation of land for public purpose shall be made only on the basis of approved land use plan, urban structural plan and development master plan
- Compensation and resettlement assistance compensation for expropriated land shall sustainably restore and the livelihood of displaced people
- The amount of compensation to be paid at federal, Regional, Addis Ababa and Dire Dawa for similar properties and economic losses in the same areas shall be similar.

2.4.6 Proclamation on Rural Land Administration and Use

This Proclamation, Proc. No. 456/2005, came into effect in July 2005. The objective of the Proclamation is to conserve and develop natural resources in rural areas by promoting sustainable land use practices. In order to encourage farmers and pastoralists to implement measures to guard against soil erosion, the Proclamation introduces a Rural Land Holding Certificate, which provides a level of security of tenure. The MoA is charged with executing the Proclamation by providing support and coordinating the activities of the regional authorities. Regional governments have an obligation to establish a competent organization to implement the rural land administration and land use law.

According to the Proclamation, where land, which has already been registered, is to be acquired for public works. Compensation commensurate with the improvements made to the land shall be paid to the land use holder or substitute land shall be offered. The Proclamation imposes restrictions on the use of various categories of land, for example wetland areas, steep slopes, land dissected by gullies, etc.

2.4.7 Wildlife Development, Conservation and Utilization Proclamation

The proclamation on Development, Conservation and Utilization of Wildlife (No. 541/2007) clearly demarcates the responsibility of the federal and regional governments, encouraging the involvement of local communities residing around conservation areas, and the private investors in the management of protected areas. The proclamation has the following major objectives;

- Conserve, manage, develop and properly utilize Wildlife resources of Ethiopia.
- Creates conditions necessary for discharging governmental obligations assumed under treaties regarding the conservation, development and utilization of Wildlife, and
- Promote Wildlife based tourism and encourage other Wildlife investments.

The law also encourages the possibility of designing and administering protected areas by the federal and regional governments, private investors and local communities with respect to the criteria maintained in the proclamation. The law allows some activities; sport hunting under permission of the authority, trade on wildlife and their products under license, and support benefit sharing mechanisms among federal, regional and local community from wildlife income.

The aforementioned Wildlife legislation has been supported by Ethiopian Wildlife Regulation (No. 163/2008). According to this regulation, inside protected areas (i.e., National Parks, Wildlife Sanctuaries and Wildlife Reserves) the following activities are prohibited.

- Passing or transferring of any weapon
- Hunting or fishing
- Propelling any vehicle, aircraft or boat during hours not allowed.
- Picking, disturbing, destroying, damaging or defacing any natural or manmade object.
- Undertaking agricultural activities or preparing land for cultivation.
- Allowing grazing and watering domestic animals.
- Allowing passing through or keeping any domestic or wild animals those are stranger to an area.
- Undertake exploration and mining in the protected areas.
- Planting, cutting, chopping, removing, taking, damaging or transferring any plant species.
- Setting or attempting to set fire.
- Bee keeping or honey harvesting, removing or attempting to remove Wildlife products.
- Constructing roads or other structures or spoiling or disturbing the existing natural landscapes.
- Using spraying or disposing any pesticides or herbicides.
- Selling or offering for sale any goods or providing services, and
- Displaying any notice or advertisement at critical wildlife areas.

2.4.8 Proclamation on Public Health

Public Health Proclamation (Proc. No. 200/2000) entered into force in March 2000.The Council of Ministers may issue regulations for the implementation of this proclamation, and the Ministry of Health may issue directives for the implementation of the regulations issued under this Proclamation. The objectives of the Proclamation include: enhancing popular participation in implementing the country‘s health sector policy, promoting attitudinal changes through primary health care approach and promoting healthy environment for the future generation.

The Proclamation has five parts. Part one is called ‗General ‘, and focuses on titles and definitions. Part two deals with establishment of an advisory Board with powers and duties, whereas Part three is about appointment of Inspectors with powers and duties respectively. Part four is very comprehensive with 11 articles and other numerous sub articles on public health. The major articles under Part four of this Proclamation include: food quality control, food standard requirements, water quality control, occupational health control and use of machinery, waste handling and disposal, availability of toilet facilities, control of bathing places and pools, disposal of dead bodies, control at entrance and exit ports, communicable diseases and the requirement of health permit and registration before resumption and after completion of construction. Part five is on Miscellaneous Provisions-including obligation to cooperate, penalty, repealed and applicable laws, power to issue regulations, power to issue directives and effective date.

2.4.9 Proclamation on Research and Conservation of Cultural Heritage

The Authority for Research and Conservation of Cultural Heritage (ARCCH) has been established by Proclamation No. 209/2000 as a government institution with a legal personality. The Proclamation has also provisions for the management of cultural heritages in part two, exploration, discovery, and study of Cultural Heritages in part three, and miscellaneous provisions in part four.

Article 41 of the Proclamation deals with Fortuitous Discovery of Cultural Heritages and Sub-Article 1 states that any person who discovers any Cultural Heritage in the course of an excavation connected to mining explorations, building works, road construction, or other similar activities or in the course of any other fortuitous event, shall forthwith report to the Authority for Research and Conservation of Cultural Heritage (ARCCH), and shall protect and keep it intact until the Authority takes delivery thereof. Sub-Article 2, on the other hand, states that the Authority shall, upon receipt of a report submitted pursuant to Sub-Article (1) hereof, take all appropriate measures to examine, take delivery of and register the Cultural Heritage so discovered.

2.4.10 Proclamations on Persons with Disability and Vulnerable groups

Proclamation No. 568/2008 is on rights to employment for Persons with Disabilities: makes null and void any law, practice, custom, attitude, and other discriminatory situations that limit equal opportunities for persons with disabilities. It also requires employers to provide an appropriate environment for work, training and take affirmative measures, particularly when employing women with disabilities.

2.5 Administrative and institutional frameworks

The Proclamation for the Establishment of Environmental Protection Organs, No. 295/2002, was issued a series of institutional mandates that extend powers and duties of the Environment Forest and Climate Change Commission (EPA) and the Environmental Protection Council (EPC) beyond those defined in the enabling legislation frameworks down to lower administrative levels.

2.5.1 National Environmental Institutional Frameworks

The administrative structure of the country is based on a Federal System that has 10 regional states and two special city administrations. At national level, the environmental protection activities are directed through three levels of institutional arrangements; the Environmental Protection Council, the Environment Forest and Climate Change Commission and the Inter-ministerial Commissions coordinating mechanisms.

2.5.1.1 Environmental Protection Council

The proclamation for the establishment of Commission of Environment, Forest and climate change established Environmental Protection Council to ensure integration of environmental concerns with development policies, strategies and plans as well as coordination among sectors. The council is composed of Minister of Agriculture, Minister of Trade and Industry, Minister of Mines and Energy, Commissioner of Science and Technology, and Minister of Irrigation and Electricity. The General Manager of the council is Commission of Environmental Protection Authority. Although basic involvement of line sectors does not change based on their attachment with environmental and social aspects, the council roles and responsibilities remain the same.

2.5.1.2 National Environmental Protection Authority

The National Environmental Protection Authority (EPA) re-established under proclamation No.803/2013. It has a broad mandate covering environmental matters at federal level. Some of the powers and duties are:

- Coordinate measures to ensure that environmental objectives provided under the constitution and the principles set out in environmental policy are realized;
- Establish a system for environmental impact assessment of public and private projects, as well as social and economic development policies, strategies, laws and regulation; and
- Establish a system to evaluate environmental impact assessment submitted by their respective proponent, by the concerned licensing organ, or the concerned regional organ prior to granting permission for implementation in accordance with environmental impact assessment proclamation.

2.5.1.3 Inter-ministerial Commissions and Coordinating Mechanisms:

Besides the Environmental Protection Authority and the Environmental Protection Council, there are a number of inter-ministerial commissions that are established in the form of standing national committees and boards to deliberate upon issues relevant to their functional areas. These committees and boards facilitate cooperation and coordination among different government ministries, authorities, commissions and NGOs and other relevant organizations regarding issues related to Ethiopian environmental conditions.

2.5.2 Ministry of Water and Energy (MoWE)

The Ministry of Water and Energy is the regulatory body for the energy sector, which was established with the powers and duties to:

- Promote the development of water resources and energy.
- Undertake basin studies.
- Determine conditions and methods required for the optimum and equitable allocation and utilization of water bodies that flow across or lie between more than one regional state among various uses and the regional states.
- Undertake studies and negotiations of treaties pertaining to the utilization of boundary and trans-boundary water bodies and follow up the implementation of same.
- Administer dams and water structures constructed by the federal budget unless they are entrusted to the authority of other relevant bodies.
- In cooperation with the appropriate organs, prescribe quality standards for waters to be used for various purposes.
- Undertake studies concerning the development and utilization of energy; and promote the growth and expansion of the country's supply of electric energy; and
- Promote the development of alternative energy sources and technologies.

2.5.3 Ethiopian Wildlife Conservation Authority (EWCA)

Ethiopian Wildlife Conservation Authority (EWCA) is a governmental organization under the Ministry of culture & tourism given the authority to undertake conservation and sustainable utilization of wildlife in Ethiopia. It was created in 2008, manages 13 National Parks, Wildlife Reserves, and Sanctuaries, measuring over 3.75 million hectares of natural habitat, including 1.8 million hectares of forest and woodlands. This represents almost 20% of the total remaining natural forest cover in Ethiopia. Much of the remaining forest is found in Forest Priority Areas and Controlled Hunting Areas, managed by various regional authorities. In protected areas managed by regional authorities, EWCA retains a regulative authority in terms of wildlife utilization (e.g.: quota setting, licensing, issuing permits, etc.).

2.5.4 Regional Environmental Protection Agencies

EPA proclamation No.295/2002 states that each National Regional States shall establish an independent Regional Environmental Agency or designate an existing agency based on the Ethiopian Environmental Policy and Conservation Strategy of Ethiopia to ensure the environmental protection activities and environmental impact assessment. The national provisions indicate that Federal Environmental Protection Authority devolves responsibilities to the regional environmental body, especially for projects that fully fall under the jurisdiction of the Regional Governments.

2.5.4.1 Oromia Environmental Protection Authority

In the light of EPA proclamation No.295/2002, the Oromia environmental Protection Authority is structured under the Regional Council. The regional environmental body is entitled to coordinate the formulation, implementation, review and revision of regional conservation strategies, and also

environmental monitoring, protection and regulation. The proclamation also states that regional environmental agencies shall ensure implementation of federal environmental standards or, as may be appropriate, issue and implement their own no less stringent standards.

As this project will be implemented in 8 districts of Borana Zone; the Oromia Environmental Protection Authority is responsible for environmental protection matters in the zone directly or indirectly by its zonal EPA and the districts line sectors. OEPA is responsible for the review and approval of ESIA of development proposals under the mandate of the Federal State and follow-up of the implementation of ESIA recommendations of such proposals.

Hence, project proponent (Oromia water and Energy Bureau) should work in close coordination with the environmental bodies (At the region and zonal level) to ensure that the adverse environment effects of development proposals are properly identified and their mitigation or management actions incorporated in the project design or planning and implementation at the right time.

2.5.5 Zone and District Environmental Protection Authorities

Similar to the regional environment sector, the Borana Zone Environmental Protection Authority is structured under the Borana Zone Council and each project Districts Environmental Protection Authorities are structured under each District Councils.

The district administration is a major decision-making government organ. The district administration has the following duties and responsibilities, among others:
Implementation of the policies, laws, and directives of the state.

- Coordination of the activities of various offices in the district.
- Maintenance of peace and security in the district, directing the police and security forces.
- Ensure participatory Planning and implementation of projects which allows different stakeholders and the people of the district to take part from planning to the last evaluation process.
- Supervision of development programs within the district.
- Preparation and approval of the district budget
- Proper use and accounting for the annual budget.
- Administering and protecting the natural resources of the District.
- Ensure good governance by improving public service delivery, and
- Ensuring grass roots participations, maintaining upward and downward accountability.

The district administration has given some discretionary powers and functions by the regional government which includes approval of district's social service, economic development, and administrative plans and programs, levying and collecting land use taxes, agricultural income revenues and other local taxes, utilizing the district source of revenues, excluding such other revenue allocated and administered by regions. They are the key focus of the government's commitment to decentralized delivery of services. At this level various offices accountable to the administration has been established to perform and ensure wellbeing of the socioeconomic, environmental, good governance, and peace and stability of the respective district.

Following the districts, Kebele is the lowest administrative level structure. It generally comprises sub-kebeles and is headed by an elected chairman. The main responsibilities of the Kebele administration include:

- Preparation of an annual Kebele development plan; ensuring the collection of land and agricultural income tax;
- Organizing local labor and in-kind contributions for development activities; and
- Resolving conflicts within the community through the social courts.

Regarding this specific proposed project where the power line runs through districts and kebeles will have a great role and interest in the implementation of the project.

2.6 Environmental assessment guidelines

With a view to implement the environmental laws, environmental guidelines have been issued by the EPA. Among these are the technical and procedural ESIA guidelines, which were issued in 2000 and 2003 respectively. They are intended to guide developers, competent agencies and other stakeholders in carrying out ESIAs.

The Guidelines follow the conventional pattern adopted in many other countries and make provision for screening, scoping, identification and evaluation of impacts, the development of environmental management and monitoring plans, consideration of alternatives, ESIA report structure and information requirements, etc. The procedural guideline details the required procedures for conducting an ESIA, the permit requirements, the stages and procedures involved in ESIA process, and the roles and responsibilities of parties involved in the ESIA process. It also includes the categories of projects (schedule of activities) concerning the requirement of ESIA, and list of project types under each category.

The technical guideline specifies tools particularly standards and guidelines that may be considered when engaging in the ESIA process, and detail key issues for environmental assessment in specific development sectors. The Guideline provides the categories, the relevant requirements for an ESIA and lists project types under each category. In accordance with this Guideline, projects are categorized into three schedules:

- **Category 1** Projects which may have adverse and significant environmental impacts and therefore, require a full Environmental Impact Assessment;
- **Category 2** Projects whose type; scale or other relevant characteristics have potential to cause some significant environmental impacts but are not likely to warrant a full ESIA study; and
- **Category 3**: Projects which would have no impact and do not require an ESIA.
- The proposed Galchet Sarite Water Supply project as a project with a potential of significant impact would fall into Category 2.

The ESIA laws and guidelines of Ethiopia require the preparation of environmental impact statement (ESIA report) and its submission to the EPA or REA for projects requiring ESIA. The legal documents also state that an ESIA report should contain sufficient information that enable

the determination of whether or under what conditions the project should proceed. Furthermore, they include a list of contents that should be in the report as a minimum requirement.

2.7 The African Development Bank Environmental and Social Policies, Procedures and Standards

The environmental and social safeguards of the African Development Bank (AfDB, or the Bank) are a cornerstone of the Bank's support for inclusive economic growth and environmental sustainability in Africa. As the Bank adapts to emerging environmental and social development challenges, safeguards can quickly become out of date. To this end, AfDB has developed an Integrated Safeguards System (ISS) based on the two previous safeguard policies namely; Involuntary Resettlement (2003) and Environment (2004) and other three cross-cutting policies and strategies: Gender (2001), the Climate Risk management and Adaptation Strategy (2009) and the Civil Society Engagement Framework (2012).

Bank's sector policies: Health (1996), Integrated Water Resources Management (2000), Agriculture and Rural Development (2000, 2010), and Poverty Reduction (2004). It brings these policies and strategies into a consolidated framework that is intended to enhance the effectiveness and relevance of the Bank's work. The ISS consists four interrelated components;

- ***The Integrated Safeguards Policy Statement*** – Describes common objectives of the Bank's
  safeguards and lays out policy principles. It is designed to be applied to current and future lending modalities, and it takes into account the various capacities and needs of regional member countries in both the public and private sectors.
- ***Operational Safeguards (OSs)*** – are a set of five safeguard requirements that Bank clients are expected to meet when addressing social and environmental impacts and risks.
- ***Environmental and Social Assessment Procedures (ESAPs)*** – provide guidance on the specific procedures that the Bank and its borrowers or clients should follow to ensure that Bank operations meet the requirements of the OSs at each stage of the Bank's project cycle.
- ***Integrated Environmental and Social Impact Assessment (IESIA)*** – Guidance Notes provide technical guidance to the Bank's borrowers or clients on standards on sector issues, such as roads and railways, hydropower, or fisheries, or on methodological approaches clients or borrowers are expected to adopt to meet OS standards.

The operational safeguards are the major components of the Bank's ISS intended for:

- Better integrate considerations of environmental and social impacts into Bank operations to promote sustainability and long-term development in Africa
- Prevent projects from adversely affecting the environment and local communities or, where prevention is not possible, minimize, mitigate and/or compensate for adverse effects and maximize development benefits;

- Systematically consider the impact of climate change on the sustainability of investment projects and the contribution of projects to global greenhouse gas emissions
- Delineate the roles and responsibilities of the Bank & its borrowers or clients in implementing projects, achieving sustainable outcomes & promoting local participation; &
- Assist regional member countries and borrowers/ clients in strengthening their own safeguards systems and their capacity to manage environmental and social risks.

2.7.1 The 2013 Integrated Safeguards Systems (ISS) of the AfDB

Environmental and Social sustainability is a key to economic growth and poverty reduction in Africa. The Bank's Strategy for 2013-2022 emphasizes the need to assist regional member countries in their efforts to achieve inclusive growth and transition to green growth. In addition, the Bank is committed to ensuring the social and environmental sustainability of the projects it supports. The ISS is designed to promote the sustainability of project outcomes by protecting the environment and people from the potentially adverse impacts of projects. The safeguards aim to:

- To identify and assess the environmental and social impacts (including gender) and climate change vulnerability issues of Bank lending and grant financed operations in their area of influence;
- Avoid adverse impacts of projects on the environment and affected people, while maximizing potential development benefits to the extent possible;
- Minimize, mitigate, and/ or compensate for adverse impacts on the environment and affected people when avoidance is not possible;
- Ensure that affected communities have timely access to information in suitable forms
- About Bank operations and are consulted meaningfully about issues that may affect them; and
- Help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.
- The Bank requires that borrowers/ clients comply with these safeguards' requirements during project preparation and implementation. The Integrated Safeguards Policy Statement sets out the basic tenets that guide and underpin the Bank's approach to environmental safeguards.

2.7.2 Operational Safeguard of African Development Bank

The AfDB (the Bank) has adopted five OSs, limiting their number to just what is required to achieve the goals and optimal functioning of the ISS. Considering the nature and scope of the proposed the Phase-1 Water Supply project, except OS 2 all the other four OSs are triggered.

2.7.2.1 Operational safeguard 1 (OS1):- Environmental and Social Assessment:

This OS1 is the overarching safeguard that governs the process of determining a project's environmental and social category and the resulting environmental and social assessment requirements. The objective is to mainstream environmental and social considerations—including those related to climate change vulnerability—into Bank operations and thereby contribute to sustainable development in the region. It also ensures that appropriate decisions are taken through a comprehensive analysis of various activities and their respective likely impacts.

This OS will be triggered if the project is likely to have potential (adverse) environmental risks and impacts on its area of influence.

The specific objectives are to:

- Mainstream environmental, climate change, and social considerations into Country Strategy Papers (CSPs) and Regional Integration Strategy Papers (RISPs);
- Identify and assess the environmental and social impacts and risks—including those related to gender, climate change, and vulnerability—of Bank lending and grant-financed operations in their areas of influence;
- Avoid or, if avoidance is not possible, minimize, mitigate and compensate for adverse impacts on the environment and affected communities;
- Provide for stakeholders' participation during the consultation process so that affected communities and stakeholders have timely access to information in suitable forms about Bank operations, and are consulted meaningfully about issues that may affect them;
- Ensure the effective management of environmental and social risks in projects during and after implementation; and
- Contribute to strengthening regional member country (RMC) systems for environmental and social risk management by assessing and building their capacity to meet AfDB requirements set out in the Integrated Safeguards System (ISS).

This section covers areas related to the general environment i.e., physical (land, water, air, climate,), socio-economic and cultural (occupational, gender, human well-being, and safety; physical cultural resources) of the community, trans-boundary, global impacts including pollution control (greenhouse gas (GHG) emissions), and vulnerability to climate-change effects. Environmental and Social Impact Assessment (ESIA) is conducted to identify the various hazards or risk assessments and recommended the respective mitigation measures to be included in the environmental and social management plan (ESMP). The Borrowers or clients are responsible for conducting the environmental and social assessment (Strategic Environmental and Social Assessment, or SESA, or Environmental and Social Impact Assessment, or ESIA) and for developing, as an integral part of project documentation, an appropriate plan for managing possible impacts and additional actions and assessments. These are Environmental and Social Management Plans; climate change vulnerability assessment; public consultation; community impacts; appraisal and treatment of vulnerable groups; and grievance procedures.

Due to the scale and nature of the proposed *Phase 1 project of BRWDL program* activities, it is anticipated adverse environmental and social impacts will be generated on the nearby environmental and social environment, and thus this OS 1 is triggered. The Project has been subjected to full ESIA to meet this policy requirement which makes the proposed project eligible for the African Development Bank (AfDB) financing. The environmental and social impact assessment will include the project area of influence, a comprehensive scoping of the project's components, consideration of alternatives, assessment of impacts, including cumulative impacts, where relevant, mitigation and management measures, etc. In this regard, the Borrower or client (Oromia Water and Energy Bureau) is responsible for conducting the environmental and social

assessment and developing and disclosing an Environmental and Social Impact Assessment (ESIA), acceptable to the bank standard before the commencement of project construction.

2.7.2.2 Operational Safeguard 2 (OS2): Involuntary Resettlement: Land Acquisition, Population Displacement, and Compensation:

This safeguard consolidates the policy commitments and requirements set out in the Bank's policy on involuntary resettlement, and it incorporates refinements designed to improve the operational effectiveness of those requirements. In particular, it embraces comprehensive and forward-looking notions of livelihood and assets, accounting for their social, cultural, and economic dimensions. It also adopts a definition of community and common property that emphasizes the need to maintain social cohesion, community structures, and the social inter-linkages that common property provides. The OS2 aims to facilitate the operationalization of the Bank's 2003 Involuntary Resettlement Policy in the context of the requirements of OS1 and thereby mainstream resettlement considerations into Bank operations.

The specific objectives of this OS 2 are to:

- To avoid involuntary resettlement where feasible, or minimize resettlement impacts where involuntary resettlement is unavoidable, explore all viable project designs;
- To ensure that displaced people receive significant resettlement assistance, preferably under the project, so that their standards of living, income earning capacity, production levels, and overall means of livelihood are improved beyond pre-project levels; and
- To set up a mechanism for monitoring the performance of involuntary resettlement programs in Bank operations and remedying problems as they arise so as to safeguard against ill-prepared and poorly implemented resettlement plans.

The safeguard retains the requirement to provide compensation at full replacement cost; reiterates the importance of resettlement that improves standards of living, income-earning capacity, and overall means of livelihood; and emphasizes the need to ensure that social considerations, such as gender, age, and stakes in the project outcome, do not disenfranchise particular project-affected people. Given the nature and scope of the proposed project activities which result in no economical and physical displacement, this OS 2 is not triggered.

2.7.2.3 Operational Safeguards 3: Biodiversity and Ecosystem Services

The overarching objective of this safeguard is to conserve biological diversity and promote the sustainable use of natural resources. It translates into OS requirements the Bank's commitments in its policy on integrated water resources management and the UN Convention on Biological Diversity. The specific objectives of this OS 3 are:

- To preserve biological diversity by avoiding, or if not possible, reducing and minimizing impacts on biodiversity;
- In cases where some impacts are unavoidable, to endeavor to reinstate or restore biodiversity including, where required, the implementation of biodiversity offsets to achieve "not a net loss but net gain" of biodiversity;
- To protect natural, modified, and critical habitats; and

- To sustain the availability and productivity of priority ecosystem services to maintain benefits to the affected communities and to sustain project performance.

The safeguard reflects the importance of biodiversity on the African continent and the value of key ecosystems to the population, emphasizing the need to "respect, conserve and maintain the knowledge, innovations, and practices of indigenous and local communities to protect and encourage customary use of biological resources, in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements. Given the nature and scope of the proposed project activities which possibly result in a negative impact to the nearby natural habitat and biodiversity, economical and physical displacement, this OS 3 is triggered.

2.7.2.4 Operational Safeguards 4- Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials, and Resource efficiency

This operational safeguard 4 outlines the main pollution prevention and control requirements for borrowers or clients to achieve high-quality environmental performance, and efficient and sustainable use of natural resources, over the life of a project (specifically to manage and reduce pollutants). It also covers the range of impacts of pollution, waste, and hazardous materials for which there are agreed-on international conventions and comprehensive industry-specific standards that other multilateral development banks follow. In addition, it introduces vulnerability analysis and monitoring of greenhouse gas emissions levels and provides a detailed analysis of the possible reduction or compensatory measures framework. The objectives of this OS are:

- To manage and reduce pollutants likely to be caused by a project so that they shall not pose harmful risks to human health and the environment, including hazardous, nonhazardous waste and GHG emissions; and
- To set a framework for efficiently utilizing all a project's raw materials and natural resources especially focusing on energy and water.

Due to the nature and scale of the proposed project, this OS 4 is triggered, as the project potentially intervenes in some resource utilization and generates wastes and hazardous materials during the construction phase that ultimately pose harmful risks to human health and the environment.

2.7.2.5 Operational Safeguards 5: Labor Conditions, Health and Safety

Labor is one of a country's most important assets in the pursuit of poverty reduction and economic growth. The respect of workers' rights is one of the keystones for developing a strong and productive workforce. This OS outlines the main requirements for borrowers or clients to protect the rights of workers and provide for their basic needs. The objectives of this OS are to:

- Protect the workers' rights and establish, maintain, and improve the employee
- Employer relationship;
- Promote compliance with national legal requirements and provide due diligence in case national laws are silent or inconsistent with the OS;
- Provide broad consistency with the relevant International Labor Organization (ILO) Conventions, ILO Core Labor Standards, and the UNICEF Convention on the Rights of the Child in cases where national laws do not provide equivalent protection;
- To protect the workforce from inequality, social exclusion, child labor & forced labor, and

- To establish requirements to provide safe and healthy working conditions.

The OS 5 establishes the Bank's requirements for its borrowers or clients concerning workers' conditions, rights, and protection from abuse or exploitation. It covers working conditions, workers' organizations, occupational health and safety, and avoidance of child or forced labor. It also ensures greater harmonization with most other multilateral development banks. Due to the scale and nature of the proposed water supply project which entails the establishment of a workforce during the project implementation period, this OS 5 is triggered.

2.7.3 Environmental and Social Assessment Procedures of AfDB on Public Sector Operations

The AfDB Environmental and Social Assessment Procedures (ESAP) on Public Sector Operations of June 2001 main purpose Procedures is to improve decision-making and project results in order to ensure that Bank-financed projects, plans, and programs are environmentally and socially sustainable as well as in line with the Bank's policies and guidelines. The ESAP intends to replace the actual procedures and integrate all crosscutting considerations into the new assessment process. The ESAP describes the various steps that shall be followed to mainstream cross-cutting issues along the project cycle, from country programming to post-evaluation. The first step consists in developing and updating baseline data on Regional Member Country's environmental and social components, policies, programs, and capacities to better integrate environmental and social dimensions into lending priorities during country programming. During the project identification phase, the screening exercise focuses on the environmental and social dimensions of a project to categorize it in one out of the four following categories.

Category 1: Projects likely to cause significant environmental and social impacts: Category 1 projects are likely to induce significant and/or irreversible adverse environmental and/or social impacts or to significantly affect environmental or social components that the Bank or the borrowing country considers sensitive. Some program-based operations or other regional and sector program loans have significant adverse environmental or social risks and are deemed to be Category 1. In some cases, projects are included in Category 1 because of their potential cumulative impacts or the potential impacts of associated facilities. Any project requiring a Full Resettlement Action Plan (FRAP) under the provisions of the Bank's policy on involuntary Resettlement is also deemed to be a Category 1.

Category 1 program-based operations or regional and sector loans require a SESA, and Category 1 investment projects require an ESIA, both leading to the preparation of an ESMP. For a project requiring a FRAP, the ESIA includes, and-if there are no other issues requiring assessment—may be limited to, the social assessment needed to prepare the FRAP.

Category 2: Projects that likely cause less adverse environmental and social impacts than Category 1: Category 2 projects are likely to have detrimental site-specific environmental and/or social impacts that are less adverse than those of Category 1 projects. Likely impacts are few in number, site-specific, largely reversible, and readily minimized by applying appropriate

management and mitigation measures or incorporating internationally recognized design criteria and standards.

An operation that involves resettlement activity for which Resettlement Action Plan (RAP) is required under the ESAPs is classified as Category 2. Most programmed based operations and regional or sector program loans designed to finance a set of subprojects approved and implemented by the borrower or client are included in this category unless the nature, scale, or sensitivity of the intended pipeline of subprojects involves either a high level of environmental and social risk or no such risk.

Category 2 projects require an appropriate level of environmental and social assessment (ESA) for program operations, investment plans, and some corporate loans, or ESIA for investment projects tailored to the expected environmental and social risk so that the borrower will prepare and implement an adequate ESMP (for an investment project) or ESMF (for a program operation), to manage the environmental and social risks of subprojects in compliance with the Bank's operational safeguards. Given the nature and scope of the proposed Phase 1 Project of Borana Resilient Water Development for Livelihood Program (BRWDLP), the Category is assigned as "Category 2".

Category 3: Bank operations with negligible adverse environmental and social risks: Category 3 projects do not directly or indirectly affect the environment adversely and are unlikely to induce adverse social impacts. They do not require an environmental and social assessment. Beyond categorization, no action is required. Nonetheless, to design a Category 3 project properly, it may be necessary to carry out gender analyses, institutional analyses, or other studies on specific, critical social considerations to anticipate and manage unintended impacts on the affected communities.

Category 4: Bank operations involving lending to financial intermediaries*:* Category 4 projects involve Bank lending to financial intermediaries (FIs) that on-lend or invest in Subprojects that may produce adverse environmental and social impacts. Financial intermediaries include banks, insurance, reinsurance, and leasing companies, microfinance providers, private equity funds, and investment funds that use the Bank's funds to lend or provide equity finance to their clients.

Financial intermediaries also include private or public sector companies that receive corporate loans or loans for investment plans from the Bank that are used to finance a set of subprojects. Financial intermediary subprojects equivalent to Category 1 and Category 2 are subject to the relevant OS requirements as if they were directly financed Category 1 or Category 2 projects. However, if a client will use a Bank corporate loan to finance high-risk investment projects known at the time of loan approval, the loan can be considered Category 1 or 4(1) requiring an ESMS as well as detailed ESA studies. In cases where a Bank corporate loan will be used by the client to finance low-risk investment projects known at the time of loan approval, the loan can be deemed to be Category 2 or 4(2) requiring an ESMS as well as a detail abbreviated ESA studies. In cases where a Bank corporate loan will be used by the client to finance no-risk investment

projects known at the time of loan approval, the loan can be deemed to be Category 3 or 4(3) for which no ESA studies are required.

FIs are required to apply the Bank's OSs and equivalent procedures to their subprojects and to comply with local environmental and social requirements. The FI must demonstrate to the Bank that it has developed and will maintain an Environmental and Social Management System (ESMS) is in line with the Bank's OSs and appropriate for the scale and nature of its operations – recognizing that FIs' operations vary considerably and, in some cases, may pose a minimal environmental and social risk. The FI must also demonstrate that it has the management commitment, organizational capacity, resources, and expertise to implement its ESMS for its subprojects. The Bank shall carry out due diligence of the ESMS and the FI's organizational capacity before approving the loan. The FI shall make a summary of the ESMS available to the public locally, e.g. on its website, before the loan can be approved. In addition, for a category 1 project, if an OS is triggered, the requirements of this specific OS should be met by the project.

In view of the above categorization, a large water supply and sanitation project will possibly fall under Category I or II depending on the anticipated severity of impacts. Those projects assigned under category 1 usually require a full ESIA study. But those in category II pose medium impacts and require moderate environmental analysis. However, if a category II project is located in or close to environmentally sensitive areas it should be treated as equivalent to a Category I project.

In this regard, as stated above, according to the AfDB's project categorization, the proposed Phase I project of Borana Resilient Water Development for Improved Livelihood Program (BRWDLP) falls under Category- II or Schedule 2, as per the national Environmental Impact Assessment (EIA) Procedural Guidelines (November 2003).

2.8 Regional and International Multilateral Agreement

In addition to national environmental legislations, Ethiopia is also a party to a number of regional and international conventions and protocols pertaining to the environment and which are of relevance to the project. The international agreement to which Ethiopia is a signatory include the following.

- **Convention on Biological Diversity, 1992:** The three goals of this convention are the conservation of biodiversity; the sustainable use of the components of biodiversity; and the fair and equitable sharing of the benefits arising from the use of genetic resources. The Convention was ratified by Ethiopia by Proclamation No. 98/94, on May 31, 1994. By Proclamation No. 362/2003; Ethiopia has ratified the Cartagena Protocol on Biosafety to the Convention on Biological Diversity.
- **United Nations Framework Convention on Climate Change (UNFCCC), 1992:** Ethiopia Ratified this convention through Proclamation No. 97/1994 on May 2/1994. This convention takes into account the fact that climate change has trans-boundary impacts. The basic objective of this convention is to provide for agreed limits on the release of greenhouse gases into the atmosphere so as to prevent the occurrence of climate change. It also aims to prepare countries to minimize the impact of climate change should it occur.

- **The Basel Convention, 1989:** The objective of the Basel Convention is to control and regulate the trans-boundary movement of hazardous wastes and their disposal adopted on 22 March 1989. The Bamako Convention of 1991 plays a similar role at the level of the African continent. Ethiopia ratified the Basel Convention through its Proclamation No. 357/2002. Its amendment was ratified through Proclamation No. 356/2002. The country has also ratified the Bamako Convention through Proclamation No. 355/2002.
- **The Stockholm Convention:** In the year 2002, Ethiopia fully accepted and ratified the Stockholm Convention on Persistent Organic Pollutants by proclamation No. 279/2002 was designed to ban the use of Persistent Organic Pollutants (POPs). The EPA has the full mandate to implement the Convention at the national level.
- **The Rotterdam Convention:** The Rotterdam Convention on Prior Informed Consent (PIC) relates to prior informed consent in the context of international trade in specific hazardous chemicals and pesticides. The federal EPA is the organ responsible for the domestic implementation of this convention, which has been ratified by Ethiopia Proclamation No. 278/2002.
- **Convention on the protection of World Cultural and Natural Heritage:** Each state party to this Convention recognizes the duty of ensuring the identification, protection, conservation, preservation, and transmission to the future generation of the culture and natural heritage situated on its territory, belongs primarily to the state. Ethiopia has ratified this convention in 1997. Convention on the means of prohibiting and preventing the Elicit, Import, Export, and Transfer of ownership of cultural property: The states parties undertake to oppose such practices with the means at their disposal, particularly by removing their causes, putting a stop to current practices, and by helping to make the necessary preparations. Ethiopia ratified this convention in 2003.
- **UNESCO's Conventions and Recommendations:** Standards for the protection and management of cultural heritage, in general, have been issued by a variety of institutions; foremost among these are the United Nations Educational, Scientific and Cultural Organization (UNESCO); the International Council on Monuments and Sites (I COMOS); the Council of Europe (COE); and national governments. Most of these standards pertain to material culture, often termed 'tangible' cultural heritage; however, there is increasing attention also to 'intangible' heritage, including the products and processes of artistic and creative expression.

Of the above, the UNESCO standard-setting documents consist mainly of conventions and recommendations. The five UNESCO conventions regarding cultural heritage include armed conflict (1954); illicit trade (1970); world heritage (1972); underwater cultural heritage (2001); and intangible cultural heritage (2003). Of the five, the 1972 'World Heritage Convention,' which provides for the designation of World Heritage Sites, is by far the most popular and widely known. Ethiopia has been a member of UNESCO since 1976.

In addition to the conventions, from 1956 to 1980, UNESCO issued recommendations in order to encourage international and regional cooperation, and especially, improvement in the management of cultural heritage at the national level. Recommendations were issued on numerous subjects, including international competitions in architecture and town planning (1956);

safeguarding the beauty and character of landscapes and sites (1962); prohibiting and preventing the illicit export, import, and transfer of cultural property (1964); preservation of cultural property endangered by public or private works (1968); protection, at the national level, of the cultural and natural heritage (1968); safeguarding and contemporary role of historic areas (1976) and protection of movable cultural property (1978).

3. PROJECT DESCRIPTION

3.1 Location and Accessibility

The center of the Phase 1 Water Supply Project under the BRWDLP is at Yabello Town. The town is at 568 km south of Addis Ababa, the capital of Ethiopia, on the main asphalt road to Moyale on the Kenyan border. The water source is groundwater which is planned to be abstracted from 11 Boreholes found at Galchet and Sarite areas**.**

The project areas are all accessible. One of the Wellfields is found in Galchet kebele of Elweya district of Borana Zone at about 80 km from asphalt road and the other Wellfield is located in Sarite of Elweya district at about 62 km from Yaballo Town to the northwest direction along the Yaballo-Taltalle asphalt road. The general location of the project area is shown in Figure3.1 below.

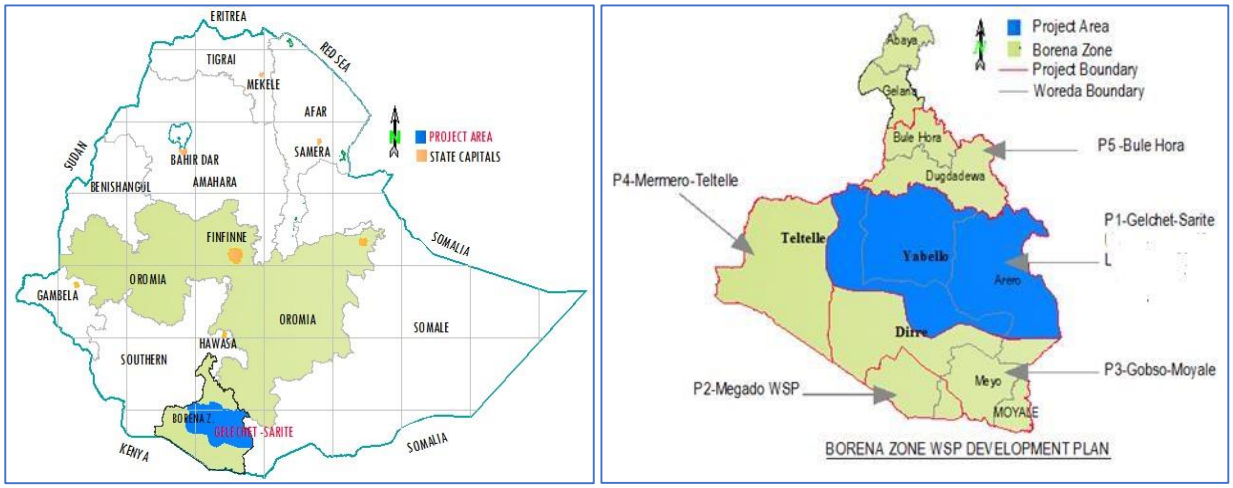

Figure3.1: Location of Galchet Sarite Water Supply

The project is to be financed and built in two phases. Phase 1 will bring bulk water from the wellfield to Simu Command Reservoir as well as to villages located near the wellfield, while other phases of the program will extend the water supply from Simu to five urban centers. The scope of the current ESIA study is limited to Phase 1, which encompasses well fields, main transmission line to main reservoir and the reservoir.

The detail design of the water collection and transmission system includes the water system components of the project from the Wellfield to Simu Hilltop Reservoir (SIR-1716) shown in Figure3.2 below.

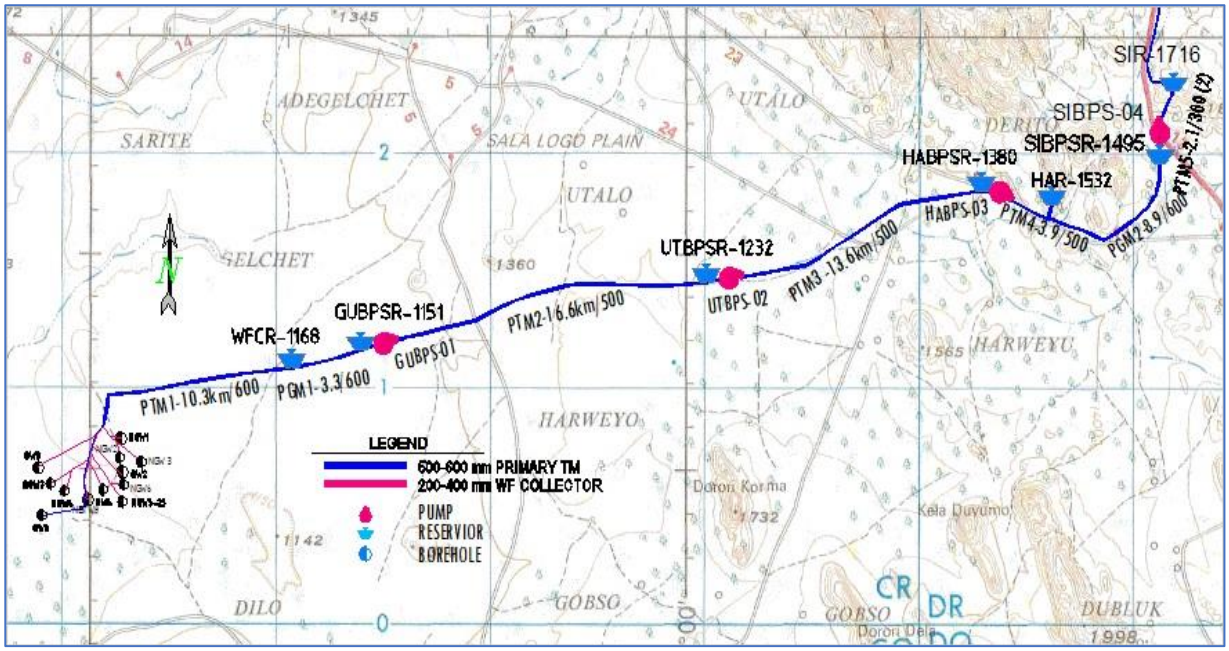

Figure3.2*:* General layout of the project from Wellfield to Simu Reservoir

The general layout of the system components to be designed under this section are:

- Riser Pipes, for Conveying Water from Submersible Pumps to Subsidiary Collectors.
- Subsidiary Collectors Pipes, for Conveying Water from Riser Pipes to Main Collector Pipes.
- Primary Transmission Mains (PTM) or Primary Gravity Mains (PGM) for Conveying Water from Main Collector Pipes to Collector/Transfer Reservoirs.
- Borehole Submersible Pumps for Lifting water from Boreholes Dynamic Water Levels to Collector Reservoirs.
- Surface Centrifugal Pumps for Lifting and conveying from one Booster Pump Station to the consecutive stations or Terminal Reservoirs.
- Collector and Transfer Reservoirs.
- All related Electro-Mechanical Equipment and Power Supply, and
- All relevant Civil Engineering Works.

3.2 Project Components

The Borana Resilient Water Development for Improved Livelihood Program (BRWDLP) components will include: (i) Water Development for Multi-Sector Use, including institutional sanitation interventions, (ii) Integrated Watershed Management, and (iii) Institutional Strengthening and Project Management. The program will be implemented in two phases. Phase I will be financed by the Bank. This phase will be implemented over a 4-year duration and will provide water services for an estimated 25,000 people and 83,000 livestock (Figure 3.1), and Phase II : The additional financing required to implement the program to cover the remaining 6

water supply routes of Arero, Dubluk, Surupha, Elweya, Weib and Sarite-Sabba. This phase will provide additional services for an estimated 260,000 people and 837,000 livestock.

3.2.1 Phase 1 component description

Component 1- Water Development for Multi-Sector Use. This component will finance investments in climate-resilient multiple-use water infrastructure, which includes groundwater development in the Gelchet wellfield, construction of the wellfield area water supply route (including the backbone, water collection, and transmission to Simu Hilltop Reservoir and last-mile connectivity), livestock watering troughs, and associated infrastructure for smallholder agriculture. Phase I of the program will include the use of smarter water systems (e.g., deployment of Supervisory Control and Data Acquisition (SCADA)) system for strengthened efficiency. It will deploy climate-resilient water safety planning, including water quality monitoring, and explore private sector participation in the operation of the WSS facilities. The program will include the construction of sanitation facilities for schools, public places like markets and health facilities to contain/manage excreta safely and will complement interventions to improve health impacts, decrease school dropout rates, and reduce the contamination of water bodies. This component will also strengthen existing early warning systems and the information value chain, building on interventions carried out by the MWE. Phase 1 will also include a design review to strengthen readiness for program implementation of Phases 1 and 2. These investments will be the anchor assets around which other activities will capitalize and will strengthen the resilience and adaptive capacity of communities to droughts.

Component 2: Integrated Watershed Management. Based on a micro-watershed approach, this component will finance community-led physical and biological soil and water conservation measures for the protection of the water sources to reduce pollution. These will include (i) development of community-based micro watershed and source protection plans with climate adaptation mainstreamed; (ii) establishment of watershed management committees, rangeland route delineation, social mobilization, and capacity building; (iii) rangeland management; and (iv) technical support for target micro watershed/rangeland rehabilitation and livelihood activities, including tree planting and beekeeping. The program will emphasize the selection of technologies that do not encourage crowding to alleviate pressure on any single water point to avert degradation. The component will strengthen the provision of equal economic opportunities for women, men, and youth and provide opportunities for green jobs, 50% of which will be targeted for women and 25% for youth.

Component 3: Institutional Strengthening and Project Management. A project implementation team (PIT) will be staffed by experts at federal, regional and district levels. Financed activities will include: (i) operating costs of the PIT and the line departments responsible for program implementation; capacity building, strengthening utility management, including financial sustainability, through the introduction of affordable tariffs whilst ensuring sufficient cost recovery, staff costs for a program coordinator, accountant, procurement, safeguards, climate change, and gender specialists; (ii) nutrition-sensitive communications to promote WaSH in schools, health facilities, and households using existing local delivery platforms; (iii) knowledge

management and outreach; (iv) supervision quality control, contract management and safeguards compliance; (iv) program audits, studies under components 1 and 2; and (v) improvement of monitoring and evaluation systems.

Based on the project Detail Design Report for Galchet Sarite Water Supply phase I components, the project encompasses the following.

- 11 boreholes; drilled 9 boreholes at Galchet and 2 boreholes at Sarite Wellfield;
- 8 km Wellfield collector pipes and 84 km transmission mains;
- 6 on line reservoirs and one main reservoir at Simu Hilltop;
- Nine pumping stations (4 for boreholes and 5 for booster pumps);
- Nine Generator houses at pumping stations;
- Five operators' dwellings and 5 guardhouses;
- 4 submersible borehole pumps and 16 horizontal surface pumps;
- 4 and 8 power generators at borehole sites and booster pumping stations, respectively;
- A SCADA system, and
- Access road and other facilities (Operators dwelling, Guard house, fence with Gate, etc.).

3.2.2 Boreholes of the Wellfields

The Borehole sites are located at Galchet and Sarite wellfields located 80 and 62 km southwest and west of Yabello Town respectively, a total of 11 boreholes, 9 at Galchet and 2 at Sarite wellfields. At the borehole sites raw water extraction facilities (submersible electric pump and surface pipe work) and back-up generator set are to be established. Generator will be kept in a buildings comprising concrete slab structure with concrete brick walls and corrugated iron roofing. At the well field, the proposed plan also consists construction of operators' dwellings and guardhouses. The compound of all the borehole site facilities will be fenced by barbed wire. Relative location areas of the well fields is also shown in Figure3.3 on next page.

3.2.3 Wellfield Collector Pipes and Primary Transmission mains

Raw water from Galchet Wellfield boreholes will be collected by 8 km long collector pipes and lifted to Simu reservoir by 84 km long pipes crossing Addis Ababa-Moyale Road. The raw water transmission line will be laid at an average depth trench of 1.2 to1.4 meter. The major civil work expected along the route are excavation of trenches and pipe laying activities.

3.2.4 Command Reservoir (Simu Main Reservoir)

The command reservoir is to be located on Simu hill and has a capacity of 1000 m3 from which the water is to be conveyed to phase-II or future water supply pressure line routes. The Reservoir is expected to be concrete established on a concrete foundation. The proposed reservoir sites provide adequate elevation to allow gravity supply.

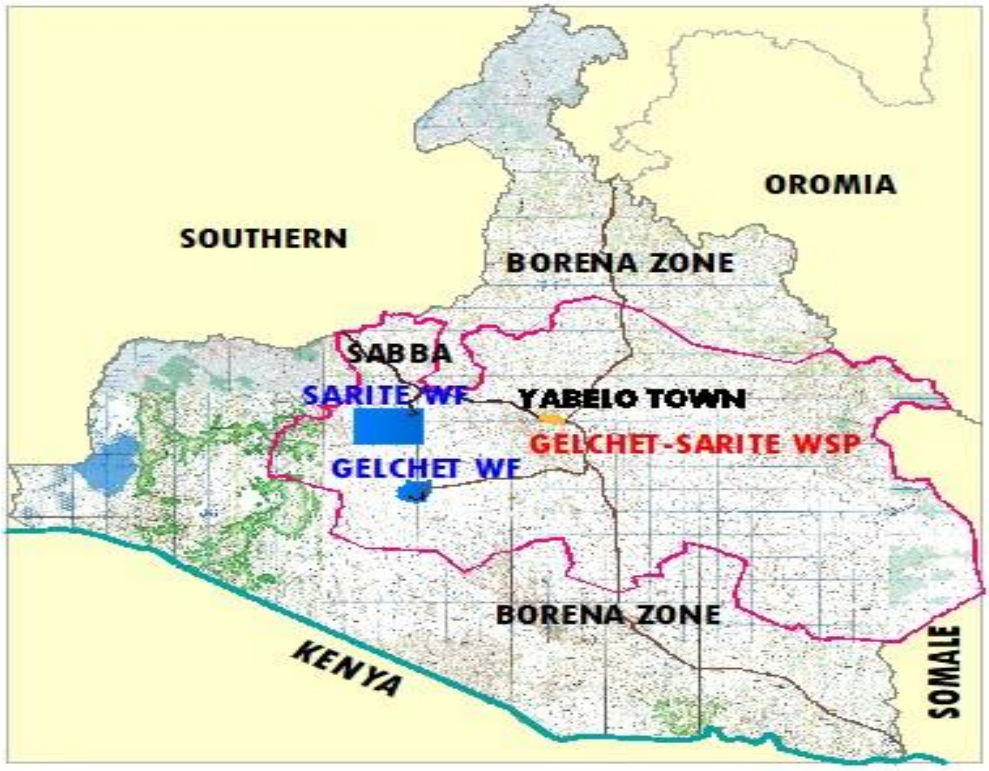

Figure3.3: Location of the Wellfields

4. BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

4.1 Physical Environmental Baseline Conditions

4.1.1 Topography

Topography of the project area is characterized by an expansive flat lowland spotted by hills at certain intervals with variation of ground elevations which range from 1,100 up to 2,495 m.a.s.l. The area is divided into three main physiographic regions; the eastern mountainous ridge and associated valleys, the central valley plain and inselbergs and the western warped plateau. Based on Digital Elevation Model (DEM) slope map analysis, about 60 percent of the phase-1 project areas of the program have slope class less than 5 percent slope gradient.

4.1.2 Geology and Soils

The local geology of Borana Zone comprises four major geological formations; Precambrian basement complex/crystalline rocks (consisting granite, gneisses and magmatite), Sedimentary deposit (sand stone and lime stone), Volcanic (Tertiary and quaternary basalt and tuff) and Quaternary deposit (alluvial deposit, alluvial-in situ weathering rock). Of these, the geology of the *Yabello* area is Precambrian basement complex, quaternary deposit and tertiary and quaternary volcanic are dominantly found followed one another.

4.1.3 Soils

There are eight major soils types found in Borana Zone. These major soils are Cambisols, Vertisols, Luvisols, Fluvisols, Leptosols, Calcisols, Andosols, and Nitisols. Camisols, Luvisols, Vertisols, and Nitosols are the dominant soil classes found in the zone. Of these major soil types the Cambisols, Fluvisols and Vertisols are found in the Phase-1 project area of the program at most. Fluvisols and Vertisols dominates the plain areas while Cambisols dominate the northern areas of Yabello and the project area.

4.1.4 Climate

The climate of the project area is characterized by semi-arid to sub moist lowlands (hot to warm thermal zone). The rainfall pattern of the area is Bimodal Type II with two growing periods. There are four seasons observed in the area; long rainy season called Ganna (March-May), cool dry season Adoolessaa (June to August), short rainy season Hagayya (September to November) and the dry season called Bona (December to February). The annual mean average rainfall ranges from 450-650mm.The rainfall is not only in intensity and duration but also its distribution is uneven and varies in area coverage. The mean annual temperature of the project area ranges of 17.5-27.5^{0}C and this temperature is within the ranges of physiological requirement for most agricultural production.

4.1.5 Climate Change

Impacts of climate change are manifested in the form extreme weather events like drought, heat waves, heavy rains, floods, storms, wildfire, etc. of which severe drought is repeatedly manifested in the project area. It affects all sectors indifferently, although agricultural activities especially

sensitive to weather variability and that can result in the agricultural sector being extremely vulnerable to climate change. Water availability likely decreases by climate change and recurrent droughts. Hence adaptation to climate change is not only the matter of maintaining the current agricultural production or safeguarding existence of farming communities, but also to reduce vulnerability of the future generation and ensuring sustainability.

As to the project area, the local community entirely depends on climate sensitive sector as their livelihood bases are livestock husbandry and crop production. The increased frequency of recurrent drought is hampering the productivity of the sector which is increasing number of peoples and livestock at risks. One season rain failure can result in strong shock to the livelihood system of the peoples of the project area. Therefore, climate smart development interventions are vital to adjust the system to the actual or expected climate stimuli.

Phase-I Project of the Program is, therefore, planned to use groundwater source as it is relatively climate resilient compared to others sources such as rivers and streams. As systems such as boreholes that draw water from large, permeable aquifers are the most resilient to all expected climate change impacts, the project shall consider the factor.

Piped distribution networks may be vulnerable to contamination and will be at increased risk where more frequent flooding occurs but are potentially resilient to wide range of climate change impacts. Technology to such climate change shall be considered as shown in Table4.1 below.

Table4.1: Resilience of the water technology to climate change

S. N	Level of Resilience	Technology
1.	Category-1: Potentially resilient to all expected climate changes	• Utility piped water supply • Boreholes (tube Wells)
2.	Category-2: Potentially resilient to most expected climate changes	• Protected springs and • Small piped systems
3.	Category-3: Potentially resilient to only a restricted number of climate changes	• Dug wells • Water harvesting
4	Technologies categorized by JMP (Joint Monitoring program on water supply and sanitation-WHO & UNICEF) as “not improved drinking water sources”	• Unprotected dug wells, • Unprotected springs, • Surface waters (Rivers, Dams, Lakes and Ponds), & • Bottled water

Generally, in order to manage impacts of climate related extreme weather events, adaptation of livelihood systems is very decisive. The adaptation mechanisms can include protecting ecosystems, improving agricultural methods, managing water sources, shifting settlements to relatively more safe areas, developing early warning systems, improving insurance coverage, developing social safety nets and enhancing public awareness and education

4.1.6 Recurrent drought

Drought is one of the major hydro-meteorological hazards often occurs in the project area. Based on information obtained from local elders, drought occurrence frequency of the Borana Zone is increasing from time to time and currently at the stage of threatening the livelihood of the community. The project study team realized that the prolonged drought resulted in migration of people because of increased pressure on water source and rangelands. As a result of mobility, lack of forage and water productivity and deaths livestock were realized. Hence, interventions in water sector will have immense contribution towards improving the livelihood of the local community.

4.1.7 Air quality

There are no industrial pollution sources in the project area, no road traffic and transportation density is extremely low to cause air pollution. For this reason, it was not necessary to consider the background air quality of the project area. Generally, the ambient air quality of the project area has no major sources of greenhouse gas (GHG) emissions in the Galchet Sarite Water Supply Project impact zone.

4.1.8 Noise

No data exist on the present noise situation. However, apart from traffic noise along the Moyale roads and urban noise in the main population centers, the background noise levels are considered insignificant. The project's impact zone is therefore not currently affected by significant noise pollution.

4.1.9 Water Resources

Surface Waters: Of few seasonal rivers in the zone the only seasonal and dry nearer to the project area on western side of the wellfield areas is the Golba Melka River. This seasonal streams flow during rainy season and it is turbid and carry a relatively high load of suspended materials due to sheet and gulley erosion created by torrential rains and surface runoff. The local community use traditional water sources called shallow wells (Eelaa) and ponds which are used as the major sources of water for both human and livestock.

Groundwater: Based on hydrogeological investigations of the project areas, ample groundwater potential exists within alluvial deposits, weathered and fractured volcanic rocks, weathered and/or fracture zones of basement rocks of the area.

Water Quality: The water quality of water supply source, groundwater in particular, is a very decisive factor for the kind of treatment that the raw water needs to undergo in order to make it suitable for human consumption without any short or long-term risk or health effects. The water source for the intended project was sampled from two wellfield locations in (Galichet and Sarite) and analyzed. The Laboratory analysis for the sampled sources indicates that the water from Galchet Wellfield is suitable for drinking and domestic uses whereas that of Sarite shows the concentration of Total dissolved solids, Sodium and Sulphate are higher than permissible limits of the WHO standard (See Table 4.2).

The water quality result of the boreholes at Sarite wellfield is not in compliance with WHO standards. Proper water treatment is needed to provide such water source for safe human domestic supply purpose. Although the sample was only from two boreholes, other boreholes water can be safe that need be sampled and evaluated against the standards by considering different options

Table4.2*:* Sarite Wellfield water quality data

Source of sample	Deep well (Borehole-1)	Deep well (Borehole-2)	WHO Guideline Value
Location	Borana	Borana	
Total Dissolved Solid 1050c (mg/l)	1422	1416	1000
Sodium (mg/l Na)	415	435	200
Sulphate (mg/l SO4)	506.5	522.27	400

4.2 Biological Baseline Environmental Conditions

4.2.1 Vegetation

The major and dominant plant type identified in the project area is acacia species (Figure4.1) which is widely found in rangelands and almost everywhere in the project area. The vegetation in the total project area is considered to have of low importance and value.

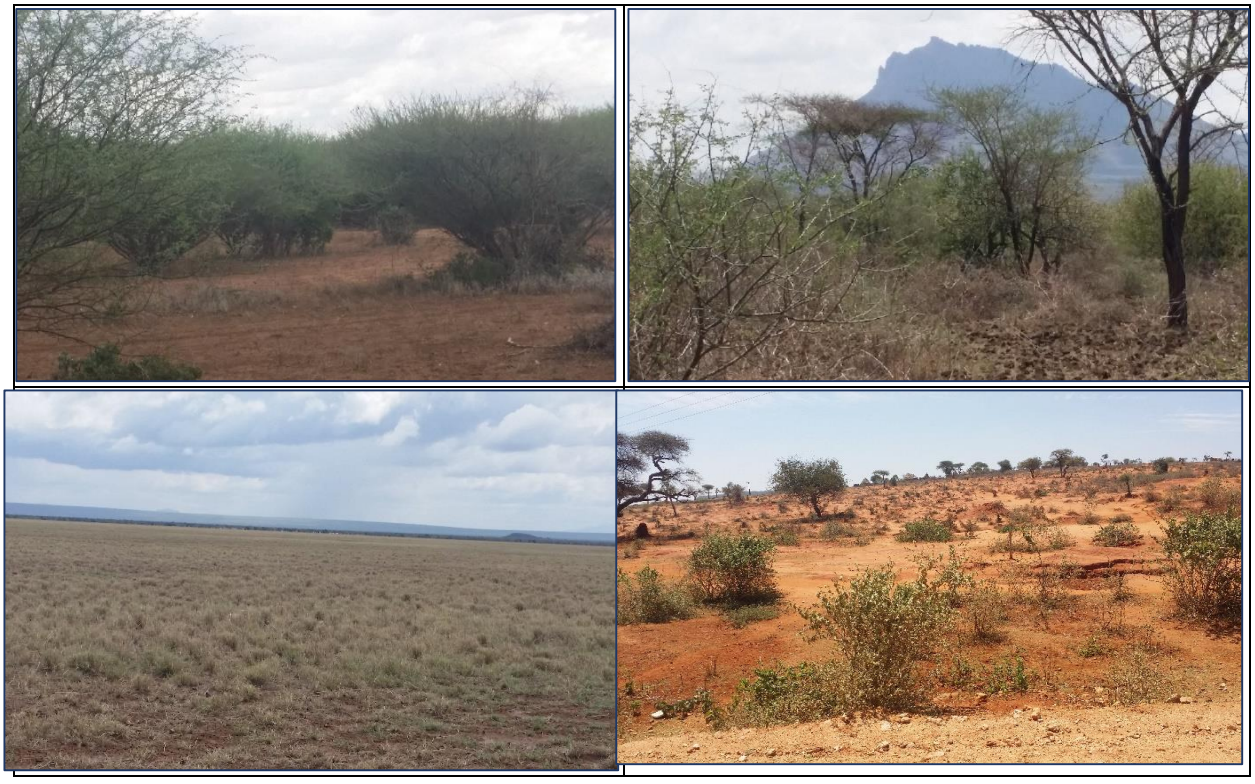

Figure4.1: Vegetation cover type of the project area

Table4.3: Dominant tree species of the project area

No	Local name	Scientific Name	ICUN Red list Categories
1.	Jirmee	Dichrostachys cineria	**Least Concern**
2.	Dobeessa	Rhus natalensis	Threatened
3.	Amarreessa	Acacia brevispica	Threatened
4.	Waagaahi	Acacia cerofota	Threatened
5.	Waaccuu	Acacia seyal	Threatened
6.	Arangamaa	Acacia Senegal	Least Concern
7.	Xaddacha	Acacia tortolis	Least Concern
8.	Baddannoo	Balanites Aegyptica	Threatened
9.	Hammeessa	Commiphora Africana	Least Concern
10.	Ruqeessa	Combretum collinum	Least Concern
11.	Roqaa	Tamarindus indica	Least Concern
12.	Arooressa	Grewia bicolour	Least Concern
13.	Waleenssuu	Erithrina abyssinica	Least Concern
14.	Burquqqee	Acacia lahai	Least Concern
15.	Handeerekku	Lannea schimperi	Endangered
16.	Laaftoo	Acacia sieberiana	Least Concern
17.	Ejeersa	Olea Africana	Least Concern

Source: Project study team field assessment.

4.2.2 Terrestrial Fauna

Wild animals commonly observed in lowland areas of the country such as Bush-pig, Warthog, Anubis baboons, fox, hyena and other small wild animals were observed during the well field site observations. There is no park or wildlife reserved areas adjacent or across the raw water main transmission line to from the well field to the main reservoir.

4.2.3 Birds

Based on information obtained from Borana National Park Office, various bird species can be observed in the project area as they seasonally move from site to site especially the wellfiled low land areas and the command reservoir that relatively high altitude to adapt seasonal climate changes.

Therefore, of the 276 bird species recorded by the park in the area, most of these birds can be observed in the phase-1 project area of the program as birds can move with seasonal variations and also fund in grasslands, wetlands and swamp areas. Regarding species of special concern, the project area seasonally host the two endemic birds namely; the Ethiopian Bush Crew and White-Tailed Swallow.

Similar to the birds in different environments, the birds of the project area have ecological and economic importance. Apart from this, birds are also key component of the ecosystem and also considered as environmental indicators.


Figure4.2: The Ethiopian Bush Crew and White-Tailed Swallow (Left to Right)

4.3 Socio-economic Baseline Environmental Conditions

4.3.1 Administrative Setting

Galchet Sarite Water supply well field, main transmission line and main reservoir sites are found in two districts; Yaballo and Elweya Districts. This phase I project components lie within these two districts and three local administrations or kebeles. The two kebeles; Adegelcha and Utalo kebeles are in Elweya district while the main reservoir site is in Deritu kebele of Yabello district of Borana Zone.

4.3.2 Population

The populations of the wellfield and main reservoir including the main transmission line kebeles shall be identified in more detail as the community members are mobile and could not obtain exact data during the field observation. As population data is intial step in water supply design, its detail assessment shall be expected during phase II. But at this stage, only three kebeles (Adegelccha and Utalo kebeles of Elweya district and the main reservoir site kebele of Yabello) are included in the project of which the two districts total available population data are included in Table with total number of kebeles in each.

Table4.4: Population size of the two project area districts

Ser. No.	District	No. of kebeles	Projected population			
			2020	2025	2030	2035
1.	Elweya	11	44,976	50,166	55,343	60,339
2.	Yaballo	10	56,754	62,401	67,760	72,584
	Total	**21**	**101,730**	**112,567**	**123,103**	**132,923**

Source: Socio-economic Assessment Reportof the project.

4.3.3 Land Tenure

Being pastoral area, the land/rangeland in the project area belongs to the clan. In pastoral areas, every member of the pastoral community has the right to use the land collectively by clan under customary law. But there is also a land that has been individualized after the pastoralists or people

from the highland areas started crops cultivations. Villages have rights to the land that their residents have traditionally used including grazing land, fallow land and unoccupied land. Villagers have a customary right to own the village land that they hold under customary law or have received as an allocation from the village council. Cultivation of cropland is a means used to put land under private holding as far as the individual tiller belongs to the same community. When he leaves the community, it becomes communal property.

With regard to the Main Reservoir expected on Simu Hilltop which is under communal land, although if at all it is private area the community provide for the development as water is critical problem of the society. Beside this, it should be known that Boran zone settlement conditions is very sparsely populated and the settlement condition is also very rare.

4.3.4 Land Use Land Cover

With acacia dominance, eight vegetation cover types have been identified in the project area. Open Shrub lands, Grasslands, cultivated land, Built-up area, Exposed surface, Forest land, Riverine Forest, and Wood lands. As observed during the field survey, shrub lands are the dominant land cover in the project area. It is obvious that degradation of vegetation cover is expected as a result of recurrent drought of the project area. Some of the major tree species are presented in the above Table 4.3. Similar to other parts of the country, the vegetation (i.e., assemblages of trees, shrubs, herbaceous and grasses) are used for various purposes. Some of the uses include construction Terrestrial Fauna.

4.3.5 Settlement pattern

The settlement pattern in the project areas is generally seen as scattered villages, “Ollaa”, which are sparsely setup or a mix of mobile and small sedentary clusters at some intervals. The majority of the settlements are found along roads (See Figure4.3) below.

Figure4.3: Views of typical villages in Borana Zone

4.3.6 Local Economy

The livelihood base of the project area community is entirely depends on livestock husbandry (major) and crop farming (Maize, Teff, Haricot bean and sugarcane). The main source of income of the community, therefore, are livestock, livestock products and crop production. There are also significant numbers of the community engaged in pure pastoral way of life. In addition, there are also people engaged in off farm activities such as petty traders, daily laborer, sales of Gum & incense, charcoal, firewood and Sales of livestock products such as milk.

Figure4.4: Livestock of the project area

The wealth status is determined by sources of income and major occupations, which determine the livelihood of a household. Livestock production is the most important source of income. Hence, the number of cattle, camels, goats or sheep is a good indicator of the wealth status in the project area community. Moreover, the nature of occupation such as trading and the income generated through such an employment is also an indicator of wealth group.

4.3.6.1 Livestock Rearing

Based on information obtained during the fieldwork, the number of livestock population of the phase-1 project areas of the program, it is declining due recurrent draughts. The population projection for the two districts target areas (16 rural Kebeles) of both Elweya and Yabello, by taking 2020 as base data districts is about 335,267; 341901, 371973 and 399146 livestock for the year 2020, 2025, 2030 and 2035 respectively, if favorable climate conditions exist.

Table4.5*:* Livestock population and distribution by target areas

Ser. No	Districts	No of Kebeles	2020	2025	2030	2035
1.	Elweya	8	136,228	138,927	151,141	162,181
2.	Yabelo	8	199,039	202,974	220,832	236,965
	Total	**16**	**335,267**	**341,901**	**371,973**	**399,146**

Livestock rearing is constrained by shortage of water and feeds due to land degradation, genetic erosion and prevalence diseases. The most common livestock diseases in the area are shown in the Table4.6 below.

Table4.6: Livestock diseases prevalent in Borana

No.	Type of Livestock	Prevalent Diseases of Livestock
1.	Bovine (Cattle)	Contagious bovine pleuropneumonia (CBPP), blackleg, foot and mouth disease (FMD), Lampyn skin disease (LSD), anthrax, Internal parasites and external parasites, Bovine Pasteurellosis
2.	Ovine, Cattle (sheep & goat)	Contagious Caprine Pleuropneumonia, Peste Des Petites Ruminants (PPR), Coenurus Cerebral, Mange, internal parasites
3	Equine (horse, donkey, mule	Internal parasites, African horse sickness, glanders, external parasites, foal pox
4	Poultry	Newcastle disease, Gumboro
5	Camels	Unknown camel disease, Trypanosoma, camel pox, Pasteurellosis, endo parasite, external parasites
6	Bees	Nosema, Chalk Brood

Source: Borana Zone Livestock Resource Development Agency, October 2021.

Healthcare service for the livestock is of a major economic importance to the community. One of such services is veterinary service, which is carried out in the form of vaccination (pre-and-postrainseasons) and various treatments.

4.3.6.2 Crop Production

The limited types of crops produced in some pocket areas of the zone consist of Teff, maize, haricot bean, sorghum and sugar cane. Crop production is often constrained by lack of rain and short of inputs supply such as fertilizer and tractors. The agro-pastoralists of the project areas said that they pay Birr 2,500.00 - 4,000.00 per hectare for tractor rentals from private individuals, which in their opinion is too expensive and unaffordable compared to the outputs they get or expect. Farmland is available in various parts of the zone but poor soil fertility, unreliable rainfall and termite infestation remain serious constraints to crop production practice.

4.3.6.3 Means of Livelihood

In socio-economic study, the household survey result indicates that 80.7% of the respondents lead their livelihood by crop cultivation and livestock rearing or both as mixed agriculture. Of these, pastoral activity (livestock rearing) alone as means of livelihood accounts for 71%, mixed agriculture or both crop cultivation and livestock rearing accounts for 17% and petty trade takes 3% of the total as detailed in Table4.7.

Table4.7: Alternative means of livelihoods of the project districts

Ser. No	Districts	Means of Livelihoods							
		Pastoralist	Crop Production & Livestock Rearing	Private Service Enterprises	Private Petty Trade	Daily Laborer	Government Employee	Other	Total
1.	Elewaya	119	26	2	5	4	0	1	157
2.	Yabello	110	30	0	5	5	4	13	167
	Total	**229**	**56**	**2**	**10**	**9**	**4**	**14**	**324**
	Percentage	**71**	**17**	**1**	**3**	**3**	**1**	**4**	**100**

Source: Socio-economic Assessment Report

4.3.7 Water Supply Hygiene and Sanitation

The water supply situation of the project area is very dire. The community depends on unprotected water sources such as ponds (Haroo), traditional wells (Eelaa), water harvested from roof and underground cistron. The water supply conditions and traditional condition can be seen in Figure4.5 on next page.Developed water sources such as deep wells and shallow wells in the project area are very few and have small capacity to serve the beneficiary community. As a result, the community walk about 15 kilometres to get potable water per day.

Most of the sources were developed by NGOs and by government as emergency measures and livestock also use from the same source with humans. In most parts of the project area, traditional hand dug shallow wells as well as collection of water by digging down in river beds. Shallow wells and river beds are not year around sources as they tend to dry out during the dry season.

This means that the population in the project area are experiencing significant lack of access to water which is also confounded by the general poor water quality of shallow wells and surface water sources. Water collection is a major work burden for women and children as they can spend several hours per day fetching water.

Regarding sanitation, the Water Resource development and Energy office do not provide sewerage services, as this is under the responsibility of the town administration. Most of the district capitals town presently do not have any sewerage system. In the rural areas, households normally have latrines of varying standards. During the consultations, the majority of the households in villages/settlement areas were found having pit latrines while there are also significant number of households use open defecation.

Open defecation in Borana is very detrimental. As most of their water sources are unprotected and flush flood can easily wash all the wastes and pollute the water sources which eventually increase exposure to diarrhea and other waterborne diseases.

(Traditional well-Eelaa, and Galchet Wellfield, and long queues for water at Dugda Dheera Village)
Figure4.5: Existing water supply situation of the project area

4.3.8 Education Services and Institutions

Based on data obtained from Borana Zone Education Office the Zone a whole has education institutions ranging from KG to university with the corresponding population of students and teachers by level of education and their sexes in the year 2021.

Table4.8: Educational institutions, students and teachers of Borana Zone, 2013 E.C

School Level (Grade)	No. of schools	Number of Students			Number of Teachers			Administrative Staff		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
KG	33	2,530	2,307	4,837	29	18	47	-	-	-
Grade 1-8	437	58,590	51,999	110,589	2,393	1,127	3,520	-	-	-
Grade 9-12	32	8,717	7,230	15,947	642	92	734	-	-	-
TVET	3	98	15	113	52	36	88	38	24	62
University	1	1,239	203	1,442	46	6	52	164	179	343
Total	**506**	**71,174**	**61,754**	**132,928**	**3,162**	**1,279**	**4,441**	**202**	**203**	**405**

Source: Borana Zone Education Office, October 2021.

4.3.9 Health Services and Institutions

The existing health institutions in the project area by their type and level as well as by ownership of the institutions (government-owned and private-owned) are shown below.

4.3.9.1 Health Institutions distributions

Data of health institutions of the project zone was collected from Borana Zone health Office. The data indicates that there are 01 government hospitals, 02 Health Centers and 16 health posts, 04 private clinics and 03 private pharmacies in the Phase-1 project of the program (Table4.9) including Yabello Town, the zone center.

Table4.9: Health institution of the phase-1 project area of the program

Ser. No	Health Institutions Of Borana Zone	Health institutions by ownership			
		Private	Govt.	NGO	Total
1.	Hospitals	--	01	--	**05**
2.	Health Centers	--	2	--	**02**
3.	Health Posts	--	16	--	**16**
4.	Clinics	04	--	--	**04**
5.	Laboratory centers	--	--	--	**--**
6.	Rural Drug Shops	-	-	--	**-**
7.	Pharmacies	03	--	--	**03**

Source: Borana Zone Health Office, October 2021.

4.3.9.2 Health Service staffs

Human resources or staffing are very important for health care. The number of health officers to population ration based on WHO standard is 1:10,000 people for a physician or doctor and 1:5,000 for nurses of all types. The total populations of the phase-1 project area of the program based on base data year or of last 2020 data is 101,730 peoples. Therefore, the health personnel ratio for the area shows 1:25,432 and 1:2,677 respectively indicating that all are below the standard for nurses and for physicians. Based on the WHO standard about 16 and 18 doctors are needed at minimum. The existing number of health personnel is presented in Table4.10 below.

Table4.10: Health professionals

No.	Health Institutions	Phase-1 project area			Remark
		Male	Female	Total	
1.	Medical Doctor	4	-	4	
2.	Nurse (of all categories)	15	12	27	
3.	Health Officer	8	3	11	
4.	Midwives	-	-	-	
5.	Sanitarian	1	-	3	
6.	Health Assistant	-	-	-	
7.	Laboratory Technicians	3	2	5	

8.	x-ray tech	1	-	1	
9.	Pharmacist	3	1	4	
10.	Health Extensions	-	8	8	
11.	Others (administration)	22	11	33	

Source: Borana Zone Health Office, October 2021.

4.3.9.3 Prevalent diseases

The most common diseases of the phase-1 project area or Yabello and its surrounding areas of the program areas are pneumonia, malaria, diarrhea, internal parasite and common cold. Internal parasite and diarrhea are the most prevalent disease as the local people use raw water from unprotected sources (in most cases they use same source with the livestock). Table 4.11 below shows the ten Top diseases of the prevailing in Yaballo as obtained from Borana zone health office.

Table4.11: Ten top diseases of the project area for 2012 and 2013 E.C

S. N	Type of diseases (2013E.C)	No. of cases	%	Type of diseases (2013E.C)	No. of cases	%
1	Pneumonia	33,199	23.18	Acute respiratory infection (upper respiratory infection unspecified)	36,158	21.67
2	Acute upper respiratory disease	27,316	19.08	Diarrhea (functional diarrhea)	26,251	15.73
3	Functional intestinal disorder	19,745	13.79	Pneumonia (unspecified)	20,841	12.49
4	Dyspepsia	15,080	10.53	Dyspepsia (inability to swallow)	19,225	11.52
5	Disorder of urinary system	11,084	7.74	Pneumonia (bacterial pneumonia unspecified)	16,076	9.63
6	Helminthiasis	7,844	5.48	Malnutrition (moderate protein energy malnutrition)	15,733	9.43
7	Malnutrition	7,469	5.22	Urinary tract infection	14,518	8.70
8	Bacterial disease	7,439	5.20	Tonsillitis (acute pharyngitis unspecified)	6,788	4.07
9	Malaria	7,244	5.06	Helminthiasis (intestinal unspecified)	6,292	3.77
10	Typhoid and para-typhoid	6,775	4.73	Common cold (acute nasopharyngitis)	4,976	2.98
	Total	143,195	100	Total	166,858	100

Source: Socio-economic assessment report

Hence, provision of safe drinking water and water for better personal hygiene and hand washing is one of the prerequisites for addressing these diseases that appears to be common in the project area.

4.3.10 Existing Road Networks

The project area has different types of roads such as all-weather and dry weather roads. The all-weather roads include Asphalt Road (which is a part of Addis_Moyale and the road from Yabello to Konso), Gravel Road and the Cobblestones. The following table presents the type and length of the existing roads.

Table4.12: Types of roads and length of Borana Zone

Length of road (km)				
All weather roads			Dry weather road	Total
Asphalt	Gravel	Cobblestone		
555.7 km	2022.32 km	3.27 km	842 km	3423.29 km

5. PUBLIC AND STAKEHOLDERS CONSULTATION

Based on the National directives and guidelines on public participation during an ESIA process, “the developer or proponent shall consult the public of the project area and seek their views and concerns on the project. The consulted persons shall be any person who is or are likely to be affected by the project or benefited from the project. The stakes involvement ensures that all interested and affected parties are involved in the project. It is particularly important in early identification of issues, impact assessment and proposing mitigation options.

Stakeholders participation at early stages of a project assists to know local information about the project, helps in identifying alternatives and ways of achieving the project objectives. In later stages too, stakeholders’ involvement helps to avoid biases, to reveal local values and preferences. It also assists to propose mitigation measures which will be incorporated into the design and implementation of the favored alternatives. Accordingly, stakeholders’ consultations have been carried as a part of this ESIA study.

The overall main objectives of the public and stakeholders consultation are to:

- Inform the main stakeholders and the public especially the project beneficiary or affected people about the proposed water supply and involve them.
- Obtain ideas and information regarding the present developmental, socio-economic and environmental problems of the project area and possible benefits of the envisaged development project.
- Collect opinions, information and concerns about environmental and social issues (positive and negative impacts) related to the implementation and operations of the intended project.
- Obtain ideas on what should be done in the future to avoid or minimize existing problems and adverse impacts that may occur with implementations of the proposed water supply project development.
- Provide PAPs and other project affected and interested communities’ chances to express their views in the planning and implementation of the project that affect them directly.
- Obtain qualitative as well as quantitative information on viable income generation and livelihood interventions in which PAPs could engage themselves in order to restore their income and livelihoods in a self-sustaining manner, and
- Inform local authorities of the impacts, agree on a cut-off date, solicit their views on the project and discuss on their share on responsibilities for smooth functioning of the overall project operations.

5.1 Stakeholder identification and composition

Stakeholders’ identification is based on a combination of literature reviews and discussions with officials from several sector offices. The main criteria in the stakeholders’ group selection process were those who involved in project preparation; whose activities coincide or overlap with those proposed by the project (such as relevant ministries, environmental and local authority officials);

and those who may be directly affected by the project (local authorities and the local population in the project area). Accordingly, the key stakeholders identified for Phase 1 project of the Program are:

- Oromia Regional State Water and Energy Bureau as line sector and proponent,
- Oromiia Regional State Environmental Protection Authority,
- Borana Zone Water and Energy Office,
- Borana Zone EPA, Health Office, Zone Agriculture and Pastoral Development Offices
- Project affected communities or the general public representatives,
- District level Sector Offices, Wellfield and reservoir site kebeles, etc.

Among these Borana Zone key stakeholders and two of the Phase-1 project areas of the program were consulted as detailed in the following section.

5.2 Consultation Approach

The stakeholders' consultation strategies were through conducting consultative focus group discussions and collecting their views and concerns. Accordingly Focus Group Discussions were conducted with Borana Zone on 14/04/2022 and with main reservoir kebele and along the main transmission line were consulted on 16/04/2022. Participants of the focus group discussions are shown in Figure5.1 and list of the Zonal FGD and Dherito kebele discussions participants are annexed (see Appendix II & III and Appendix IV & V). The regional key stakeholders were communicated through telephone and obtained their views and concerns.

Zone level FGD with key representatives

Dherito (Main Reservoir) kebele participants

Gelchat (wellfield) kebele participants

Figure5.1 : Participants of Borana Zone & phase-1 project area key stakeholders consultations

Similar consultations were conducted at different levels; at district, kebele and village levels during the preliminary fieldwork in different zone districts. Accordingly, consultations were conducted at Ade Galchet, Karsa Dambii and Horboro kebeles (see Figure5.2 on next page). The methods employed were focal group discussions and conducting consultative meetings. In addition, the consultative meetings were also conducted with key institutions. These meetings were done mainly in the form of key informant interviews, one to one discussion and brainstorming sessions with the respective representatives of the institutions.

Although for temporary, young and working age peoples of the community expect employments and business opportunity associated with construction and operation of the proposed project. The wellfields district, Elewaya district Adi Gachet kebele, the direct impact kebele and Gamole and

Dubuluk districts to identify the extent the water supply problem and their views were consulted. Number of consulted participants and date is listed in Table5.1 below and the minutes are attached (Appendix-I).

Table5.1: Public Consultations held with PAPs and Community groups

Zone	Wereda	Kebele	Date	Location	No. of Participants
Borana	Elewaya	Adi Gachet	22/10/2021	Adi Galchet	40
	Gamole	Horboro	25/10/2021	Gara Buyo	43
	Dubuluk	Kersa Dembi	28/10/2021	Kersa Dembi	17

Figure5.2: Stakeholders and community representatives' consultations

5.3 Findings of stakeholders Consultations

All the consulted stakeholders and participants reflected almost similar issues/concerns during consultation. All the issues/concerns/expectations raised by the projected affected people and community also works for other stakeholders or participant groups. Summary of identified issues, views and response are detailed in Table5.2 below

On the other hand, the local community representatives also indicated that implementations of the project will bring significant socio-economic benefits on long term and temporary bases. The major long-term benefits include:

- Availability of water for human and livestock will contribute to the overall socio-economic development of the area.
- The project reduces seasonal migration for water and natural pasture.
- The local community also expects the project as reliable adaptation mechanism to the climate change impacts they faced.
- They also expect improved hygiene and sanitation,
- They expect future improvement in their health status as a result of access to safe and cleaning water, and
- Children (especially girls) will have time for school other than spending much time for searching and fetching water from long distances, etc.

Table5.2: Summary of identified issues, views and response

Ser. No.	Stakeholders or participants groups	Issues, concerns, expectations, opinions Raised from participants	Clarifications and responses provided by the project team
1.	Projected Affected Community and community groups	Health benefits -expressed their gratitude especially for the fact that the project will help them to reduce the incidence of water borne diseases	Noted. The team also emphasized that their expectations will be realized with consistent participation of the community.
		Improved water supply-Project area community are looking forward to a reliable and accessible water supply system, to all communities that result in improved livelihood for all. Acknowledged the project would be a major milestone towards the end of the water crisis in Borana Zone.	Noted. The team also emphasized that their expectations will be realized with consistent participation of the community.
		Catchment protection- The natural resource protection activities are disregarded in Borana, the existing interventions are only for Emergency Measures	The consultant agreed that this was a crosscutting issue affecting several sectors and deserve attention. To be discussed with other sectors.
		Cattle trough for the livestock-request the inclusion of cattle trough in the project design to protect	All issues to be discussed with the design consultant for consideration.

Ser. No.	Stakeholders or participants groups	Issues, concerns, expectations, opinions Raised from participants	Clarifications and responses provided by the project team
		vandalism of project infrastructure in search of water for livestock.	The feedback will be shared with the Project proponent and Design consultant.
		Land Acquisition- The consultant was informed that the process of land acquisition will necessitate direct engagement with the village councils & the private utilizers of the directly impacted land process was not expected to be complex given the real felt need for water by all.	Agreed. Strategies to engage communities were also devised. Except in Urban areas that require clarification.
		Other water supply projects - the consultant informed the existence of other proposed water supply projects at Elwaya, Wachile, and Gamole (Horboro kebele) area	All issues to be discussed with the design consultant for consideration.
		Recurrent drought and critical shortage of livestock feed - the PAP expressed their concern	The consultant agreed that this was a crosscutting issue affecting several sectors and deserve attention.
2.	Zonal/Woreda Sector offices	Water Connections. It was recommended that water pipelines be extended to all schools, health centers (as social services are in critical shortage potable water).	Forwarded to the design consultant
3	Borana National Park staffs	Wildlife water Source -the inclusion of wildlife water source(trough) along *Saba Sarite* route, *Yabello* and *Elwaya* supply areas	Forwarded to the design consultant so that it will be considered.
		Proximity to protected areas- It is advisable to ensure coordination between the project proponent, Borana national Park Area and the regional and district level Authorities	Issue to be addressed in the impact statement. The team also clarified that the project will have positive impact on the park and its wildlife.
		Employment- There is a need for employment opportunities to the youth during the construction phase. • It was suggested that first priority for employment during construction phase should be given to the youth resident in the project area.	Noted. The contractor requires to prioritize the local workers.
		Water Prices - In most rural communities within the project area, the prevailing water price 20 birr /20-liter container	Noted.

Ser. No.	Stakeholders or participants groups	Issues, concerns, expectations, opinions Raised from participants	Clarifications and responses provided by the project team
		Operation and maintenance- project area community and stakeholders advocated for a comprehensive and customized plan for operation and maintenance of the project as that has been a major challenge for many of the existing facilities.	-Issue to be handled by the design consultant together with the relevant stakeholders when defining the institutional and implementation arrangements. -It was clarified that a strategy for operation and maintenance will be developed and communicated in future stages of project development

6. ENVIRONMENTAL & SOCIAL IMPACT IDENTIFICATION & ANALYSIS AND MITGATION MEASURES

This chapter describes potential environmental and social impacts of the proposed Phase-1 project under the BRWDLP. The prediction of positive and adverse impacts is based on the field observations and baseline environmental and social conditions of the project areas under the direct and indirect possible influence areas. In order to identify the Environmental and social Impact of the proposed project and foresee which components of the environment will be subjected to possible positive and/or negative impacts by the project, description of the “baseline environment (receptor)” has been carried out.

6.1 Impact Identification and Analysis

6.1.1 Impact Identification

Characteristics of foreseeable impacts generated from construction and operation activities of the proposed Phase-1 project of the BRWDLP have been identified by considering:

- Activities that may produce impact were evaluated in describing the proposed Phase-1 Project of the program,
- Basic environmental data obtained from direct field observations, and
- Information gathered from available scientific publications and information derived by the study of similar projects.

For each phase (design, construction activities and operation stage) as studies show on other related project cases, ESIA study team experts’ judgment, observation at field level and the anticipated impacts are defined considering the following main activities of the project which may have some effect on the biophysical and social environment during design and Operation Phases.

The design phase main activities can be:

- Main Transmission Line construction, access road construction,
- Access road/s construction,
- Boreholes construction,
- Wellfield collector pipes distribution,
- Construction and rehabilitation of line and main reservoir at Simu Hilltop,
- Pumping stations construction,
- Generator houses constructions,
- Dwellings and guardhouses constructions,
- Other facilities constructions, and
- Operation activities.

The potential project environmental and social impacts are depending on the location of the project and the type and volume of interventions of the proposed phase 1 project. The project

activities such as clearing of vegetation, soil cutting, leveling, felling the trees during construction of boreholes, transmission lines, access roads or other related construction and operation activities are bound to cause environmental and social impacts, either positive or negative. As stated above the proposed phase-1 project has limited adverse environmental and social risks and its impact magnitude and significance were assessed based on factors shown below.

Table6. 1: Impacts magnitude and significance factors

Location or extent	The area/volume covered
Timing	Whether immediate or delayed
Duration	Short term, long term, intermittent or continuous
Reversibility or irreversibility	Probability of reversibility
Likelihood	Probability of the impact taking place
Significance	Whether it is local, regional, or global

6.1.2 Impact Analysis

In order to make analysis of the anticipated impacts based on the above impact observation, magnitude and significances on sensitive receptors, the below charts (Table6.1) are used as guidance to demonstrate the significance of each identified impact based on the intensity of impacts and sensitivity of receptors.

Table6.2: Impact severity analysis

		Sensitivity of Receptor			
		Very Low	**Low**	**Medium**	**High**
		1	**2**	**3**	**4**
Intensity of Impact	**Very low - 1**	1 Negligible	2 Minor	3 Minor	4 Minor
	Low- 2	2 Minor	4 Minor	6 Moderate	8 Moderate
	Medium- 3	3 Minor	6 Moderate	9 Moderate	12 Major
	High- 4	4 Minor	8 Moderate	12 Major	16 Major

The matrix depicted in Table6.2 above links between the project activities to the anticipated environmental and social impacts (both positive and negative) generated due to the implementation of the project activities during all the phases of the project. In particular, a matrix (Table 6.3) is demonstrated the environmental and social safeguards aspects that will be treated in this report and the respective different weights of each aspect in terms of impact. Weights for each aspect in the different phases are the results of comparisons between the specialists that have taken part in the ESIA study. Each cell of the matrix will contain the anticipated relevant impact significance value, according to the legend as determined during the study (Table 6.2). The management plan which comprises of the identified environmental impacts due to the project activities with the respective mitigation measures is indicated in Table8.1 under section 8.2.

Table6.3: Synthesis of environment impact matrix

Component affected	Project Activity							
	Construction Phase							Operation Phase
	Transmission line	Dwellings & Guard houses	Boreholes	Wellfield collector pipes	Main & Line reservoir	Pumping stations & Generator houses	**Access Road & Other facilities**	
Physical Environment								
Soil	5	3	5	4	5	4	5	2
Land use	5	2	5	4	5	3	5	1
Surface water	4	1	5	3	4	3	4	3
Dust/Air quality	4	2	3	3	5	5	5	2
Noise quality	3	2	3	3	4	4	4	3
Biological Environment								
Flora	4	5	4	4	5	4	4	2
Fauna	1	2	1	1	2	1	2	2
Birds	1	2	1	1	2	1	1	1
National Parks, Game Reserve, Forest Priority Areas	0	0	0	0	0	0	0	0
Socioeconomic Environment								
Residential Houses and Community Services	1	0	0	1	1	0	0	0
Farmland	2	0	0	1	1	0	0	0
Vegetation/valued Trees	5	0	0	1	1	0	0	0
Historical, Cultural, Archaeological, and Religious sites	0	0	0	0	0	0	0	0
Vulnerable groups	0	0	0	0	0	0	0	0
Public Health and Safety	0	5	5	5	5	5	5	2
Occupational Health and Safety	0	5	5	5	5	5	5	2
Hazards /Risks	0	4	3	3	3	3	5	5
Sexually Transmitted Infections/STIs, HIV/AIDS, Malaria, etc.	2	1	4	4	5	1	1	0

Component affected	Project Activity							
	Construction Phase							Operation Phase
	Transmission line	Dwellings & Guard houses	Boreholes	Wellfield collector pipes	Main & Line reservoir	Pumping stations & Generator houses	**Access Road & Other facilities**	
Employment opportunity	A	A	A	A	A	B	B	B
Positive impact	**A=Very Important**		**B=More Important**		**C=Important**	**D=Fair Important**		**E=Less Important**
No Impact	**0**		**0**		**0**	**0**		**0**
Negative Impact	**5=Very Important**		**4=More Important**		**3=Important**	**2=Fair Important**		**1=Less Important**

6.1.3 Impact Significance Rating

In order to make analysis of the anticipated impacts based on the above impact observation, magnitude, and significance on sensitive receptors, the below charts shown in Table6.4 are used as guidance to demonstrate the significance of each identified impact based on the intensity of impacts and sensitivity of receptors.

Table6.4**: Rating of Impact Significance**

Impact Rating	Description
Low	An insignificant amount of negative impact, but requires some mitigation, or positive impact requires some attention to enhance it.
Medium	A level of negative or positive impact with moderate significance that will either requires mitigation, or enhancement measures respectively
High	A high level of adverse impact could prompt authorities to implement robust mitigation measures or reject the implementation of the project, or A high level of the positive impact that an enhancement measures to be implemented promptly.

Based on the above impacts significance rating guidance, the possible environmental and social impacts of the phase-1 project of the program significance level and are evaluated as shown in Table6.5 below.

Table6.5: Phase-I Project of the Program impacts rating summary

Ser.N	Environmental Components	Impact Rating Result		
I.	CONSTRUCTION PHASE			
A.	**Physical Environment**			
1.	Visual Impact on topography and Landscape	Medium	Low Negative	Medium Negative
2.	Soil erosion	Medium	Low negative	Medium Negative
3.	Land contamination	High	Low Negative	Low Negative
4.	Air pollution	High	Low Negative	Low Negative
5.	Solid waste Generation	Medium	Low Negative	Medium Negative
6.	Construction Noise	High	Low Negative	_
7.	Water pollution (from Construction Activities)	Low Medium	Low Negative	Medium Negative
B.	**Biological Environment**			
8.	Vegetation clearing	Medium-high	Low Negative	Medium Negative
9.	Disturbance of the wildlife	Low	Low Negative	Medium Negative
C.	**Socio-economic Environment**			
10.	Population influx	N/A	Medium Negative	Medium Negative
11.	Physical displacement	N/A	Zero	Zero
12.	Economic Displacement	N/A	Insignificant	Zero
13.	Pressure on Existing water and sanitation facilities	N/A	low Negative	Low Negative
14.	Pressure on health services	N/A	Low Negative	Low Negative
15.	Health and safety (workers and Community)	N/A	Medium Negative	Medium Negative
16.	Security threats (theft? crimes)	N/A	Low Negative	Low Negative
II.	**OPERATION PHASE**			
A.	**Physical Environment**			
1.	Topography and landscape • Visual impact	Medium	Low negative	–
2.	Geology and soils • Soil erosion • Land contamination	High	Low negative	–
3.	Climate and air quality • Air pollution	High	Insignificant	0

Ser.N	Environmental Components	Impact Rating Result		
4.	Noise • Operation noise	High	Insignificant	0
5.	Water resources • Water pollution • Water withdrawal	Medium	Low negative	–
6.	Topography and landscape • Visual impact	Medium	Low negative	–
7.	Geology and soils • Soil erosion • Land contamination	Medium	Low negative	–
8.	Climate and air quality • Air pollution	High	Insignificant	0
	Biological Environment			
9.	Vegetation • Establishment of invasive plant species	Low	Low negative	–
10.	Impact on vegetation at water points	Medium	Medium Negative	Medium Negative
11.	Terrestrial fauna • Habitat loss	Medium	Insignificant	0
C.	**Socio-Economic environment**			
12.	Population • Population growth	N/A	Low positive	+(low Positive)
13.	Settlement pattern • N/A	N/A	Insignificant	0
14.	Land use • N/A	N/A	Insignificant	0
15.	Local economy • Economic benefits	N/A	Medium positive	Medium positive
16.	Water supply and sanitation • Provision of water supply and sanitation	N/A	Large positive	Large positive
17.	Health and education • Health benefits from water supply and sanitation	N/A	Large positive	Large Positive
18.	Safety and security • Health and safety	N/A	Low negative	Low Negative
19.	Tourism • Improved tourist facilities	Medium	Low positive	++ (Medium Positive)

6.2 Positive Environmental and Social Impacts at all Phases

The key potentially beneficial impacts associated with implementation of the Phase 1 project under BRWDLP mainly relate to the post-construction phase and these are summarized below

6.2.1 Improved quantity and quality of drinking water

As it is already known, the project area is under chronic water shortage for human and livestock. The local community have been using drinking water from unprotected sources such as ponds and shallow wells (*Eelaa*). Various attempts have been made by the government and NGOs to address the social drought; however most the interventions are only for emergency purpose. Apart from solving the chronic water shortage, the availability of such a large and reliable water supply will also reduce further construction activities that come with developing many small sources. Therefore, the implementation of the proposed project is expected to have positive impact to provide reliable and sustainable water supply to the target people and the livestock.

6.2.2 Improved health and Sanitation services

The availability of potable water is one of the major pillars to provide adequate health services at the level of institutions. Child-birth and other regular health services are unthinkable in the absence of water. Hence, water supply is a decisive social service required for health institutions to provide appropriate service for the community. From the other angle, sanitation and hygiene activities of urban settlements area is also impossible in the absence of safe drinking water. The existence of drinking water supply will obviously reduce water related diseases such as diarrhea, thereby minimizing the cost of healthcare in households. In addition, it results in reduction of infant, child and maternal mortality and morbidity due to improved health and sanitation.

At household level, personal hygiene such as hand washing, bathing and overall sanitation at home will be improved; if the proposed project is implemented. Therefore, the implementation of the project will have enormous contribution to improve public health status, good hygiene and improved standards of living for the project area community.

6.2.3 Increased productive time for Women and Girls

The burdens of water problems often fall on the shoulders of women and children. Children and women devote significant share of their time in searching water where drinking water supply is inadequate. They also travel long distances which takes the significant part of their productive time. Therefore, implementation of the proposed project helps children, especially girls, will have more time for school work.

6.2.4 Reduce the negative Consequences of mobility

Human and livestock mobility of the project area is basically for two basic things. One for water and the other is to search for natural pasture for their livestock. The availability of clean and adequate water supply leads to sedentary way of life (Reduce mobility for the search of water). During mobility, there are negative consequences such as resource competition, environmental degradation, transmission of diseases, abandoning of farmland, incurring additional expenses, high livestock death, and ethnic conflict. Hence, the availability of water supply for Borana people

will have significant social and environmental benefits as it alleviates the aforementioned demerits of searching water during dry season.

6.2.5 Ease the provision of social services

The provision of basic social service is very difficult for a community engaged in pastoral way of life. Social services often provided/constructed in area where there are cluster settlements. But in case of Borana, scattered and temporary settlements have been one of the bottlenecks to avail services like schools, health and market facilities. Therefore, with implementation of the proposed phase-1 Water Supply project, one can easily provide various social service at sedentary settlement areas.

6.2.6 Initiates improved Forage Development

Livestock feed is the other decisive factor for pastoral and Agro-pastoral community. With the introduction of water supply for humans and livestock, activities related to improved forage production will be a promising intervention area for government and NGO's.

6.2.7 Reduced Conflicts

The major purpose of mobility of the pastoral communities with their livestock is to save lives of the livestock from death that could have occurred due to drought. However, conflict could also occur as a result of mobility. Conflicts usually could occur as a result of competition over resources. Hence, the project has positive impact from the perspective of managing conflicts.

6.2.8 Increased opportunity for income diversification

Crop farming/forage production and participation in other income diversification activities such as petty trading expected to expand with sedentary life and in response to declining means of indigenous livelihood system.

6.2.9 Mitigation of greenhouse gas emissions

The livestock sector the major emitters of greenhouse gases; Methane (CH_4) and Nitrous Oxide (N_2O). The two major sources are; enteric fermentation where specific microbes residing in rumen produce CH_4 as by product during digestion and anaerobic fermentation of livestock manure producing CH_4 and denitrification of manure producing N_2O. As settlement expands in relation to water supply, other means of income source including improved livestock husbandry will be adopted by local community. Although, the pastoral community has strong cultural attachment with the number of their livestock; gradual reduction of the livestock population focusing on quality becomes promising possibility. Hence, the project's contribution towards emission reduction measures will be significant.

6.2.10 Employment opportunity

The project can create brief employment opportunity for semiskilled and unskilled labor force of the area and helps in generating income that can support their livelihood. The construction phase will bring about job creation for both 40 skilled and 115 unskilled labor for vegetation clearing, menial works, drivers and machine operators. In addition, the operation phase also expected to create job for some semi-skilled individuals on management of water supply system.

6.2.11 Improved Investment and Business Opportunity

Water is one of the basic social services required for development urban and rural areas. Borana has a lot of cattle, goat and sheep for export; meat, milk, cheese and livestock products. Also, it is a land of unique birds only found on the earth and can attract investors and trusts. Hence, the availability of potable water supply can create conducive environment for expansion of various domestic and foreign business opportunities to Borana area.

6.3 Negative Impacts and their Mitigation Measures

The environmental management activities would be carried out during the construction phase. Most of the impacts are expected to occur at this stage and the impacts can be reduced or avoided through the application of sound construction guidelines. Management is much concerned with controlling impacts that may result from the action of the contractor, through enforcement of the construction contract clauses related to protection of the environment as a whole and of the components within it. It is important to recognize that successful mitigations can only be achieved if the environmental protection measures, as set out in the construction contract document are properly enforced.

6.3.1 Impact on physical Environment during Construction phase

6.3.1.1 Impacts on Aesthetic Value of Topography and Landscape

The aesthetic impact of infrastructure developments is largely a subjective matter determined by individual preferences. In the case of Phase 1 Water Supply Project, there will be significant disturbance to the natural landscape during the construction phase, especially related to excavation works for the water pipelines, booster stations, reservoirs and construction of borehole compounds. However, as the main pipelines, reservoirs and boosters will be placed along the roads, the impacts will be confined to areas where the landscape has already been converted from its natural appearance. As to the Wellfield the impacts certain and appears to be low in such extensive rangelands.

Mitigation Measures
Mitigation measures include, but not limited to:

- Restoration of construction sites to pre-construction state,
- Limit vegetation clearance for the water pipelines to the required work strip,
- Landscaping of the spoil tips should take advantage of the natural terrain, and
- Remove the good topsoil first and stockpile it separately for use in replanting and restoration.

6.3.1.2 Soil erosion

During construction phase, soils will be excavated by activities like soil removal, backfilling, compacting, excavation and disposal of surplus soil, etc. This applies to all project components but especially for the work strip during wellfield site drilling, main transmission pipeline to booster reservoirs and the main reservoir constructions and also other project facilities where surface soil

will be disrupted and excavations will generate excess material (soil, rocks) to be disposed in spoil tips. But the majority of excavated materials will be used for refilling and re-vegetation. Failure to re-vegetate temporary used land may accelerate soil erosion.

Mitigation Measures

Mitigation measures include, but not limited to:

- No clearing of vegetation shall be undertaken outside of marked areas and Limit vegetation clearing as much as possible,
- Stabilise the soil mechanically to reduce erosion potential,
- Re-grading of slopes and re-vegetation of exposed areas,
- Use excavated materials for backfilling of the trench section around the pipes,
- Spoil earth/rock should be disposed of in appropriate approved area,
- Any tunnels or erosion channels developed during construction or maintenance period shall is backfilled and compacted and the areas restored to a proper condition,
- Areas where construction activities have been completed and where no further disturbance would take place are rehabilitated through re-vegetation, and
- Ground leveling is minimized and if possible concentrated only to the specific building foundation areas when it is necessary.
- Contain all solid wastes at designated location within construction sites.
- All removal of topsoil or vegetation should be kept to minimum to prevent erosion.
- Ensure the construction crew is aware of remaining vegetation which must not be touched or damaged.
- Implement water and soil erosion conservation practices, as applicable
- Proper location of material stockpiles, especially sand and soil downwind from the commercial, residential, and other settlements and receptors like schools and health facilities will be required.
- Frequent wetting of the stockpile and working area, and
- Screening of or providing wind breaks for stockpiles.

6.3.1.3 Land Contamination

During construction**,** accidental oil, lubricant or hydraulic fluids spills from construction equipment and discharge of wastewater from equipment washing to the environment might add to soil pollution to some extent. Other hazardous components include paint and other chemicals used in the constructions of different infrastructure of the phase-I project. If such hazardous materials are not contained and handled properly, there is a risk that they can cause soil contamination as well as water pollution. The anticipated Spill of oils, lubricants and other chemical during construction period will have an impact to the nearby environment which will affect human health, and natural environment. In order to minimize such spill hazards or risks, chemicals, lubricants and used oil should be collected in sealed containers and finally be disposed of according to the national law (Environmental pollution proclamation No 300/2002). Lubricants, chemical and oils should be place away from water bodies and prevent any watercourses from spill incidents, provide awareness creation among the community and work force, provision of adequate personal protective equipment's, establishment of temporary and/or permanent spill containment structure,

and Orientation on spill prevention and management should be given to all workers The impact is certain and its magnitude is low.

Mitigation Measures

The land contamination possible mitigation measures include, but not limited to:

- Installation of oil separators and temporary or permanent secondary spill containment structure at fuel storage sites,
- Store hazardous materials in properly designed storage facilities, if any,
- Prevent entrance or accidental spillage of solid matters, contaminants, debris and other pollutants and wastes into surface and ground water, and
- Create employees awareness to prevent unnecessary oil spills and ensure protection of environment in their daily duties is promoted.
- Provide initial and continuous construction workforce training in handling with waste segregation and appropriate waste disposal.
- Instruct the construction workforce to dispose spoil soils on approved fill /material disposal locations and strictly supervise the correct placement of fill, where possible, construction materials to be reused or recycled.
- Develop and implement a waste management plan, Emergency preparedness and Response Plan.
- Collect wastes and segregate at generation site in accordance with their types (hazardous, organic and inorganic waste), safely transport and disposed of at the final dumping or disposal site specified and approved by the local authority to avoid any adverse impact on health and well-being of people, and
- Locate disposal sites in areas of land, which, prior to the commencement of the construction works, were not used for agricultural and grazing purposes or designated for agricultural and grazing purposes.

6.3.1.4 Air Quality and Greenhouse gas emission

Greenhouse gas (GHG) emissions will be generated from increased traffic and diesel generators used to supply construction machineries during construction phase. However, the emissions are assumed to be insignificant in terms of climate change impact. As to air pollution, the main impact to air quality during construction will be from increased dust levels arising from construction machinery, excavations, cement mixing and road transport. Emissions of small particles from diesel trucks as well as road dust are difficult to quantify but the impacts will be intermittent and short term. In addition to emissions of particles, there will be minor emissions of NOx and SO_2 from construction machinery, vehicles and diesel generators. The impact is found to be low.

Mitigation Measures

Mitigation measures include, but not limited to:

- Spray water on construction sites in order to minimize or avoid dust,
- Tarp trucks transporting loose/friable materials to minimize loss during transportation,
- Consider covering stockpiles of excavated soils in areas near houses and shops,
- Maintain and stockpiles of loose/friable materials and soil in a suitable manner to minimize dust dispersion as well as frequent wetting of the stockpile and working area.
- Minimize exhaust fumes, machinery and equipment shall not be running when not in use while ensuring that they regularly serviced.

- Equip construction vehicles and machinery with standard pollution-control devices to minimize dust emissions.
- Dust control measures should be adopted, which the dirt roads and exposed construction areas should be moisturized during the dry season to prevent or minimize the fugitive dust emissions.
- Provide adequate PPE to workers; comply with personal protective clothing requirement for dusty areas such as dust masks and protective glasses.
- Undertake the vehicle movement according to the contractor plan.
- Enforce onsite speed limit regulations, using bumps and/ or clearly marked road signs and employ adequate traffic safety risk management, including code of conduct to truck drivers to avoid impact on the community residing within and nearby the project area.
- Community members and contractor's staff shall be advised and enforced to avoid open burning of materials such as tires, plastic, rubber products or other materials that create heavy smoke or nuisance odour.
- Construction machinery should be well maintained to minimize excessive gaseous emissions, the engines of construction machinery and vehicles will be inspected and adjusted as required to minimize pollution levels.
- Proper location of material stockpiles, especially sand and soil downwind from the commercial, residential, and other settlements and receptors like schools and health facilities will be required.
- Routing of the access roads should preferably not be in close proximity to residential dwellings and other sensitive receptors, including offices, schools and health facilities.
- Special consideration shall be given sensitive receptors such as schools, hospitals, markets, etc., and the contractor should prioritize project construction activities in townships and schedule the construction activities with consideration of non-school period (vacation, holidays, weekends, etc.).
- Dust control measures should be adopted at concrete batching plants, canopying loading points, and erecting dust screens around the plant
- Dust control mechanisms at the gravel borrow sites through extraction in wet conditions and transport in covered trucks.
- Implement dust control measures at the quarry sites and aggregate crushing sites.
- Covering heaps and berms of soil.
- To mitigate exhaust air emissions, it will be mandatory to procure machines, equipment and vehicles which are environmentally friendly.
- Construction machinery should be well maintained to minimize excessive gaseous emissions.
- The engines of construction machinery and vehicles will be inspected and adjusted as required to minimize pollution levels, and
- Prohibit plant operators and drivers of construction vehicles from unnecessary revving and idling and limit construction traffic movement and operations to the most necessary activities through adequate planning.

6.3.1.5 Noise Impacts

The level of noise and vibration are likely to increase during construction phase. The noise will be mainly come from vehicles and equipment operation during construction activities. This is a short-term impact and it will be felt mostly around construction sites and its peripherals. The noise will have a temporary impact which can be significant if next to settlements. As most of the construction activities are far from settlement areas, the magnitude of the impact is low.

Mitigation Measures

The noise pollution impacts possible mitigation measures include, but not limited to:

- Schedule noisy activities to daytime hours,
- Locate noisy installations in adequate distance to residential areas to meet noise limit values,
- Install noise control devices in construction equipment if noise levels exceed existing guidelines limit, and
- Instruct the workforce to avoid unnecessary noise.
- All vehicle and equipment shall be turning off their engines in rest time.
- Appropriate vehicle maintenance to reduce noise emissions.
- To reduce nighttime disturbance from construction noise, that is unavoidable, the practice of conducting construction activities should be limited between the hours of 2100 and 0600 in areas which are within 500 meters of residences
- Ensure that all workers wear earmuffs and other personal protective gear/equipment when working in noisy sections, and
- Equipment normally producing high levels of noise should be suppressed and screened when working within a distance of 200 meters from any settlement, clinic, religious places or other sensitive noise receptors.

6.3.1.6 Water Pollution Impacts

During construction phase, soil erosion from earthworks and runoff of crushed and ground rock material from drilling, stone crushing, etc. might be drained into receiving water bodies causing increased turbidity possibility in rivers. As there is no perennial river except some ponds and shallow wells, hence the impacts low negative. But at the borehole compound, accidental fuel and oil spills from construction around pump house and worker's camp will generate sanitary effluents which are potential sources for microbiological and organic pollutants of groundwater. But the magnitude of the impact from water pollution is found to be medium negative.

The excavation work of main transmission line, boreholes, reservoirs, etc. nearby water bodies might create insignificant impact on water. Special attention should be paid to protect water bodies and landslide which can be caused by erosion and thus any activities shall be made within some distance between water bodies and project construction activities. Another source of water pollution is represented by batching plants and particularly by the effluent from concrete truck cleaning which consist of wastewater with high pH and contaminants from the concrete additives. But there is nearby water source where those activities take place.

Mitigation Measures

The water pollution impacts possible mitigation measures include, but not limited to:

- Avoid unnecessary soil erosion on the community water source and at stream crossings,
- Secondary containment to collect diffuse and accidental spills,
- Storage and handling of fuel should be kept away from the community water source, and
- Installation of sanitary water treatment facilities in workers' camps.
- Contain all solid wastes at designated location within construction sites to avoid contamination of water sources nearby.
- All removal of topsoil or vegetation should be kept to minimum to prevent erosion that ultimately result in sedimentation effect of the nearby water sources.
- Proper location of material stockpiles, especially sand and soil downwind from the commercial, residential, and other settlements and receptors like schools and health facilities will be required.
- Provide initial and continuous construction workforce training in handling with waste segregation and appropriate waste disposal.
- Instruct the construction workforce to dispose spoil soils on approved fill /material disposal locations and strictly supervise the correct placement of fill, where possible, construction materials to be reused or recycled.
- Collect wastes and segregate at generation site in accordance with their types (hazardous, organic and inorganic waste), safely transport and disposed of at the final dumping or disposal site specified and approved by the local authority to avoid any adverse impact on health and well-being of people.
- Locate disposal sites in areas of land, which, prior to the commencement of the construction works, were not used for agricultural and grazing purposes or designated for agricultural and grazing purposes.

6.3.2 Negative Impacts on Biological Environment during Construction phase

6.3.2.1 Vegetation clearing impacts

Vegetation clearing during construction to leave space for construction of water supply infrastructures and ancillary facilities such as borehole compounds, pipeline, access roads and other building facilities is unavoidable. The largest area to be impacted is the work strip for access roads, wellfield facilities and water main transmission pipeline. However, as most of the land is covered by open shrub lands, the overall loss of vegetation by land clearing is limited. Hence, the magnitude of the impact on the vegetation is low negative.

Mitigation Measures

Vegetation clearing impacts possible mitigation measures include, but not limited to:

- Vegetation clearing should be minimized as much as possible,
- Limit vegetation clearing for water pipelines required work strip,
- Use only indigenous plant species for re-vegetation.
- The tree planting program shall be planned and implemented with locally adoptable species in the project areas to replace species that are likely to be affected.

- Awareness campaigns and enforcement of a worker's code of conduct for the protection of biodiversity, and
- Include vegetation rehabilitation techniques to recover lost plant cover such as reforestation, afforestation, offset planting, etc.

6.3.2.2 Disturbance of terrestrial fauna

During the construction phase, noise is generated from vehicular movements, sand and aggregate processing, concrete mixing, excavation machinery, etc. Presence of workforces result in continuous disturbance throughout the construction phase. The disturbance is likely to affect wildlife in general by triggering them to avoid or escape the project area. However, most of the animals and avian diversity found in the project area can easily adapt the construction site and find equally suitable habitats nearby. Apart from this, the construction activity and associated movements shall adhere to the rules and regulations so as to limit vehicles speed, avoiding unnecessary noise and limiting movement of the workforces of the working area. The magnitude of the impact on terrestrial fauna/avian diversity during the construction phase is medium negative.

Mitigation Measures

The impacts on terrestrial fauna possible mitigation measures include, but not limited to:

- Schedule noisy activities to daytime hours, and
- Instruct the workforce to avoid unnecessary noises.
- Posting signposts especially in and around the buffer zone of the National Park and other sensitive habitats, etc.
- Create awareness campaigns and for drivers, pedestrians, community members, and other passerby on wildlife safety.
- Consider the location of mature trees during site selection for the transmission line construction and land clearing for borehole, reservoir or other project component activities.
- Design and construction of wildlife access to avoid or minimize habitat fragmentation.
- Minimize clearing and disruption of riparian vegetation. Avoid excessive destruction of trees and other vegetation and minimize clearing of indigenous plant species, and replanting of indigenous plant species in disturbed areas.
- Enforcing speed reducing mechanisms (including limiting the vehicle speed to 20 km/hr maximum, placing speed bumps, rumble strips, etc.) to avoid or minimize collisions with wildlife and speed reducing mechanisms around the project area along the buffer zone
- Support for local environmental education and wildlife organizations can also be considered in the contractor ESMP.
- Restoration activities should not include potentially invasive species of trees and grasses with a preference for native species as possible.
- Avoiding blowing horns in the forest section, establishing wildlife passes, an animal detection system within the project area.
- Organizing awareness campaigns for drivers and workers on the protection of wildlife.
- Support for local environmental education and wildlife organizations, etc.

6.3.3 Construction Phase Negative Impacts on Socio-economic Environment

6.3.3.1 Population Influx

It is expected that workforce from different part of the country can concentrate at the project area during construction phase. While many of the unskilled workers will be recruited from the local communities, others will come from outside and be resident in the two project districts during construction phase. In addition to the mainstream workforce, construction activities usually attract job seekers, potential suppliers and camp followers. Population influx, even though temporary, will put considerable pressure on resources and social services, especially on health and sanitation. An increase in population is usually also associated with a breakdown in social fabrics, norms and practices. This could potentially result into an increased risk of exposure to COVID-19, HIV/AIDS and other STDs. The impact magnitude is medium.

Mitigation Measures

Impacts of population influx possible mitigation measures include, but not limited to:

- Establish transparent recruitment procedures to avoid camp followers in form of job-seekers,
- Establish a recruitment policy that gives priority to local residents for less specialized services,
- Recruitment procedures to be shared with the local authorities for further dissemination,
- Award opportunities for sub-suppliers and sub-contractors of local firms which in turn employ local labour, and
- Conduct public health campaigns addressing issues of behavioral change, water and sanitation, COVID-19, malaria, HIV/AIDS, etc.
- Develop and Implement Labour Influx Management Plan.

6.3.3.2 Land use and Settlement

The water supply infrastructures from wellfield to Simu reservoir are planned and the exact alignment/location is well known, which mostly traverses on the existing right of way following the road. The project will acquire land for construction of the borehole compound, pumping stations, water reservoirs, etc. donated by the village councils and land users who ultimately will benefit from the project. The small perimeter of land used for the proposed for water supply infrastructures are unutilized land which does not trigger compensation. There is no identified physical and economic displacement.

6.3.3.3 Impact on roads

During construction phase, the water rising mains from Galchet wellfield to Simu hill will cross Addis Ababa - Moyale highway; hence pipe crossing structure will be constructed which require cutting the Asphalt Road. The impact is certain and medium.

Mitigation Measures

Impacts on roads possible mitigation measures include, but not limited to:

- Use culverts and any other crossing structure, if available, to cross the canal, and
- Negotiate with road Authority and compensate for the unavoidable impact.

6.3.3.4 Pressure on Existing water and Sanitation Facilities

Due to the likely population increase associated with the construction phase, existing water and sanitation facilities may locally to be put under more pressure. The magnitude of the impact on water supply and sanitation is low.

Mitigation Measures

Impact of pressure on existing water and sanitation facilities of the project possible mitigation measures include, but not limited to:

- Ensure early start of the project's sanitation component to cater for influx of workers and job seekers.
- Provide sufficient water supply & sanitation facilities to workers at all work sites.
- Adequate washing and mobile toilet facilities provision with septic tanks and appropriate refuse collection and disposal system should be made obligatory

6.3.3.5 Impacts on public health

The potential impact on public health will be linked to population density in the immediate surroundings project infrastructures. Some of the issues might be related to open trenches, excavated materials along main transmission line trench, trucks or construction machineries movement along residential and/or access roads. The impact is related to increased traffic on the main roads for the entire duration of the pipe installation works. Additionally, there is a risk that people fall into trenches or excavations, or slide from the trench when the slope is not properly secured. Use of casual workers with limited exposure to health and safety standards can be considered as an additional risk. The project will employ enough labor force for its timely completion. Communicable diseases like tuberculosis, malaria, etc. are therefore likely to be disseminated especially during peak demand for manpower. Therefore, the impact is certain and moderate especially during construction of rising main and transmission distribution to the command reservoir.

Mitigation Measures

Impact of poor public health and safety measures uses possible mitigation measures include, but not limited to:

- Include best practice health and safety provisions in the construction contracts and ensure strict compliance with national legislation and EHS Guidelines,
- Close open trenches as quickly as possible to reduce risks,
- Ensure notifications at ongoing construction activities sites,
- Disseminate traffic management plans in the project area, through campaigns in schools and communities with other relevant sectors, and
- Ensure speed limits and traffic controls for project vehicles and equipment.

6.3.3.6 Occupational health and safety impacts

Construction workers are prone to accidents resulting from construction activities. These accidents may have acute or chronic impacts depending on nature, severity and intensity. In this regard, construction and mobilization activities of the proposed groundwater extraction can result into accidental injuries and hazards, etc. which could negatively impact the workforce. . Moreover, the occupational safety and health issues associated with the construction of the proposed project components will include the physical hazards and chemical hazards. Chemical hazards will be principally associated with exposures to construction materials, dust during construction, and exhaust emissions from heavy equipment and motor vehicles. Physical hazards include being exposed injuries which may be resulted from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets, and falling in trenches, from operating machinery and moving vehicles, exposure to weather elements, noise, work in confined spaces, trenching, risk of falling objects, injuries from fires, and accidents by vehicles, motorcycles and bicycles, etc. There is also a possibility of accidents associated with transporting workers to the construction sites.

In addition, health risks include disease hazards due to lack of sanitation facilities (water supply and human waste disposal) to the workers at construction site. Hazardously disposal of waste from construction site and camps/guard houses/generator houses can lead to contamination of both ground and surface water. This could lead to outbreak of waterborne diseases such as diarrhea, dysentery, typhoid, etc. The solid waste generated at the construction site if not treated properly may cause leaching and environmental pollution. The impact is certain and Moderate.

Mitigation Measures

The possible mitigation measures include, but not limited to:

- Ensure compliance to occupational health and safety standards,
- Maintain safe workplaces, plant and working systems,
- Providing information, instruction and training enabling employees to work without risks,
- Consulting with employee-elected health and safety representatives and/ or other employees about occupational health, safety and welfare,
- Ensure workers' camp standards, quality and provision of basic social services based on existing standards, guidance on workers' accommodation and
- Establish workers grievance mechanisms.
- Make awareness campaign for workers about the safety issues related to their activities hence provide frequent training about the use of PPE
- Ensure safe and good working conditions at workplace.
- Enclosure the area around which work is taking place to prevent unauthorized access.
- Hoisting and lifting equipment should be rated and properly maintained, and operators trained in their use.
- Frequent maintenance of project vehicles and machinery to minimize air emissions.
- Reduction of engine idling time in construction sites.
- Use of extenders or other means to direct diesel exhaust away from the operator.

- The project shall develop and implement Public and Occupational Health and Safety Management Plan (POHSMP) comprises of monitoring and reporting mechanism of occupational accidents and diseases, dangerous occurrences and incidents.

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6.3.3.7 Solid waste generation impacts

Solid wastes including packaging and extra construction materials such as timber, concrete, gravel, metals and plastics, broken equipment and miscellaneous debris usually found near workers 'camps, staff houses and offices during construction phase activities. If all these are left behind without being cleaned and properly disposed, the environment impact can be serious. The impact is also certain and moderately significant at the wellfield and along the pipeline routes.

Mitigation Measures

Impacts of solid wastes possible mitigation measures include, but not limited to:

- Ensure detailed design and specifications are undertaken so as to minimize solid waste generation of waste during construction,
- Locate material and stockpiling areas within the project construction corridor until its ultimate destination is determined,
- Manage stockpile areas and storage areas properly,
- Dispose non-recyclable construction materials at a licensed waste facility and avoid fly-tipping,
- Ensure used furniture and equipment from decommissioning is sold off/reused where possible, otherwise, dispose of at an appropriately recognized landfill,
- Recycle any ballast that cannot be reused as ballast and remove excess ballast and clean fill off site for reuse, as possible Sustainable use of resources (to reduce the consumption of resources and to adopt recyclable materials where possible. Water systems comprise significant number of structures and mechanical fittings),
- Optimize the water supply structures sizes to reduce the volume of construction materials used and soils to be disposed tore recyclable waste separately from residual/non-recyclable waste, and
- Provide recycling bins around workers 'camps, offices and amenities.

6.3.3.8 Increased COVID- 19, STDs and HIV/AIDS Cases

The project is expecting to employ project staffs and casual laborers during construction. Social interactions among staffs and with locals cannot be avoided. Considering the nature with which COVID-19 and HIV/AIDS is contracted and spread, workers number is significant to make serious contribution to COVID-19 pandemic and other communicable diseases. Presence of monetary strength will act as catalyst and thus enhance such social interactions between the project workers and people of the nearby centers. The extent of this impact is localized with a medium intensity. The impact can be highly improved/eliminated with mitigation.

Mitigation Measures

Impact of COVID- 19, STDs and HIV/AIDS cases possible mitigation measures include, but not limited to:

- Undertaking periodic awareness creations for workforce on safe working practices,
- Promoting health education and awareness creations,
- Instilling proper code of conduct and work ethics among construction workers and ensure that they are observed, and workers should be aware on their own safety and safety of others
- Develop a comprehensive STDS, HIV/ AIDs and COVID 19 awareness for both workers and local community
- Provision of STDs, HIV and AIDS prevention measures such as distribution of condoms to workers/local people both male and female
- Creation of awareness of STDs, HIV/AIDS, COVID 19 in worker's camps through trainings and installation of posters.
- Promote continuous sectoral, gender related Information, Education and Communication (IEC) messages about HIV/AIDS, STDS, COVID 19 infection, protection, counseling and care.
- Increase availability and accessibility of condoms.
- Establish a sectoral policy that will safeguard human and civil rights and avoid discrimination of workers and community members who are infected with HIV/AIDS.

6.3.3.9 Gender Based Violence, Sexual Exploitation Abuse /Sexual Harassment, Violence against Children

Favoritism based on gender, forced/unforced sexual roles in response/condition of being hired, employing Children for physical works may be among the Phase 1 project associated adverse impacts. High gender disparity is also believed to be one of the major bottlenecks for development. This high gender disparity between men and women negatively affects the development of a nation and its wealth distribution. Experiences from other projects show that construction works attract the local population and in particular women and children below 18 years of age seeking employment opportunities. Therefore, the risk of Violence against Children (VAC) Gender-Based Violence (GBV) will increase in the construction area.

If children below the age of 18 are employed in construction works, it may lead to the exploitation of children and, at the same time, it is a violation of National Law. Child labor is illegal and considered harmful and creates psychological and social problems in the community. The Contractor is required to be non-discriminatory regardless of race, religion, gender, age, or disability. The Contractor is also expected to commit itself to identify group of employees or societies that need special labor-management practices based on their diverse nature; and can give special protection, support, or execute an affirmative action in labor-management practice.

Women always do not receive equal employment opportunities; and the contractors, in most cases, favor to employ men rather than women, and female workers do not obtain particular

attention due to their biological and physical condition. Hence, the discrimination against women will negatively affect those women who want to work in the proposed phase 1 project. Such discriminatory acts and lack of other employment opportunities may force women to carry out other marginal activities and to be engaged as sex workers for survival, which exposes them to increased risk of sexually transmitted diseases, HIV/AIDs and unwanted pregnancies. The perceived negative impacts of the project on women include: increased risk of exposure to sexually transmitted diseases and unwanted pregnancies; price increase of consumer goods due to the coming of large number of work force to the area in particular will make Female Headed Households vulnerable to economic crisis; and most construction companies prefer to employ only men, and this will lead to unequal treatment women during employment of the construction workforce.

The construction of the project attracts the local population and in particular young people seeking employment opportunities. It is also true that construction works generate good employment opportunities for the local population. However, sometimes it would negatively influence and attract the young to drop out of school. Similarly, children who are below the age of 14 might also be attracted by the availability of employment opportunities in the locality. If children below the age of 14 are employed in the construction works, it may lead to the exploitation of children which violates the National law. Child labor can be harmful and create psychological and social problems in the community. The impact is low.

Mitigation Measure

- The possible mitigation measures include, but not limited to be:
- Management measures including proper sanitation, waste disposal facilities, awareness campaigns for the prevention of AIDS/HIV, sexually transmitted diseases and other communicable diseases, sensitization for health insurance will be needed at the project site.
- The reinforcement of laws on child labour, sexual harassment/prostitutions and gender equity should be done.
- The Contractor is required to develop and implement the project's Codes of Conduct (COC), GBV Action Plan, Grievance Redress Mechanism (GRM) and implement accordingly throughout the project implementation period.
- All employees attend an induction training course prior to commencing work on site to ensure they are familiar with the Contractor's commitments to the project's Codes of Conduct., and other standards, such as ESHS and OHS standards.
- Ensure that posted and distributed copies of the Contractor and individual Codes of Conduct are translated into the appropriate language of use in the worksite areas as well as for any international staff in their native language.
- All employees should sign the project's 'Individual Code of Conduct' confirming their agreement to comply with ESHS and OHS standards. This sets stringent standards for personal behavior by those working on the project so as to avoid GBV, SEA, VAC, and workplace sexual harassment.
- Contractor shall enter into agreement with local recognized NGO to develop training topics and materials on the mechanism to manage GBV, VAC, SEA, risks and carry out training

on GBV, VAC,SEA for both workers and local people as per the plan, conduct services provider mapping in the project area, develop a clear referral pathway.

- All forms of SEA, VAC and sexual harassment are unacceptable, regardless of whether they take place on the work site, the work site surroundings, at worker's camps or within the local community. Therefore, the Contractor is required to put in place administrative measures to prevent and minimize Gender Based Violence (GBV) and Violence Against Children (VAC) with proposed preventive and mitigation strategies.
- Develop and Implement GBV Action Plan,
- All employees, including volunteers and sub-contractors are highly encouraged to report suspected or actual acts of SEA, VAC and sexual harassment by a fellow worker, whether in the workplace or not. Reports must be made in accordance with project's SEA, child sexual exploitation and abuse and sexual harassment Allegation Procedures.
- The Contractor is required to strengthen grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response.
- Take strict measures against employment of children.
- Managers are required to report and act to address suspected or actual acts of GBV and/or VAC as they have a responsibility to uphold Contractor commitments and hold their direct reports responsible.
- Contractor social safeguard specialist will monitor provision to mitigate and respond to suspected case of GBV, VAC, and SEA in workplace.
- In case of SEA, VAC and Sexual harassment acts suspected in the workplace constitute gross misconduct and are therefore grounds for sanctions, which may include penalties and/or termination of employment. In addition to Contractor sanctions, legal prosecution of those who commit acts of SEA or VAC will be pursued if appropriate.
- Prepare and implement action plan for managing GBV, SEA, VAC impact
- Work closely with local authorities to stop recommending underage children for the project construction works.
- The GBV Action Plan shall reflect adequately
    - Existing country gender diagnostics.
    - Country-wide and region-specific/district data on violence against women.
    - Data and/or information on cultural practices vis-à-vis women (early marriage, physical practices);
    - Existing services available from GBV Services Providers (Health care for GBV survivors, psychosocial support, women's and girls' safe spaces, justice and legal aid, referral systems) quality, accessibility and gaps.
- The grievance mechanism shall ensure safe, confidential, non-judgmental and ethical reporting systems on GBV, sexual abuse and child labor as well as service referral to survivors to alert cases of prevalence and assure them to access adequate response.

6.3.4 Impact on Physical Environment during Operation phase

6.3.4.1 Visual impact

During the operation phase, it is assumed that the pipeline corridor has been reinstated to its pre-project condition (either re-vegetated or maintained as road shoulder). On the other hand, the above-ground infrastructure (pumping stations and water reservoirs) will become visible features, some of which can be viewed from afar. The visual intrusion is unlikely to be considered as a significant disturbance by local people and road users.

6.3.4.2 Soil erosion

Soil erosion is expected to be less severe during the operation phase as there is no earthwork activities and re-vegetation of exposed soils. However, erosion and gully formation may occur during heavy rains, especially on steep surfaces around the water reservoirs. To mitigate the anticipated minimal impact on soil erosion the proponent should implement the following measures. These are: ensure surface runoff generated on the impervious surface is not channeled directly to steep slopes; provide adequate protection against scour, and give consideration to the onset of the rainy season with respect to construction schedules; limit the impervious surface area to the designed standard; provide energy dissipater structures inside drainage channel where there is a steep slope; construct flow breaks on roadside drainage channels; promote harvesting of surface runoff; Develop and Implement storm water management plan, as applicable.

6.3.4.3 Land contamination

During operation, the soil could be impacted due to spillage of hazardous wastes and materials, including hydrocarbons, mainly at the borehole compound and pump stations. Failure or lack of spill prevention systems and inadequate handling of hazardous waste may cause accidental soil contamination. The impact is low. Mitigation measures stated under construction phase section shall be implemented.

6.3.4.4 Air Quality

Air pollution during the operation phase is expected to be very limited. The main source of air pollution will be from vehicle emissions and dust from traffic on unpaved roads. In addition, there might be some dust from construction sites before they are properly re-vegetated. Notably, the pumping stations are expected to be supplied from the national grid, which is hydroelectric power. The project's power demand is, however, insignificant in terms of air pollution.

6.3.4.5 Noise Pollution

There will be no significant noise from the water supply scheme during the operation phase.

6.3.4.6 Water Pollution

During the operation phase, the risk of water pollution will be reduced as compared to the construction phase. However, accidental fuel and oil spills could still occur with inadequate handling of hazardous materials and failure of spill prevention systems, mainly at the borehole compound and pumping stations. Some of the major mitigation measures include establishment of temporary and permanent spill containment structure; take all reasonable precautions to

prevent spillages and leakage of materials with the potential to pollute water resources; prohibit washing of vehicles and plant in or adjacent to any water sources. All washing to be carried out at designated areas away from water sources; among others.

6.3.5 Impact on Biological Environment during Operation Phase

6.3.5.1 Vegetation clearance

No vegetation clearing at the Operation Phase of the project. However, during operation phase the impact on vegetation surrounding water points and Cattle/Camel trough will be significant due to livestock trampling/overstocking. It is essential the proponent monitor the impact status and establish a mechanism of avoiding impact on vegetation due to livestock trampling. In addition, the reforestation, replanting or offset planting shall be designed and implemented to compensate the damaged vegetation with locally adoptable species.

6.3.5.2 Terrestrial Fauna

Disturbance of wildlife at operation phase is almost Zero; except some operation and maintenance activities that invites workers to the project site. The magnitude of the impact on terrestrial fauna during the operation phase is **insignificant**.

6.3.6 Impact on Socio-economic Environment during Operation Phase

6.3.6.1 Population influx

The provision of safe and reliable water is likely to cause population growth triggered by improved public services and overall economic development. This could be through immigration of job seekers and business entrepreneurs. It must be considered as an overall positive development for Borana Zone at large

6.3.6.2 Health and Safety

The operation and maintenance personnel will be exposed to a range of health and safety risks that are typically associated with water and sanitation projects, including accidents and injuries, chemical exposure (e.g., chlorine used in water disinfection), and hazardous atmospheres. Potential failure of the water treatment plant, main pipelines or storage reservoirs may involve significant environmental, health and safety risks, e.g., leakage of chemicals (chlorine) used in water treatment, pipeline burst, or accidental overflows from reservoirs. The project proponent shall take into consideration and establish a plan to mitigate the health and safety impacts. Among others, the mitigation measures will be but are not limited to: provision of proper and adequate protective clothing and safety equipment including safety helmets; protective footwear; safety glasses; welding goggles and other eye protectors; ear protectors; safety harnesses; high visibility reflective vests; safety equipment of working over water, etc. as per the nature of the work required; provision of suitably equipped and staffed clinic at the work site with all necessary medication including ambulance service, and first aid kits; availing the health services at all times when there is work activity on the site; maintaining records of all accidents arising from the

operation activities; taking maximum care to prevent the sufferings of the project employees as well as the local communities and their properties not to be caused due to project operation activities; provision of all necessary protective facilities and medication to workers engaged on the project work, irrespective to their placement, and extent of exposure to hazardous work sites; ensure safe and good working conditions at workplace; and provision of adequate training and awareness creation to the employee before engaging on the work site.

7. PROJECT ALTERNATIVE ANALYSIS

A comprehensive environmental and social impact assessment requires not only evaluation of impacts resulting from proposed project at a specific location and resulting from construction process, but also a complete environmental and social impact assessment cycle requires detail assessment of possible alternatives as well.

7.1 With Project Alternative

Based on EIA Guideline of the country, alternative is possible courses of action, in place of another, that would meet the same purpose and need. Alternatives can refer to any of the following, but are not limited to, alternative sites for development, alternative projects for a particular site, alternative site layouts, alternative designs, alternative processes and materials. Based on these EIA guideline alternative identification and selection approaches project or wellfield alternative, wellfield site based on different physical, topographical, accessibilities and water availability potential, boreholes siting, site layouts, designs and the so-called “no action” alternative were also considered.

7.1.1 Wellfield Alternatives

Alternative wellfields can be assessed based on different factors. Water availability, potential, quality, affordability, basement rock conditions, geological conditions and many other factors shall be considered. Depending on the findings of the drilled test wells and the general hydrogeological assessment of the project area (OWWDSE, 2017), Seven (7) groundwater potential well fields’ areas have been identified within the Borena low land volcanic terrain. From the seven well fields, Gelchet-Wobok and Sarite well fields are preferred to the current Gelchet-Sarite water supply project (Figure 16 & 17). Though, Utalo well field could be one of the top option well field having high groundwater potential, it is left aside for separate Yabello town and Borena University water supply project which is currently on verge to be implemented by one WaSH program and Ministry of Education respectively. Thus, Gelchet-Wobok and Sarite well fields’ development is prioritized for the eastern Gelchet-Sarite main water supply network and western Gelchet-Sarite sub network water supply system respectively. With regard to boreholes selections, 11 water boreholes were selected from identified 18 boreholes of wellfield. As indicated in the baseline, Galchet wellfield is found to be the best alternative. There is no perennial stream/river in the project area, the only reliable and climate resilient option is groundwater. Accordingly, these well filed were selected based on these and other factors from 18 boreholes the intended 11 boreholes were selected.

7.1.2 Location of Command Reservoir

For a command reservoir site selection, the site height, distance from selected wellfield, distance from the planned end users or beneficiaries, accessibility for main distribution lines, center-ness for water distribution for other districts, etc. was considered. With regard to height Mega Mountain chain is at about 100 km from Yabello and at more km from the wellfields. It is at distance from

water potential wellfields and far south of the program districts. The location of the command reservoir was selected based on the above and technical feasibility as it suits to distribute the water to different transmission routes. Different alternative locations were considered. But, Simu hill found at the distance of 84 kilometer from the wellfield is selected as the ideal location. This location is preferable due to its higher elevation and shorter distance to the settlements to be supplied than the other proposed hills.

7.1.3 Routing of the main pipeline

The main water pipelines are planned to be routed along the main roads and within the existing road reserve. For national (highway) and regional roads, the width of the road reserve is 40 m (i.e., 20 m on each side of the Centre line). During the field inventory, it was observed that many residential, commercial and even public structures are located along the boundary of the former road reserve, i.e., at a distance of 15 m to 30 m from the center line of the road. Thus, while it is preferable from a technical point of view to install the water mains along the road (but not too close to the road due to the risk of road expansion in the future), the resettlement impact appears to be greater than if the pipelines were routed away from the main roads. The number of affected structures will be high particularly high in the urban centers and other high population areas.

7.1.4 Type of conveyance pipes

As to the type of water conveying pipes, two options were considered (plastic) pipes and strong iron (DI or Steel) based on the hydraulic pressure and material strength. Accordingly, DI pipes selected for water raising mains and transmission lines.

7.2 With No Project Alternative

Zero alternative entails maintaining existing chronic water supply shortage. This alternative would eventually evade any short-term potential negative impacts from project execution. To this end, any potential positive impacts envisaged during midterm and long-term project implementation will be missed.

The option ‘No Project’ would result in an unacceptable long-term social drought (under supply of drinking water). It means the existing water supply and inadequate capacity to meet the water demand of the project area would be retained. The benefits of the proposed project Versace the benefits of “No Project” has been evaluated. Finally, the no project option is not a viable option considering the present urgent need and life of the communities of the area,

8. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The ESIA guidelines define an Environmental and Social Management Plan (ESMP) as a report or document prepared by the proponent after conducting ESIA study to present case for the assessment of their proposal as part of environmental and social impact assessment process. The ESMP as presented in this chapter contains recommendations and cost estimates for mitigation measures designed to address the negative impacts of the proposed project.

The proposed phase 1 project goal is to achieve an appropriate balance in the environmental and social management during the implementation of the project components within the project implementation area and its immediate surroundings. It is achieved through avoidance, minimizing or mitigation of potential impacts associated with the Project, and enhancement of Project benefits. Towards this goal, developing sound environmental and social management is playing a key role. In this regard, to be effective in the implementation of an environmentally friendly and socially acceptable project, a sound environmental and social management plan must be prepared adequately considering all anticipated impacts and shall be fully integrated with overall project management effort at all levels, which itself should be aimed at providing a high level of quality control, leading to a project which has been properly designed and constructed and functions efficiently throughout its life.

The ESMP provides a general outlay of the environmental and social aspects, potential impacts, mitigation measures, performance indicators, monitoring means and frequency, responsibility for monitoring and associated cost estimates. ESMP is used to ensure that environmental and social impacts identified are mitigated during the project implementation and operation phase. Unless mitigation and benefit enhancement measures identified in this ESIA are fully implemented, the prime function of the ESIA, which is to provide a basis for shaping the project so that the overall environmental performance of the proposed project is enhanced, cannot be achieved. In order to be effective, environmental management must be fully integrated with the overall project management effort at all levels. Therefore, it is aimed at providing a high level of quality control, leading to a project which has been properly designed and constructed and functions efficiently throughout its life.

Implementation of ESMP requires identification of suitable administrative arrangements and responsible parties to undertake the ESMP and a mitigation plan setting out what mitigation is required. The responsibility for the incorporation of mitigation measures for the project implementation lies with the Supervising Engineer, who must ensure that the contractor implements all specified mitigation measures. In order for the contractor to carry out environmental and social management activities during construction, the contractor should draw up an environmental and social management plan of his/her own which is the contractor environmental and social management plan (CESMP) aligned with this ESIA and umbrella project ESMP to show how s/he will address the mitigation measures during the construction period. The

Supervising Engineer is responsible for assessing the contractor's environmental and social management plan (CESMP).

The ESMP has been developed with project knowledge and information available to date. As project commencement and scheduling plans are developed and changed, components of the ESMP might require amendments. This is therefore a working document, which can be updated whenever new information is received or site conditions change. The main purpose of the Environmental and Social Management Plan (ESMP) is to develop a procedure that details measures to be taken during the implementation and operation of a project that reduces, eliminate or offset adverse environmental and social impacts and actions needed to implement these measures.

The objectives of the ESMP are to:

- bring the project into compliance with applicable national environmental and social legal requirements social policies and procedures; and
- outline mitigation/enhancing, monitoring, consultative and institutional measures required to prevent, minimize, mitigate or compensate for adverse environmental and social impacts, or to enhance the project beneficial impacts.

The objectives, activities, mitigation measures and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the project equipment installation and operational phases are outlined in the proposed ESMP in the following section. It outlines corresponding management strategies proposed in the preceding chapter that will be employed to mitigate potential negative environmental impacts and assign responsibility for the implementation of mitigation measures. Table 10.2 sets out, in summary, form, the management measures to be taken with regard to controlling the potential impacts which could occur during the construction phases of the Project & also indicates who is responsible for taking management actions. Executive responsibility for project management commonly involves several organizations, each with specific responsibilities for particular aspects, and this project is no exception.

Therefore, major responsibility for environmental management will be split between several organizations, depending on their respective activities which are being executed at various stages (Federal and Regional Environmental organs).

However, the Oromia Water and Energy Bureau as an implementing agency of the proposed project has the overall responsibility for the implementation of this Environmental and Social Management Plan. Apart from this, most of the project environmental and social management activities will be carried out during the construction phase, which most proposed project impacts are expected to arise during this phase. The project proponent management will very largely be concerned with managing impacts that may result from the actions of the Contractor, through enforcement of the construction contract clauses related to the protection of the environment, social, health and safety risk management as a whole, and of the components within it. In this

respect, it is important to recognize that successful mitigation of construction impacts can only be achieved if the environmental and social management measures, as set out in the construction contract, are properly enforced.

The Contractor will utilize the already identified information under the environmental and social management and mitigation plan (Table 8.1) and use it to develop its own ESMP called the Contractor Environmental and Social Management plan (CESMP). Below an indicative guideline is stated for the preparation of CESMP and Management Strategy Implementation Plans (MSIP) or site-specific management plans aligned with this ESIA and the ESMP embodied under this ESIA. These instruments will be prepared by the Contractor to be used as a tool to manage anticipated project environmental, social, health, and safety (ESHS) risks and impacts that arise during the construction period and for the proponent to review and supervise the efficiency of the contractor on the management of ESHS risks.

8.1 CESMP and Management Strategy Implementation Plans preparation

In Addition to the above mitigation measures stated under section 6 to manage the different anticipated project impacts, the Contractor shall prepare the Contractor Environment and Social Management Plan (C-ESMP) and other key Management Strategy and Implementation Plans (MSIPs) to ensure that all impacts are mitigated and managed at higher level of concern.
The Key Management Strategy and Implementation Plans (MSIPs) to be prepared and operationalized during project implementation include but not limited to the followings:

- Code of Conduct,
- Public and Occupational Health and Safety Management Plan (POHSMP),
- Gender Based Violence, Sexual exploitation and abuse, Sexual Harassment and Violence against Children (GBV, SEA/SH/ VAC) and Labor Influx prevention and response action plan, (PRAP),
- Traffic management plan,
- Water resources protection & Storm water management plans,
- Emergency Preparedness and Response Plan,
- Incident Notification procedure, and
- Wastes, Management plan, etc.

8.2 Institutional Arrangements

The organizational management of the scheme is one of the prerequisites for smooth operation and sustainable functioning of the water supply system. Besides this, it is also important to manage environmental and social impact of the project. To this end, the key partners for ESMP implementation have been assumed as follows:

- Government/Regulatory Authority-MoWE (Ministry of Water and Energy), Oromia Bureau of Water, Mineral and Energy and Oromia Environmental Protection Authority (OEPA) together with Zonal and District line sectors,
- Project Implementation Unit,
- Bulk Water Supplier (Galchet Sarite Water supply and Sanitation Enterprise),
- Contractors,

- Consultants, and
- Financiers / Lender.

8.2.1 Regulatory Authority

For purposes of this project, the regulating body will include all those government institutions responsible for enforcing compliance with national standards in the different areas of specialization. These will include but not be limited to the following:

- Environmental Protection Authority
- Ministry of Water and Energy
- Pastoral Commission
- Ministry of Agriculture and Natural Resources
- Oromia Regional Environmental Protection Authority

8.2.1.1 Environmental Protection Authority

EPA is also the key institution at the federal level responsible for all environmental protection & management activities. Hence, the key responsibilities in implementing the ESMP include in collaboration with federal and regional environmental institutions: -

- Establish a system, monitor, audit, coordinate, and ensure that ESMP and related activities of the project are implemented in accordance with national policies, regulations, standards, and guidelines; and
- Follow up and ensure that all environmental study and related activities at different phases of the project including environmental inspection and auditing are properly undertaken by competent consultants/firms having competence certificates from the commission or other relevant federal or regional environmental organizations in the country.
- Issue Environmental Clearance
- Enforcing implementation of the environmental policies and legislation and the ESIA process
- Monitor, audit, coordinate and ensure that recommendations of ESIA/ESMP are implemented, and
- Monitoring and auditing for compliance with National/Regional Environmental Regulations.

8.2.1.2 Oromia Environmental Protection Authority (OEPA)

The OEPA is delegated by EPA to provide an environmental clearance certificate by reviewing ESIA reports on different development projects within the region. Therefore, the OEPA is responsible to review, clear and provide certificate for this Project ESIA as well as during project implementation to follow-up and ensure that ESMP is implemented as per the approved project ESIA study document.

- Issue Environmental Clearance
- Enforcing implementation of the environmental policies and legislation and the ESIA process

- Monitor, audit, coordinate and ensure that recommendations of ESIA/ESMP are implemented
- Monitoring & auditing for compliance with National/ Regional Environmental Regulations.
- Pastoral Commission, and
- Ministry of Agriculture and Natural Resources.

8.2.1.3 Project Implementation Unit

The PIU is meant to be an operation unit supplementing and enhancing the existing skill mix of the project implementing agencies (Bulk Water Supplier, UWSAs and COWSOs). During the construction phase, the PIU will have the primary overall responsibility for the implementation of the ESMP and for ensuring compliance with National legislation and international lenders' guidelines for environmental and social performance.

The capacity to manage and monitor environmental and social issues needs to be developed through recruitment of three competent staffs namely; Socio-economist, Environmentalist and Health and Safety officer. For the purpose of ESMP implementation, the PIU will be expected to establish an Environmental and Social Management Unit and designate three appropriately experienced and qualified persons in charge of the environmental, social Health and Safety risk and impacts management. The Environmental and Social Management Unit will implement the Owner's ESMP, including all operation-related management plans and community relations activities.

8.2.1.4 Contractor

The contractors will be responsible for avoiding or minimizing environmental impacts caused by construction activities. It is expected that the construction works will be divided into several contracts, e.g., intake and water treatment plant, water reservoirs, main pipelines (probably sub-divided into different sections) and pumping stations, etc. The contractor should be required to have an Environmental, Social Health and Safety (ESHS) Unit, which will be responsible for managing and monitoring the environmental and social mitigation measures in accordance with the contractual obligations.

8.2.1.5 Consultant

The PIU and/or the Bulk Water Supplier is likely to delegate certain tasks to external consultants. Consultants will be needed for some of the specialized monitoring and evaluation activities.

8.2.1.6 Financiers / lenders

The Phase 1 Project is likely to be backed by grants and loans from international financial institutions, such as AFDB. The proponent and contractor are obliged to comply with a requirement of AfDB policies and operational safeguards are throughout the project implementation period. The AfDB will carry out periodic supervision to ensure sound implementation of ESMP and the status of the proponent to compliance with required Bank and standards.

Table8.1: Environmental and Social Management plan

Potential Impacts	Proposed Mitigation and/or Enhancement Measures	Implementation period	Responsible Institution	Estimated budget (Birr)
Construction Phase-Physical environment				
Visual impact on Topography and Landscape	• Restoration of construction sites to pre-construction state, • Limit vegetation clearance for the water pipelines to the required work strip, • Landscaping of the spoil tips should take advantage of the natural terrain, and • Remove the good topsoil first and stockpile it separately for use in replanting and restoration.	Construction Phase	Contractor	Included in the construction cost contract requirement
Soil Erosion	• Limit vegetation clearing as much as possible, • Stabilise the soil mechanically to reduce erosion potential, • Re-grading of slopes and re-vegetation of exposed areas, • Use excavated materials for backfilling of the trench section around the pipes, • Spoil earth/rock should be disposed of in appropriate approved area, • Any tunnels or erosion channels developed during construction or maintenance period shall is backfilled and compacted and the areas restored to a proper condition, • Areas where construction activities have been completed and where no further disturbance would take place are rehabilitated through re-vegetation, and	Construction Phase	Contractor/ Supervising Engineer	Included in the construction cost contract requirement)

Potential Impacts	Proposed Mitigation and/or Enhancement Measures	Implementation period	Responsible Institution	Estimated budget (Birr)
	• Ground leveling is minimized and if possible concentrated only to the specific building foundation areas when it is necessary.			
Land Contamination	• Installation of oil separators and secondary containment at fuel storage sites, • Store hazardous materials in properly designed storage facilities, if any, • Prevent entrance or accidental spillage of solid matters, contaminants, debris and other pollutants and wastes into surface and ground water, and • Create employees awareness to prevent unnecessary oil spills and ensure protection of environment in their daily duties is promoted.	Construction phase	Contractor	Included in the construction cost contract requirement)
Climate change and air pollution	• Spray water on construction sites in order to minimize or avoid dust, • Tarp trucks transporting loose/friable materials to minimize loss during transportation, • Consider covering stockpiles of excavated soils in areas near houses and shops, • Maintain and store piles of loose/friable materials and soil in a suitable manner to minimize dust dispersion. • Minimize exhaust fumes, machinery and equipment shall not be running when not in use while ensuring that they regularly serviced, and • Equip construction vehicles and machinery with standard pollution-control devices to minimize dust emissions.	Construction phase	Contractor	Included in the construction cost (contract requirement)

Potential Impacts	Proposed Mitigation and/or Enhancement Measures	Implementation period	Responsible Institution	Estimated budget (Birr)
Construction Activities Noise and Vibration Impacts	• Schedule noisy activities to daytime hours, • Locate noisy installations in adequate distance to residential areas to meet noise limit values, • Install noise control devices in construction equipment if noise levels exceed existing guidelines limit, and • Instruct the workforce to avoid unnecessary noise.	Construction phase	Contractor	Included in the construction cost (contract requirement)
Water Source Pollution Impacts	• Avoid unnecessary soil erosion on the community water source and at stream crossings, • Secondary containment to collect diffuse and accidental spills, • Storage and handling of fuel should be kept away from the community water source, and • Installation of sanitary water treatment facilities in workers' camps.	Construction Phase	Contractors	Included in the construction cost (contract requirement)
Construction Phase-Biological Environment				
Vegetation clearing	• Vegetation clearing should be minimized as much as possible, • Limit vegetation clearing for water pipelines required work strip, and • Use only indigenous plant species for re-vegetation.	Construction Phase	Contractor	Included in the construction cost (contract requirement)
Impacts on Terrestrial Fauna	• Schedule noisy activities to daytime hours, and • Instruct the workforce to avoid unnecessary noises.	Construction phase	Contractors	Included in the construction cost (contract)
Construction Phase - Socioeconomic Environment				
Population influx	• Establish transparent recruitment procedures to avoid camp followers in form of job-seekers,	Pre-construction & construction phase	Project Owner/ Contractors	Included in the construction cost (contract)

	• Establish a recruitment policy that gives priority to local residents for less specialized services, • Recruitment procedures to be shared with the local authorities for further dissemination, • Award opportunities for sub-suppliers and sub-contractors of local firms which in turn employ local labour, and • Conduct public health campaigns addressing issues of behavioral change, water and sanitation, COVID-19, malaria, HIV/AIDS, etc.			Project Owner Owner's cost -part of public health and safety 500,000
Impacts on roads	• Use culverts and any other crossing structure, if available, to cross the canal, and • Negotiate with road Authority and compensate for the unavoidable impact.	Construction phase	Project owner	To be estimated after consensus with Road Authority
Pressure on Existing water and Sanitation Facilities	• Ensure early start of the project's sanitation component to cater for influx of workers and job seekers, and • Provide sufficient water supply & sanitation facilities to workers at all work sites.	Pre-construction/ Construction phase	Owner/ Contractors	Part of Community health & safety 1,750,000.00
Impacts on public health	• Include best practice health and safety provisions in the construction contracts and ensure strict compliance with national legislation and EHS Guidelines, • Close open trenches as quickly as possible to reduce risks, • Ensure notifications at ongoing construction activities sites, • Disseminate traffic management plans in the project area, through campaigns in schools and communities with other relevant sectors, and • Ensure speed limits and traffic controls for project vehicles and equipment.	Construction phase	Contractor	Included in the construction cost (contract)

occupational health and safety impacts	• Ensure compliance to occupational health and safety standards, • Maintain safe workplaces, plant and working systems, • Providing information, instruction and training enabling employees to work without risks, • Consulting with employee-elected health and safety representatives and/ or other employees about occupational health, safety and welfare, • Ensure workers' camp standards, quality and provision of basic social services based on existing standards, guidance on workers' accommodation, and • Establish workers grievance mechanisms, etc.	Construction phase	Contractor	Included in the construction cost (contract)
Solid waste generation impacts	• Ensure detailed design and specifications are undertaken so as to minimize solid waste generation of waste during construction, • Locate material and stockpiling areas within the project construction corridor until its ultimate destination is determined, • Manage stockpile areas and storage areas properly, • Dispose non-recyclable construction materials at a licensed waste facility and avoid fly-tipping, • Ensure used furniture and equipment from decommissioning is sold off/reused where possible, otherwise, dispose of at an appropriately recognized landfill, • Recycle any ballast that cannot be reused as ballast and remove excess ballast and clean fill off site for reuse, as possible Sustainable use of resources (to reduce the consumption of	Construction phase	Contractor	Included in the construction cost (contract)

	resources and to adopt recyclable materials where possible. Water systems comprise significant number of structures and mechanical fittings), • Optimize the water supply structures sizes to reduce the volume of construction materials used and soils to be disposed tore recyclable waste separately from residual/non-recyclable waste, a • Provide recycling bins around workers 'camps, offices and amenities.			
COVID-19, STDs and HIV/AIDS cases impacts	• Undertaking periodic awareness creations for workforce on safe working practices, • Promoting health education and awareness creations, • Instilling proper code of conduct and work ethics among construction workers & ensure that they are observed, and • Workers should be aware on their own safety and safety of others.	Construction phase	Contractor	Included in the construction cost (contract)
Grand Total				**2,250,000.00 ETB**

9. ENVIRONMENTAL AND SOCIAL MONITORING PLAN

9.1 General

The environmental and social monitoring program is a vital tool and process in relation to environmental and social management as it provides the basis for rational management decisions regarding impact control. In this water supply project, the environmental and social monitoring plan will help to ensure that the proposed mitigation measures for identified impacts and risks are being implemented effectively to fix issues they have been designed for. The monitoring program for the proposed project will be undertaken to meet the following objectives to:

- Check on whether mitigation and benefit enhancement measures have been adopted, and are proving effective in practice;
- Provide a means whereby any impacts which were subject to uncertainty at the time of ESIA preparation or which were unforeseen, can be identified to provide the basis for formulating appropriate additional impact control measures, and
- Provide information on the actual nature and extent of key impacts and the effectiveness of mitigation and benefit enhancement measures which, through a feedback mechanism, can improve the planning and execution of future, similar projects.

There are two basic forms of monitoring:

- ***Compliance monitoring,*** which checks whether prescribed actions have been carried out, usually by means of inspection or inquiries.
- ***Effects monitoring,*** which records the consequences of activities on one or more environmental components, and usually involves physical measurement of selected parameters or the execution of surveys to establish the nature and extent of induced changes.

Compliance monitoring is usually given more emphasis in the case of the proposed Phase 1 project than effects monitoring. This is because most impact controls take the form of measures incorporated in project designs and contract documents, and the extent to which recommendations on these matters, as set out in the ESIA, are complied with, plays a major part in determining the overall environmental performance of the project

Environmental and social monitoring during the construction phase will comprise two principal groups of activities:

- Review of the Contractor's plans, method statements, temporary works designs, and arrangements relating to obtaining necessary approvals from Construction Supervisor Engineer, so as to ensure that environmental and social protection measures specified in the contract documents are adopted and that the Contractor's proposals provide an acceptable level of impact control, and
- Systematic observation on a day-to-day basis of all site activities and the Contractor's offsite facilities including quarry and borrow areas, as a check that the contract requirements relating to environmental and social matters are being complied with and that no impacts foreseen and unforeseen are occurring.

This section discusses the need for programmes covering both internal and periodic external monitoring. The overall objective of environmental and social monitoring is, therefore, to ensure that mitigation and enhancement measures are implemented and that they are effective. The activities and indicators that have been recommended for monitoring are presented in the Environmental and Social Monitoring Plan (ESMP), Table 9.1

The Environmental and Social Monitoring will be carried in order to ensure that all construction activities comply and adhere to environmental provisions and standard specifications of the Environmental Protection Authority of the country, so that all mitigation measures are implemented. Such monitoring can act as an early warning system to management, providing feedbacks mechanisms to enable damaging practices to be altered.

The monitoring activities is fully integrated with other construction supervision and monitoring activities to be carried out by the construction supervision consultant. The primary responsibility of ensuring the implementation of sound environmental and social monitoring will rests on Supervision Engineer (SE), as part of his duties connected with general site supervision. Actual monitoring on a day-to-day basis will be carried out by the site staff from construction supervision consultant, under the direction of the SE. The majority of monitoring will comprise visual observations, carried out at the same time with the engineering monitoring activities.

Site inspections will take place with an emphasis on early identification of any environmental problems and identifying implementations of recommended remedial actions. Where remedial actions have been required on the part of the Contractor, further checks will need to be made to ensure that these are actually being implemented to the agreed schedule and in the required form. Each part of the site where construction is taking place needs to be formally inspected from an environmental and social management viewpoint on a regular basis.

The SE will decide on the appropriate course of action to be taken in cases where unsatisfactory reports are received from his field staff regarding ESHS matters. In the case of relatively minor matters, advice to the Contractor on the need for remedial action may suffice, but in all serious cases, the SE should either recommend an appropriate course of action to the contractor or should issue a formal instruction to the Contractor to take remedial action, depending on the extent of his delegated powers.

Monitoring systems should be set up during construction by the Supervising Engineer (SE) and Contractor and by the Proponent during construction activities of the project so that potentially environmentally problematic areas can be detected well in advance and the appropriate remedial action taken. This could simply be a checklist of items that need to be inspected as a matter of routine, or periodically, depending on the nature of the aspect.

Checking monitoring will be carried out on an intermittent basis by the Environmental Specialist of the PIU. Monthly reports prepared by the SE should contain a brief section referring to environmental and social matters, which summarizes the results of site monitoring, remedial actions which have been initiated, and whether or not the resultant action is having the desired

result. The report will also identify any unforeseen environmental, social, health, and safety risks and impacts and will recommend suitable additional action items. Progress meetings with the contractor will also include a review of ESHS aspects.

Monitoring of construction activities and mitigation measures implementations will be based on visual inspections at the construction sites. In addition, the contractors will be responsible for monitoring the outcome of their management actions on the physical, biological and human environment. The proposed performance indicators, means of verifications and monitoring frequency are described in Table 9.1.

As stated above, one of the major approaches to carry out monitoring activities is visual observation. However, apart from visual observations, particularly it is important that monitoring should also include limited informal questioning of people and local community leaders who live near the project, since they may be aware of matters which are unsatisfactory but may not be readily apparent or recognized during normal site inspection visits. The most critical parameters to be monitored are listed below and the summary of the Environmental and Social Monitoring Plan is indicated in Table 9.1.

- Behavior control,
- Security control around project sites
- Occupational health and safety (OH)
- Violence related to the project (GBV, SEA, VAC, SH)
- Road safety and traffic control,
- Water Quality,
- Air Quality,
- Noise level,
- Soil conservation and reforestation, and
- Project Capacity building

9.2 Internal Monitoring Plan

The ESIA study has identified a number of areas of concerns. Mitigation measures have been developed and monitoring of the effectiveness of the proposed mitigation measures is important. It will be the responsibility of proponent to conduct regular internal monitoring of the project to verify implementations of the Contractor and to audit direct implementation of environmental mitigation measures contained in the ESMP for the Project. Monitoring proposed environmental and social parameters will form part of the routine management of the proposed project from implementation to operations. Therefore, monitoring must be seen as more than merely satisfying compliance with environmental rules and regulations. Without a specific reporting, response mechanism and auditing, monitoring is of little value. The interpretation of monitoring data and its implication for management should be provided to senior management.

The responsibility for mitigation monitoring during the operation phase will be solely for the proponent. The monitoring unit should produce an annual report which should be publicly available for inspection. It is strongly recommended to the proponent to employ an

Environmental and Social Officer or Environmentalist or Health Officer (or any other desired) to undertake the responsibility for ensuring project sustainability.

9.3 External Monitoring Plan

The National ESIA and Audit Regulation prerequisite is that executing a project or a development plan shall be effected after an environmental impact statement has been approved by the line Environment Protection Authority (EPA), the project owner shall take all practical measures to ensure implementation of the ESMP by: -

- Undertaking self-auditing annually or as needed;
- Preparing an environmental and social audit report after each audit and submit its report to EPA annually or as required, and
- Ensuring that the criteria used for the audit is based on the environmental impact assessment process or after an initial audit.

EPA has the overall responsibility for issuing approval team or body for the Project and ensuring that ESMP and EMP are implemented accordingly. EPA reviews environmental monitoring and environmental compliance documentation submitted by developers and they would not normally be directly involve in monitoring the Project unless some specific major environmental issue arises.

The proponent through a consulting firm or registered environmental expert will therefore provide EPA with reports on environmental compliance during implementation as part of their annual progress reports and annual environmental audit reports. The overall Environmental and Social Monitoring Plan is presented in Table 9.1.

Table9.1: Environmental and Social Monitoring plan

Parameters to be monitored	Performance indicators	Means of verification	Monitoring frequency	Responsibility	Estimated Cost
CONSTRUCTION PHASE					
Physical Environment					
• Limit vegetation clearing for the water pipelines to the required work strip, • Landscaping of the spoil tips should take advantage of the natural terrain • Remove the good topsoil first and keep it separate for use in replanting and restoration	• Quality of landscaping at restored sites • Extent of vegetation clearing • Number and location of spoil tips • Cleanliness of construction site	• Visual inspections • Photographic documentation • Interviews	During Construction	Contractors, Construction supervisor	Included in construction cost (contract requirement)
• Stabilize the soil mechanically to reduce erosion potential • Re-grading of slopes and re-vegetation of exposed areas • Use native/excavated material to backfill the trench section around the pipes • Spoil earth/rock should be disposed of in appropriate approved areas	• Evidence of soil stabilization, re-grading and re-vegetation • Type/source of material used for back filling • Number and location of spoil tips.	• Visual inspections • Photographic documentation • Interviews	Daily construction over	Contractors, Construction supervisor	Included in construction cost (contract requirement
• Installation of secondary containment at fuel storage sites • Store hazardous materials in properly designed storage facilities	• Pollution spills • Evidence of storage facilities for hazardous waste	• Visual inspections • Photographic documentation • Interviews.	Monthly	Contractors, Construction supervisor	Included in construction cost (contract requirement)

Parameters to be monitored	Performance indicators	Means of verification	Monitoring frequency	Responsibility	Estimated Cost
• Spray water on access road to avoid dust dispersion if necessary • Trap trucks transporting loose/friable materials to minimize loss during transportation • Consider covering stockpiles of excavated soils in areas near houses and shops • Maintain and store piles of loose/friable materials and soil in a suitable manner to minimize dust dispersion	• Frequency of water spraying on roads • Evidence that trucks cover loose materials • Ambient air quality (PM10) at site, schools and health facilities	• Visual inspections • Photographic documentation • Interviews	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement)
• Schedule noisy activities to daytime hours • Locate noisy installations in adequate distance to residential areas to meet noise limit value • Install noise control devices in construction equipment if noise levels exceed the applicable guidelines • Instruct the workforce to avoid unnecessary noise	• Evidence of noise control devices • Noise levels (dB) in residential areas, schools and health facilities, • Number of noise related grievances received and resolved.	• Visual and auditory inspections • Interviews • Grievance register • Noise level measurements (dBA) at construction sites.	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement)
• Avoid unnecessary soil erosion on the lake shore and at river crossing • Secondary containment to collect diffuse and accidental spills	• Water quality parameter, • Pollution spills • Quality of secondary containment structures	• Visual inspections • Photographic documentation • Interviews • Water quality measurements	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement) Birr 100,000 for laboratory

Parameters to be monitored	Performance indicators	Means of verification	Monitoring frequency	Responsibility	Estimated Cost
• Storage and handling of fuel should be kept away from the lake shore and rivers • Installation of sanitary water treatment facilities in workers' camps • Construction methods for intake should be selected to minimize disturbance on lake's bottom	• Number and location of silt trap fences / sedimentation ponds	at the intake • Wastewater quality measurements at source			testing of water and wastewater quality
Biological Environment					
• Vegetation clearance should be minimized as much as possible • Limit vegetation clearance for the water pipelines to the required work strip	• Extent of vegetation clearing • Plant species used for re-vegetation	• Visual inspections • Photographic documentation • Interviews	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement)
• Schedule noisy activities to daytime hours • Instruct the workforce to avoid unnecessary noise.	• Evidence of disturbance and animal escape/avoidance	• Visual inspections • Photographic documentation • Interviews	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement)
Socioeconomic Environment					
• Establish transparent recruitment procedures to avoid camp followers in form of job-seekers • Establish a recruitment policy that gives priority to local residents for less specialized services • Priority for recruitment to be given to local residents for less specialized services,	• Number of job-seekers and camp followers • Written recruitment procedures • Proportion of local population on overall project workforce	• Visual inspections • Interviews • Health center reports	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement) and community health, safety and security plan cost

Parameters to be monitored	Performance indicators	Means of verification	Monitoring frequency	Responsibility	Estimated Cost
• Recruitment procedures to be shared with the local authorities for further dissemination • Opportunities for sub-suppliers and sub-contractors should be awarded to local firms which in turn employ local labor • Conduct public health campaigns addressing issues of behavioral change, water and sanitation, malaria, HIV/AIDS, etc.	• Number of health preventive campaigns • Disease prevalence and incidence.				
• Priority for recruitment to be given to local residents for less specialized and labor intensive services • Create opportunities for employment of women in both management and casual placements	• Proportion of local population on overall project workforce • Proportion of women employees on overall project workforce	• Visual inspections • Interviews • Employment contracts.	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement).
• Ensure early start of the project's sanitation component to cater for influx of workers and job seekers • Provide sufficient water supply and sanitation facilities to workers at all work sites	• Status and progress of sanitation interventions • Number of on-site toilet facilities for workers	• Visual inspections • Photographic documentation • Interviews	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement) and community health, safety and security plan cost
• Provide adequate health care to project workers and their families so as to avoid adding additional stress to the existing health facilities	• Evidence of medical services to workers and their families	• Visual inspections • Interviews • Health center reports	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement) and

Parameters to be monitored	Performance indicators	Means of verification	Monitoring frequency	Responsibility	Estimated Cost
• Conduct public health campaigns addressing issues of behavioral change, water and sanitation, malaria, HIV/AIDS, etc.	• Number of health preventive campaigns • Disease prevalence and incidence.				community health, safety
• Include best practice health and safety provisions in the construction contracts and ensure strict compliance with national legislation and EHS Guidelines • Dissemination of traffic management plans in the project area, through campaigns in schools and communities • Institute speed limits and traffic controls for project vehicles and equipment • The workers' camp standards in regard to quality, management and provision of basic social services must comply with the National Standard on workers' accommodation • Establish a grievance mechanism for workers.	• Number of workers trained in safety procedures • Percentage of workers using Personal Protective Equipment (PPE) • Traffic incident rate, • Observed speed of construction vehicles • Number of drivers trained and equipped with license • Evidence of signing, warnings and control, • Incident statistics, • Number of worker grievances.	• Visual inspections • Interviews • Photographic documentation • Speed checks • Incident reports • Grievance register	Daily during construction period.	Contractors, Construction supervisor	Included in construction cost (contract requirement) and community health, safety and security plan cost

Parameters to be monitored	Performance indicators	Means of verification	Monitoring frequency	Responsibility	Estimated Cost
OPERATION PHASE					
Physical Environment					
Water Quality	Quality checked	Water sample test	Twice a year	Water sector	Sample test=20,000, Perdium=6,000.0 Fuel = 18,000.00
Landscaping, backfilling and leveling of excavated areas during the water supply routes construction	• Quality of landscaping at restored sites	• Visual inspections • Interviews	During handover	Contractors / Water sector, EPA Expert	Fuel=6,000.00, Perd.=4,000.00
Biological Environment					
Restoration or re-vegetation of construction sites to preconstruction state	• Quality of landscaping at restored sites • location of spoil tips	• Visual inspections • Photographic documentation • Interviews	Construction commission	Water sector, Each district EPA Natural Resource, Driver	Fuel = 3,000.00 Perdium = 4,000.00
Limited vegetation clearing for the water pipelines to the required work strip,	Extent of cleared vegetation conditions	• Visual inspections • Photographic documentation • Interviews	Quarterly after construction.	Water sector, Each district EPA Natural Resource, Driver	20,000.00 (Birr) Fuel=12,000.00, Perdium=28,000.0
Socioeconomic Environment					
Occupational health and safety (OH)	Using OHS materials	Observation	Once in three months	District health, Environmentalist	Fuel= 12,000.00 Perdium =12,000
Soil conservation and reforestation	Rehabilitated site cleared during construction	Observation	Twice in the first year of operation	Natural resource, EPA expert Driver	Fuel= 6,000.00, Perdium=6,000
Project Capacity building	Trained water supply technicians	Number of technicians trained	Yearly	Water sector	30,000.00
Total (Total monitoring budget per year)					**285,000.00 Birr**

9.4 Environmental and Social Training

The training program will cover measurement techniques in the field, tools for the prediction of pollutants, reforestation methods and procedures, conservation of water bodies including marshlands, etc. Oromia Region Environmental Protection Authority may be consulted for such training. Immediate short-term training will be required for the Project in-charge and designated Environmental Officer to raise the level of environmental awareness.

The training institutions, the institutions of higher learning in Ethiopia (Addis Ababa University or others) and the AfDB's SNSC conducts training and access to their resources may be sought. The need for additional and specialized training will be examined and appropriate training will be undertaken as required. Training of personnel to be deployed on the proposed project during construction and operation, with regard to environmental and social safeguards and health and safety requirements should be an integral part of the planning. The project authority should be asked to submit a detailed program for training of personnel and implementation with regard to the ESHS requirements.

Apart from the training, such program should include guidelines for safety, methods of disaster prevention action required in case of emergency, fire protection, environmental and social risk analysis etc. Capacity to quantitatively monitor water sediments or turbidity (by suitable portable test equipment) and noise is always advantageous, but monitoring will primarily involve ensuring that actions taken are in accordance with contract and specification clauses, and specified mitigation measures. Some awareness training will be provided to the contractor personnel to ensure that this occurs effectively. The provision of training has been made in cost estimates for environmental training.

9.5 Reporting

9.5.1 Monthly Reporting

Monthly environmental and social performance and compliance report is expected from the project Contractor with other activities achievement reports as indicated in the Construction Contractors' ESMP. The report shall be submitted to the Environmental and Social Management Unit or personnel of the project and be based on the monitoring plan.

The Environmental and Social Management Unit will compile monthly reports that will be forwarded to the management and shared with the concerned stakeholders. These reports will be based on the monthly reports from the construction contractors and on monitoring data from the owner's environmental and social management programme.

9.5.2 Quarterly Reporting

Construction contractors will be required to report monthly while other service providers (e.g., NGOs) involved in the execution of the ESMP should report on a quarterly basis. The quarterly

report will be submitted to the Environmental and Social Management Unit and the report will feed into the monthly reporting cycle described above. The proposed Phase 1 project proponent (ORWEB) shall submit to the AfDB regularly.

9.5.3 Annual Reports

Annual overall environmental and social management performance report is expected from the Environmental and Social Management Unit with other proponent's annual reports. The annual report shall be submitted to the line Environment Protection Authority (EPA) of the region and other government agencies as part of the proponent's statutory responsibilities towards the Government and also to AfDB. The report will also be disseminated to the other project stakeholders as needed.

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING BUDGET

The estimated budget both for the implementation of environmental and social management and monitoring plans are estimated at about **2,535,000.00 ETB** or about USD* **49,706.** The budget is detailed in Table8.1 for the Environmental and Social Management Plan and Table9.1 for the Environmental and Social Monitoring Plan. Of this budget **2,250,000.00 ETB** or **USD 44,117.65** is estimated for the implementation of the environmental and social management plan (Table8.1) and about **285,000.00 ETB or USD 5,588.24** is for the implementation of the Environmental and Social Monitoring plan (Table9.1). Other costs for certain items associated with environmental and social management and monitoring will be an integral part of specific items incorporated in the overall project budget.

*USD 1= 51 ETB

11. CONCLUSIONS AND RECOMMENDATIONS

11.1 Conclusions

This ESIA study report presents analysis and results of the proposed Phase 1 of BRWDL Project. This phase which the ESIA presents is from wellfields in Eleweya district to main Reservoir in Yabello district of Borana Zone of Oromia Region. The results of the study have shown that the project activities from planning, design, construction stage will have minimum negative impacts to the biophysical and social-economic environment provided that the recommended mitigation measures in this report are implemented.

The ESIA study shows that the Phase 1 Project will have few and limited adverse impacts combined with significant social and health benefits. The findings of this assessment study support the construction of the proposed water supply project on the provision that all the mitigation and control measures identified in the study are fully implemented.

11.2 Recommendations

11.2.1 Recommendations for Regulatory Authority

Based on the findings of this study and supplementary information presented in this document the Proponent (Oromia Water and Energy Bureau) shall be certified for the ESIA so as implement the ESMP and ESMoP for the project.

11.2.2 Recommendations for the proponent

As in other projects, the intended project has both positive and negative impacts during construction phase of the wellfields, booster stations, main transmission line and the main reservoir. In order to ensure the viability of the project, the proposed mitigation and enhancement measures (the ESMP) should be implemented in time to avoid and/or minimize the identified adverse environmental and social impacts of the project.

12. REFERENCES

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Vink, A.P.A(1975) Land use in Advancing Agriculture.

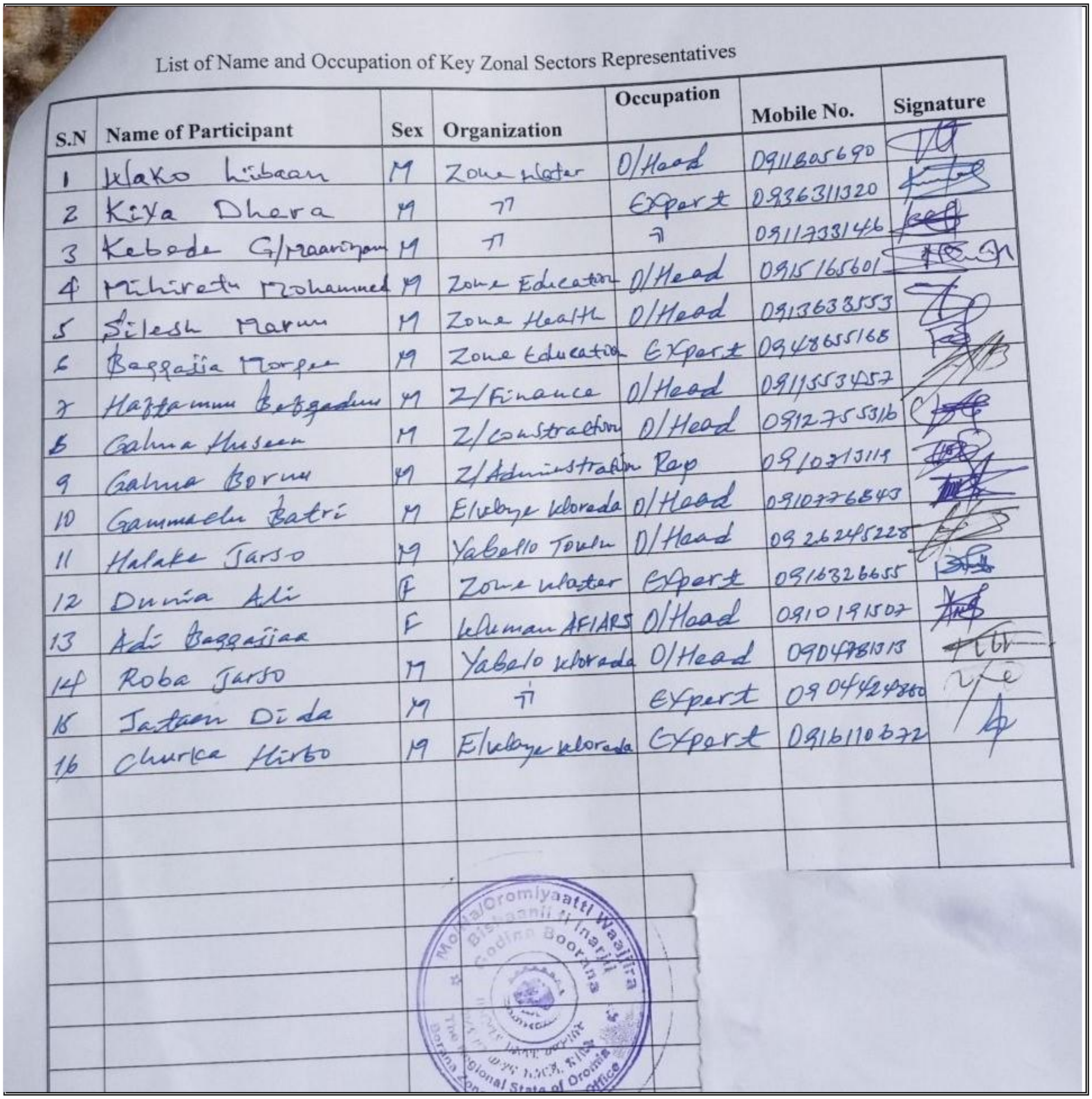
The World Bank Policies and Guidelines.

13. ANNEXES

Annex-I: List of Key Contacted Informants

1. Mr. Mohammed Geleto – Regional State of Oromia Bureau of Water and Energy, Deputy Head, Tel. (Mob.): 0911447732,
2. Mr. Wako Liban – Deputy Head, Borana Zone Water and Energy, Mob. 0911805690,
3. Mr. Sileshi Maru- Borana Zone Water and Energy Geologist and the study facilitator, Mob.0913633553

Annex-2: Borana Zone key stakeholders' consultation participants



List of Name and Occupation of Key Zonal Sectors Representatives

S.N	Name of Participant	Sex	Organization	Occupation	Mobile No.	Signature
1	Wako Liibaan	M	Zone Water	O/Head	0911805690	[signature]
2	Kiya Dhera	M	"	Expert	0936311320	[signature]
3	Kebede G/maariyam	M	"	"	0911733146	[signature]
4	Mihiretu Mohammed	M	Zone Education	O/Head	0915165601	[signature]
5	Silesh Marum	M	Zone Health	O/Head	0913633553	[signature]
6	Baggajjaa Morgaa	M	Zone Education	Expert	0948655168	[signature]
7	Hajjamuu Bofgaduu	M	Z/Finance	O/Head	0911553457	[signature]
8	Galma Husen	M	Z/construction	O/Head	0912755316	[signature]
9	Galma Boru	M	Z/Administration	Rep	0910713119	[signature]
10	Gammachu Batri	M	Elwoye Woreda	O/Head	0910776843	[signature]
11	Halake Jarso	M	Yabello Town	O/Head	0926245228	[signature]
12	Dunia Ali	F	Zone Water	Expert	0916326655	[signature]
13	Adi Baggajjaa	F	Women AFFAIRS	O/Head	0910191507	[signature]
14	Roba Jarso	M	Yabelo Woreda	O/Head	0904781313	[signature]
15	Jattani Dida	M	"	Expert	0904424860	[signature]
16	Churka Hirbo	M	Elwoye Woreda	Expert	0916110672	[signature]

Annex-3: Minute of Borana Zone key stakeholders' consultation meeting

Stakeholders Consultation Agenda

Regional State: Oromia Zone: Borana

Town: Yaballo: Venue : Borana Zone Water and Energy Office

Project Name: Borana Resilient Water Development for Improved Livelihood Program, Phase-1 Project of the Program.

Environmental and Social Impact Assessment Consultation

Date: 14/04/2022 Time:4:30

Participants: key zone sectors representatives.

Points of Discussions

1. Briefing objectives of the Environmental &Social Impact Assessmentof the project.
2. Major Environmental &socio-economic problems.
3. Benefits of the upcoming project at local and beyondthe area.
4. Main problems and threats related to the project.
5. Measures to be taken to mitigate the negative impacts and optimize the benefits.
6. Acceptance of the project by the society.

After the study document explained to the participants the detail discussion was held on the above major agendas and all participant conclude that the project have no significant Environmental Impacts
Social and **Economic Benefit** of the project is very great to change the livelihood of the Community and the participant agree on the project and requested the donor and concerned bodies to approve the project and star up in a short period of time.

Borana-Resilient Water Development for Improved-Livelihoods Program (BRWDLP) Community Consultation Minute

Participants list is attached.

Mr. Wako Liban – Chairman (Head of Borana Zone Water and Energy Office)

Mr. Silashi Maru: Secretary

Meeting Place : Borana Zone Water and Energy Office.

Meeting Time : 9:00-11:30

Meeting Date : 16/04/2022

Discussion Points or Agenda

The discussion points or agenda is attached.

Discussions and Decisions

Based on the meeting agenda, the Borana Zone key sectors representative consultative focus group discussion was conducted chaired by the Zone Water and Energy Deputy Head. Issues raised and views and concerns of the participants are detailed here under.

The participants were expressed that it is an opportunity for Borana Zone populations if the intended project enters into implementations as the recurrent drought not only called upon the zone and Oromia Regional State populations, but also the case called national and international communities, NGOS and other funding agencies support through the regional government and the country. These all had been trying to support the people who had been affected by the drought and also shortage of water for domestic and livestock populations of the zone. Therefore, we all would like to thank the funding agency, the AfDB, for the initiation and startup of the water supply project which the zone and Oromia Water and Energy Bureau had been trying to implement the project and took years by promising the people which did not implemented until now.

Based on the environmental and social baseline conditions of the project areas, it has no significant impacts that can hinder its implementations as the settlements are very scattered and no potential developments that can be affected by the project

construction and implementation activities. It has no potential influences on natural resources as expected transmission lines and borehole areas are within and along open bush lands at most.

By implementing the project, the existing serious and critical water supply shortages for human and their livestock population will get solutions and the community overcome the commonly observed waterborne diseases problems and their livestock also can get water. Human and their livestock migration and exposure to different social and climatic problems. It also helps in attaining the community livelihood which has been affected by the recurrent drought and livestock deaths.

The zone stakeholders and populations now expect from the project that they get reliable water supply system for the communities and their livestock as soon as possible, the project shall include cattle troughs for livestock in order to protect the existing critical water shortage on livestock, avoid or reduce incidences of waterborne diseases observed on human and above all as water is basic life necessity, we strongly request and assure our commitment and support for the fulfilment of the project implementations.

The participants also raised issues of focus areas such as water supply distributions for all schools, health centers (as social services are in critical shortages of potable water) as commonly considered. The recurrent drought and critical shortage of livestock feeds are the two major areas that need intervention and require immediate responses.

Finally, the zonal key stakeholders representatives consultation meeting participants were expressed their promise to participate and involve in activities that need their participations. It was concluded from the meeting that they have positive attitudes and concerns on the project. At the end, they also strongly requested implementations of the project, as lack of trusts on project implementationspromises were repeatedly observed and the community and all the stakes are eager for the project implementations.

Annex-4: Borana Zone Wellfield kebele key stakeholders' consultation participants

Stakeholders Consultation Participants Registration

Regional State: Oromia **Zone:** Borana

Town: _____ **Wereda:** Yabello **Kebele/s:** Dharito

Date: 16/04/2022 **Time:** 3:00

Project Name: Borana Resilient Water Development for Improved Livelihood Program, Phase-1 Project of the Program

S.N	Name of Participant	Sex	Occupation	Village	Mobile No.	Signature
1	Liboan Duba	M	Chairman	Dharito	0932641801	
2	Kabale Boru	F	Woman AFAIRS	〃	0956045569	
3	Wario Dika	M	Manager	〃		
4	Sadia Kamphe	F	Member	〃		
5	Godana Arero	M	〃	〃		
6	Tashi Garbicha	M	〃	〃		
7	Godana Malicha	M	〃	〃	0900521498	
8	Sara Dhara	M	〃	〃		
9	Galgalo Duba	M	〃	〃		
10	Galma Boru	M	〃	〃		
11	Dalicha Arero	M	〃	〃		
12	Tume Godana	F	〃	〃		
13	Roba Halake	M	〃	〃	0938361450	
14	Kanu Jirmo	M	〃	〃		
15	Roba Halake	M	〃	〃		
16	Jatani Huka	M	〃	〃		
17	Abdi Wario	M	〃	〃		
18	Gobu Nura	M	〃	〃	0946531472	
19	Baba Malicha	F	〃	〃		

Mo/Na/Or/Go/Booranaatti Waajira Misoon Qabeenya Bishaan fi Inarjiil Aanaa Yaaballoo

Annex-5: Minute of Wellfield kebele key stakeholders' consultation meeting

Borana-Resilient Water Development for Improved-Livelihoods Program (BRWDLP) Community Consultation Minute

Participants list is attached.

Chairman : Mr. LibanDuba – Chairman of DheritoKebele of Yabello District
Secretary : Mr. WariyoDika, Manager of the kebele
Meeting Place : Dharito village – Main Reservoir in Yabello.
Meeting Time : 9:00 -10:30
Meeting Date : 16/04/2022

Discussion Points or Agenda

The discussion points are attached. The Minute was translated by the consultant.

Discussions and Decisions

The discussion points were briefly highlighted by the facilitator and the chairman. They addressed the objective of the ESIA study by saying that the study is to harmonize, if any, impacts of the intended Phase-1 project of the program construction and implementation activities to ensure the project harmony with the project area. Then after, participants raised their opinions and ideas they have on the project and the plan as a whole.

All the participants had started their opinions by expressing their deep thankfulness for the financer and the government of Ethiopia and the region for the attention given for the people who had been suffering by severe droughts and lack of water for human and their livestock. They also raised that same discussions have been conducted before, probably two to three months ago and this is the second cycle on the same issue. Our idea then and now is the same, our critical problem is lack of water for our people and livestock. This critical problem is not solved so far.

With regard to environmental and social problems of the area, the participants replied that, we the Borana people, have serious and serious water problem. We do not have potable water for our family and even for our livestock. The repeated droughts in the

area also aggravated the problem. As a result of the drought many of our people livestock died and the people became poor and poor as the livelihood of our people is at most depends on our livestock. Therefore, the major problems of the people of the district and the zone in general are lack of water for ourselves and our livestock and recurrent drought.

With regard to any problem the project implementation may have, the participants said that the project fully does not have any negative impact or problem upon our communities other than benefiting us. As it is known, we, the Borana People, have large area of land with very few settlements. Most of our people are agro pastoralists and they make use of migrating from place to place for searching for water and grasses for our livestock. Even,if there is permanent settlement, since water is life and we have faced serious animal deaths and peoples migrations by repeated droughts and lack water for human and livestock, the problem we faced cannot be greater than any problem the project may have. Therefore, we guaranteeor assure any one in need that no and no problem the project has upon our people other than benefiting us and our livestock. If there be anyproblemduring the project implementation we solve among ourselves.

Finally, the participants of the consultative meeting told the team that as the project benefits are much, much more than any problem and also as the water supply request is our long years and repeated requests for many years, the project acceptance is very high and we, the representatives of our peoples, all accepted the project and assure that we fully support the implementations of the project. Therefore, we strongly request the project implementation as it solves our critical social and livelihood problems and helps us to stand against any climatic changes and disasters we were facing so far by the recurrent droughts in the area.

Note:
The core ideas expressed in previous consultative meetings of the community conducted before three months are similar to this minute ideas.

Annex-6: Minute of Ade-Galchet/Wellfield kebele community representatives' consultation meeting (October 2021)

Guyyoo 15/02/2014

Gandoo Addee Galchootü marii waliin ee Bishaanii Qabbaa yaayyü Gandoo baphireshin Bishaan Oromiyaatiin.

Yaada ummataa ; Rakkoo Bishaan Gandoo kanaa keessatti maallü jakkoatoo?

Rakkoon Bishaan Bishaan Gandoo kanaa keessaa hin jiraan-

- Boonnü Gandoo kanaa keessaatü bayyee. Ammoo. Bishaan duraa Gandü kun qa Gandü kun dhabatee Bishaa Gandoo kanaa keessaa ba·aan

Bishaan Gandoo kanaa keessaa Annaan ba·ee hin dhaa qabaa Jedhan Yaadaa tokkoo dhiiyinee hin beenu.

Addü Phoonphi Nammootü hundü kanaani Jiraa

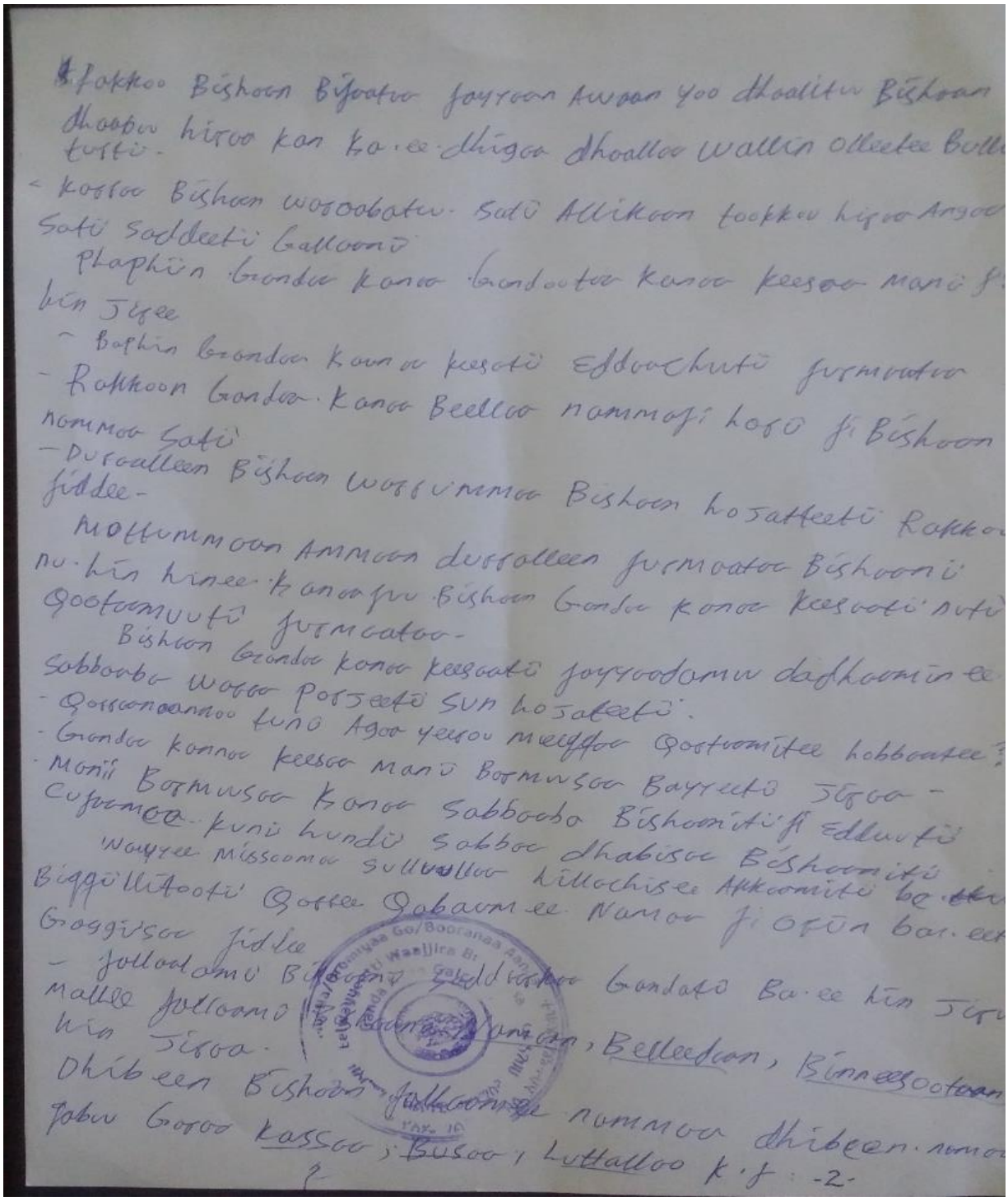
- Bishaan Gandoo kan Boonaü yeeroo ofü Egaattee dhiiyoo. Nuttü Bishaan dhuddoo dheeroo Aafü waayyaa Goddü nuuti dhisaan Sunnuu kodhaanü.

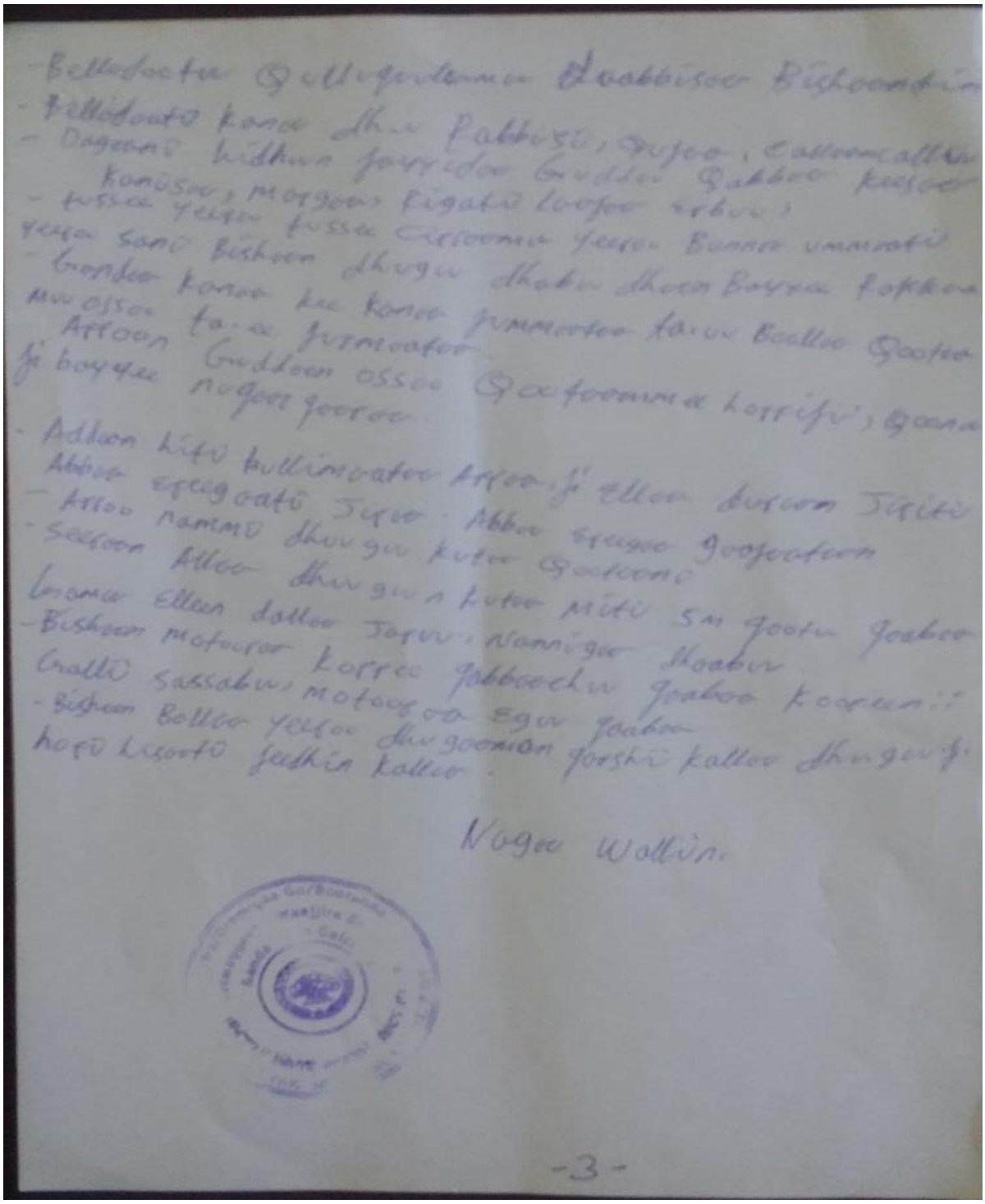
Korfoo kanaa hiraatü loöwoon kanaa dhummaatoo: Sabbaa dheebuun Loon dhisü nammiinu Akkoo dhumaa Jiraa. Bishaan dudda dheeroo Ammaalee Abbü hisaanü hin qaabinnu borülee

Bishaan Gandoo kannaa keessaa ya·aa Annaa dilloo waqaa Soddü fi Afurii dhu gaa Jiraanü

- Bishaan Baattoo caphee waaabaachaa tuu ee Bishaan yaa [illegible] Ummaataa kanaa wanü kojachu qaabun Qorannoon Bishaan Akkoo Qooteemuu qaabbaa.

- 1 -





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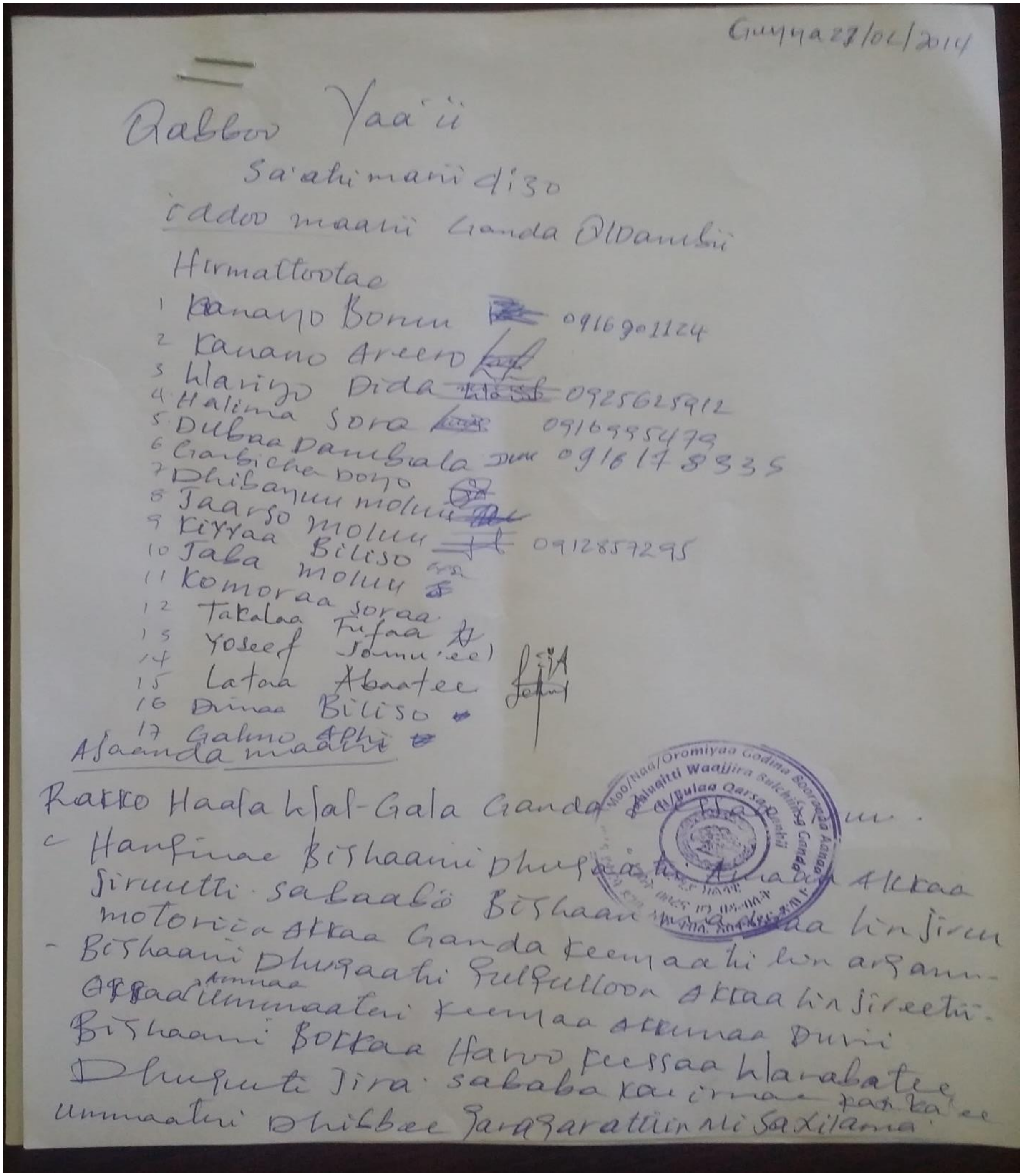
Annex-7: Minute of Kersa Dembi kebele community representatives' consultation meeting



Guyya 27/02/2014

Qabbii Yaa'ii

Sa'ati maarii 4:30

Iddoo maarii Ganda Q/Dambii

Hirmaattootaa

1 Kanayo Boruu 0916901124
2 Kanano Areero
3 Wariyo Dida 0925625912
4 Halima Sora 0916995479
5 Dubaa Dambala 0916178335
6 Garbicha Boyo
7 Dhibayuu Moluu
8 Jaarso Moluu
9 Kiyyaa Biliso 0912857295
10 Jaba Moluu
11 Komoraa Soraa
12 Takalaa Fufaa
13 Yoseef Jamu'eel
14 Lataa Abaatee
15 Dimaa Biliso
16 Galmo Aphi

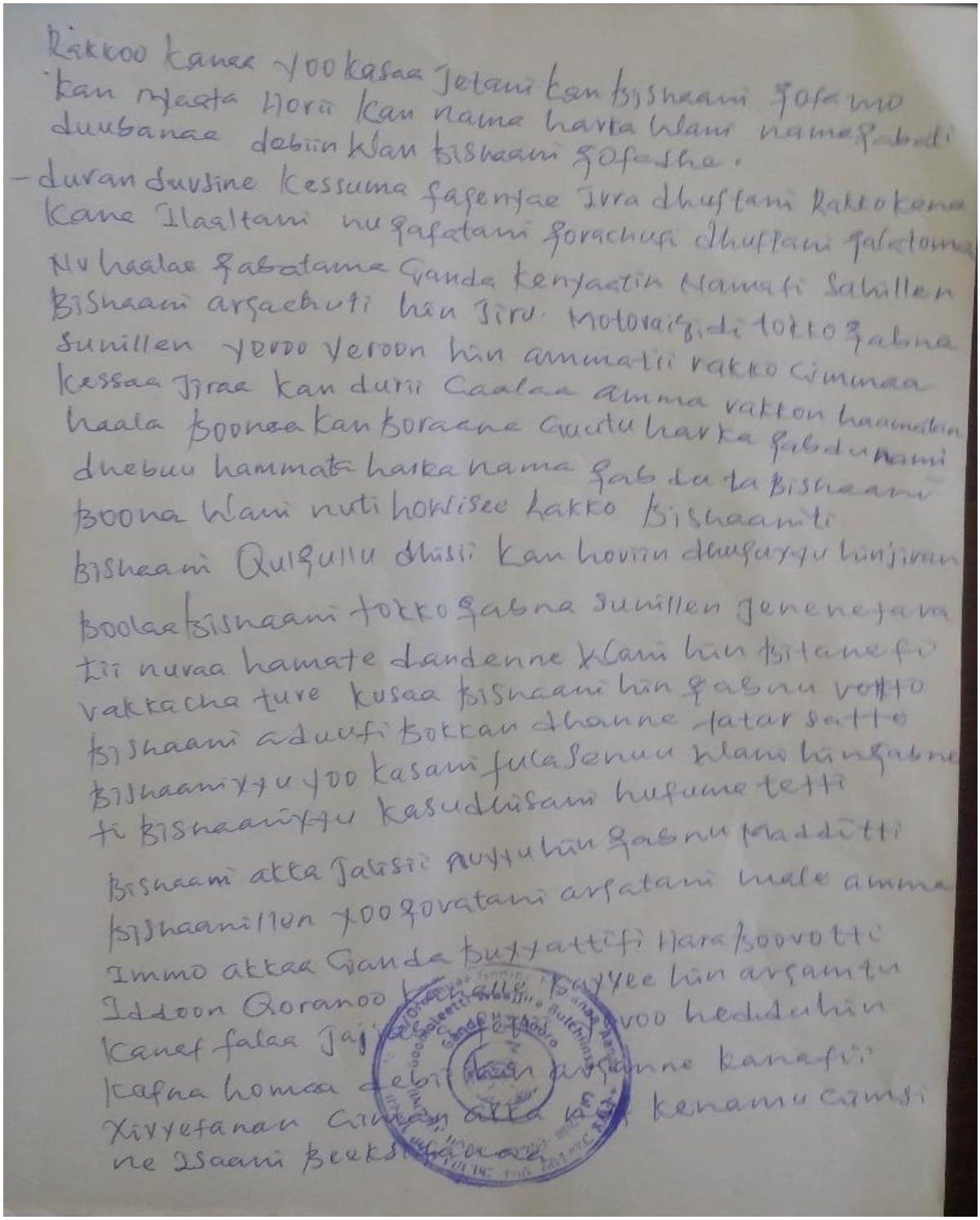
Ajandaa maarii

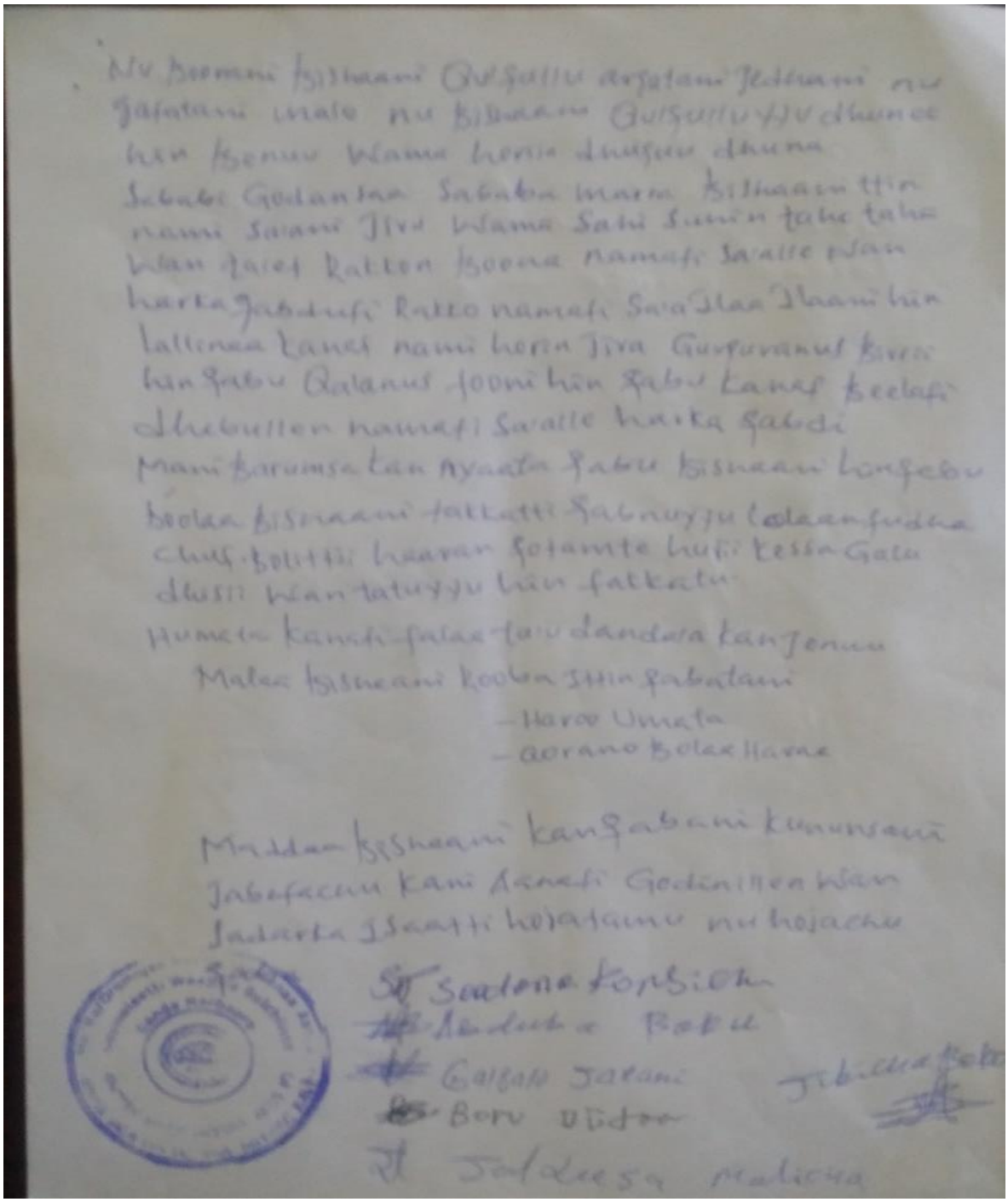
Rakkoo Haala Wal-Gala Ganda [illegible]
- Hanqinaa Bishaan Dhugaatii [illegible] akkaa Jiruuti sababa Bishaan [illegible] hin jirre motorii akkaa Ganda keenyaatti hin argamne
- Bishaan Dhugaatii qulqulloo akkaa hin jirretti Oggaa ummaatni keenyaa akkumaa Duri Bishaan Bokkaa Harro keessaa Warabatee Dhuguuti jira sababa kanarraa kan ka'ee ummaatni Dhibbee Garagaraatiin ni Saxilama.

Akkaasumaas Bishaan Dhugaatii
Dhaqachuuf Kilometir 35 oli
Hadhoolee Dugdaani Waraabdii
c Yeroo Bonaa uumaalen sababa Hanqina
Bishaanitti Bootii tokko Uumaatni Birri
Walitti Guraatt Birr 70,000 Bufaata Turi-
→ Haala Qilleensi Nannoo Keenyaa Gogaa Wani
Deemuuf Hanqina Rooba Baldaati jira.
→ Boonii Bara Baraan Dabala Deema.
- Yeroo Bishaani Gandaa Keessaatti yoo
Bishaani Argaatane Gaatii Diqoo Sumni
Kafalu Danda'a? Bishaani argachuni
Wani Guddaa Wan ta'eef Ni kafalani.
⇒ Madda Bishaanii Kunuunsuu iraatii. Qulqullon
malii fakkaata. Nu Akkaa Gandaa Keenyaatii
madda Bishaanii Eljaroo malee Wani hin qabnee
Dallaa itti Waaranee. Ni kunuunsina.
⇒ Haala Goodansaltiin Wal-Qabatee Horiin Aqanii
idoo Sumni Turu Danda'a. Yero muraasanii
Boodaa yoo Waaqii Roobii... Horii Qeencaa
Akkaa Badeetii. Garaa Gandaa ...anaatii Bishaanii
Dhugaatii Haala Ammaala Keessaa Wanii
Sirnuf Qamii Dhimmi... Nu Akkaa Furmaato
Nu Godhu Gaafanna...

-2-

Annex-8: Borbor Kebele community representatives' consultation minute





Annex-9: Consulting firm lead expert professional license

ቁጥር : 11/1.1/7035/11
ቀን : 19/2/2011

የብቃት ማረጋገጫ የምስክር ወረቀት

የአካባቢ፣የደን እና የአየር ንብረት ለዉጥ ሚኒስቴር በአካባቢ ዘርፍ የአካባቢ እና ማህበረሰብ ተፅዕኖ ግምገማ ጥናት የማማከር አገልግሎት ብቃት ማረጋገጫ ምስክር ወረቀት አሰጣጥ መመሪያ ቁጥር 03/2010 መሠረት አቶ በንቲ ሺሚና ቀነዓ በአካባቢ እና ማህበረሰብ ተፅዕኖ ግምገማ ጥናት ዘርፍ ላይ የአካባቢ ጤና ተንታኝ ባለሙያ እና የአካባቢ ብክለት ተንታኝ ባለሙያ የማማከር አገልግሎት ላይ ከፍተኛ አማካሪ የብቃት ማረጋገጫ ምስክር ወረቀት ተሰጥቷል።

ከሠላምታ ጋር

ሽፈራው ነጋሽ

የአካባቢና ማህበረሰብ ተፅእኖ ግምገማ እና
የአካባቢ ፍቃድ መስጠት ዳይሬክተር ጀኔራል

REF. NO : 11/1.1/7035/11
DATE : 29/10/2018

CERTIFICATE OF COMPETENCE

MINISTRY OF ENVIRONMENT FOREST AND CLIMATE CHANGE BY VIRTUE OF THE POWER VESTED TO IT BY ENVIRONMENTAL COMPETENCE ISSUING DIRECTIVE NO **03/2017**, HAS ISSUED THIS CERTIFICATE OF COMPETENCE TO **Mr. BENTI SHIMINA KANA'A** AS CONSULTANT IN ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDIES **AN ENVIRONMENTAL HEALTH EXPERT** AND AS **AN ENVIRONMENTAL POLLUTION ANALYST EXPERT** IN CATEGORY OF **SENIOR CONSULTANT.**

WITH REGARDS

SHIFERAW NEGASH

Environmental and Social Impact Assessment and
Environmental Licensing Director General

የብቃት ማረጋገጫ ምስክር ወረቀት

CERTIFICATE OF COMPETENCE

ዕድሣት (Renewal)

ቀን : 18/02/2014 ዓ.ም
Date: 28/10/2021G.C

የምዝገባ ኃላፊ ስምና ፊርማ
(Authority in charge of Registration)

ሐብታሙ ከበደ
Habtamu Kebede

ያረጋገጠው ኃላፊ ስምና ፊርማ
Checked By

ጎንፋ አራርሳ ፈይሳ
Gonfa Ararsa Feyisa
የአካባቢ ፈቃድ መስጠት ዳይሬክቶሬት
Environmental Licensing Directorate

ቀን : 19/02/2011 ዓ.ም
Date: 29/10/2018 G.C

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የአካባቢ፣የደን እና የአየር ንብረት ለውጥ ሚኒስቴር

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

Annex-10: Consulting firm lead environmental expert CV

ENVIRONMENTAL EXPERT CURRICULUM VITAE

1. Personal Details

Name	:	Benti Shimina Kanaa
Date of birth	:	April 15, 1964
Profession	:	Senior Environmental Expert.
Total work experience:		34 years of which 27 years in environment sector.
Nationality	:	Ethiopian
Address	:	Addis Ababa, Nifas Silk Lafto Sub-city, District 01, House No. 71/33; Tel. 0911 659771 /0911 806260/ Addis Ababa

2. Education

2.1 MSc Degree in Environmental Science, Addis Ababa University, Natural Science Faculty, Environmental Science Program, 23rd August, 2007.

2.2 BSc. Degree in Chemistry, Addis Ababa University, Natural Science Faculty, 18th July, 1986.

3. Professional Licenses

Senior consultant in the category of:

1. Environmental Health Expert (EFCC Commission of Ethiopia);
2. Environmental Pollution Analyst Expert (EFCC Commission of Ethiopia), and
3. Professional Environmental Engineer in Water Sector (MoWIE).

4. Training /Courses, workshops and seminars

4.1 MS Project 2007; Project management software, organized by Water Works Design and Supervision Enterprise, conducted by Construction Solutions PLC, 17–27 May, 2010 Addis Ababa, Ethiopia.

4.2 *Environmental Management System (EMS)* and *Municipal Solid Waste Management Strategic Action Plan Preparation* organized by the Environmental Protection Authority of Ethiopia, held from 14-19 January 2008 at Ghion Hotel, Addis Ababa, Ethiopia.

4.3 *Integrated Water Resources Management*, Organized by The Federal Democratic Republic of Ethiopia, Ministry of Water Resources, 18-20 October, 2004, Addis Ababa, Ethiopia.

4.4 *Strategic Management, Performance Management, Process Re-Engineering, Customer Service, Standard and Institutional Code Of Conduct, Training*, organized by The Oromia Management Institute, in collaboration with the Oromia National Regional State Capacity Building Supreme Office, held from 19 -28 April, 2004, Ziway, Ethiopia.

4.5 *Environmental Audit Training*, Aspect International, England, Organized by The Environmental Protection Authority Of Ethiopia, held from October 21st – May 01, 2002, Addis Ababa, Ethiopia.

4.6 *Environment, Population and Development, Training workshop,* organized by LEM, Environment and Development Society of Ethiopia, held from 27th -30th May, 2002.

4.7 *Media Use for Environmental Awareness & Action Training Workshop,* organized by The Environmental Protection Authority of Ethiopia, held at Ethiopian Red Cross Society Training Centre from 12-15th January, 1999, Addis Ababa, Ethiopia.

4.8 *Environmental Economics, Training Workshop,* organized by The Environmental Protection Authority of Ethiopia, held at Ethiopian Red Cross Society Training Centre from 21-25th December, 1998, Addis Ababa, Ethiopia.

4.9 *Strategic Planning and Project Preparation, Training Workshop,* organized by The Environmental Protection Authority of Ethiopia, held at Ethiopian Red Cross Society Training Centre from May 30 - December 6, 1998, Addis Ababa, Ethiopia.

4.10 *Mining and the Environment in Ethiopia, Training Workshop,* organized by The Chemical Society of Ethiopia, held at Addis Ababa University Conference Hall on 27th January, 1998, Addis Ababa, Ethiopia.

4.11 *Environmental Impact Assessment (EIA) for Regional Experts Training Workshop,* organized by Conservation Strategy of Ethiopia in collaboration with Environmental Protection Authority of Ethiopia, held at Ethiopian Management Institute (EMI) from 25-30th October, 1997, Debrezeit, Ethiopia. Etc.

5. Country of Work Experience

- Ethiopia

6. Languages: (indicate good, fair or poor)

Languages	Speaking	Reading	Writing
Amharic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Afan Oromo	Excellent	Excellent	Excellent

7. Employment Record

7.1 From : May 2009 - to date
Employer : Federal Water Works Design and Supervision Enterprise, Addis Ababa, Ethiopia.
Position : Senior Environmental Expert

7.2 From : 11/11/2002 – April, 2009
Employer : Oromia National Regional State Environmental Protection Office, Addis Ababa, Ethiopia.
Position : Team Leader, Environmental pollution Control and Study

7.3 From : 01/10/2001–10/11/2002
Employer : Oromia Natural Resources Development and Environmental Protection Authority, Addis Ababa, Ethiopia.
Position : Senior Environmentalist

7.4 From : 10/12/2000–30/09/2001
Employer : Oromia Bureau of Agriculture; Addis Ababa, Ethiopia.
Position : Coordinator, Regional Soil Laboratory Centers

7.5 From : 01/11/1996–09/12/2000
Employer : Oromia Natural Resources Development and Environmental Protection Bureau, Addis Ababa, Ethiopia.
Position : Environmentalist

7.6 From : 08/06/1995–30/10/1996
Employer : Oromia Natural Resources Development and Environmental Protection Bureau, west Wollega Zone Department, Environmental Protection and Land Use Team , Ghimbi, West Wollega Zone.
Position : Team Leader

7.7 From : 01/10/1993–07/06/1995
Employer : Oromia Natural Resources Development and Environmental Protection Bureau, west Wollega Zone, Department, Environmental Protection and Land Use Team, Ghimbi, West Wollega Zone.
Position : Environmentalist

7.8 From : 07/11/1989–30/09/1993
Employer : Ethiopian Livestock Development and Meat Corporation, Sopral Combolcha Meat Factory, Production Department, Combolcha, Wollo, Ethiopia.
Position : Vice Production Manager or Supervisor

7.9 From : 10/10/1986–06/11/1989
Employer : Ethiopian Livestock Development and Meat Corporation, Sopral Combolcha Meat Factory, Quality Control Service, Combolcha, Wollo, Ethiopia.
Position : Chemist

8. Consultancy Work Experience

Conducted Environmental Trainings, Environmental and Social Impact Assessment, Socioeconomic, Environmental Audit and Construction Supervisions of different projects as detailed under this section.

8.1 Environmental Impact Assessment

Undertaken consultancy services on environmental and Social Impact Assessment (ESIA) and construction supervision of the following projects:

1. Consultancy Service on Construction Supervision of Bridges and Approach Roads Construction Project of Shankila River Bridge and its Approaching Roads Project, in Jimma Zone, Sekoru District of Oromia, January 2022.
2. Consultancy Service on Construction Supervision of Bridges and Approach Roads Construction Projects of Dubar Guda and Legeger Rivers Bridges and Approaching Roads Project, North Shewa Zone of Oromia, August 2021.
3. Consultancy Service on Construction Supervision of Derk Wenz, Giorare, Zewot and Ferfero Rivers Bridges and Approach Roads Construction Projects of Gurage Zone of the South Nations Nationalities and Peoples Regional State, June 2021.
4. Environmental and Social Impact Assessment (ESIA) study for Metu University Health Science & Referral Hospital Wastewater Treatment Plant, April 2021, Gore, Ethiopia.
5. Environmental and Social Impact Assessment (ESIA) study for Ambo University Main Campus, Health Science and Referral Hospital Wastewater Treatment Plant, March 2021, Ambo, Ethiopia.
6. Consultancy Service on Construction Supervision of Bridges and Approach Roads Construction Projects of Ambule, Deboseray, Elmigten and Gewane Rivers Bridges; Afar National Regional State, Gewane, Hundufo and Adayitu Districts, Dec., 2020.
7. Environmental and Social Impact Assessment (ESIA) study for Sego Dam and Irrigation Project, Irrigation Commission of Ethiopia (client), September, 2020.
8. *Environmental and Social Impact Assessment (ESIA*) study for Wabe Hydropower Project; Ministry of Water, Irrigation and Energy, October 2018.
9. *Environmental and Social Impact Assessment (ESIA)* study for Middle and Lower Awash Flood Control and Protection Project, Awash Basin Authority, May 2018.
10. *Environmental and Social Impact Assessment (ESIA)* study for the Study and Design of Alahdeghe/Serdo Integrated Agricultural Development Project, Ministry of Water, Irrigation and Energy, Elshaday Relief and Development Association, Addis Ababa, January 2018.
11. Feasibility and Detail Design of New and Existing Sludge Transfer Stations and Sludge Injection Point *EIA Study*, Addis Ababa City Administration, Water and Sanitation Authority, Addis Ababa, Ethiopia, September, 2016.
12. Feasibility study and detail design of *three small Scale Irrigation projects (*Aruma SSIP of OROMIA, Sidama Zone, Wendogent Wereda; Melewe SSIP of SNNPS, Sidama Zone, Arbegona Wereda and Morodo SSIP of OROMIA, Sidama Zone, Bursa Wereda) *Environmental and Social Impact Assessment (ESIA)* study by *Generation Integrated Rural Development First Level Consultant*, Tel. (Mobile): 0911 63 41 95, Addis Ababa, Ethiopia.

13. Feasibility study and detail design of *three small Scale Irrigation projects* (Dukeche, Ogode and Unkuso) ESIA study, Oromia National Regional State, Ilu Aba Bora Zone, Chora Wereda, by Letinsa Share Company, P.O.BOX: 40945, Tel. (Mobile): 0911 179768, Addis Ababa, Ethiopia.
14. Feasibility and Detail Design Study of *Alternative water sources for non-domestic use* EIA Study, Addis Ababa City Administration, Water and Sanitation Authority, Addis Ababa, Ethiopia, February, 2016.
15. ESIA study of Ilu Aba Bora Zone *Six Warehouses Construction Project*s, Ethiopian Agricultural Transformation Agency, ATA, Jan-Feb, 2015, Addis Ababa, Ethiopia.
16. Environmental Review Report, ERR, of *Addiskidan Milk Processing Factory*, Mercy Corps PRIME Project / USAID, (P. O. Box 14319, Tel; +251 111 110 777, Feb.-March, 2015, Addis Ababa, Ethiopia.
17. Extract *Jigjiga Export Slaughterhouse*, JESH PLC, EIA Report to USAID ERR Format, Mercy Corps PRIME Project / USAID, P. O. Box 14319, Tel; +251 111 110 777, Addis Ababa, Ethiopia, December, 2015.
18. EIA Feasibility Study Report, Nasa Agricultural Development, South Nations Nationalities and Peoples Region State, South Omo Zone, Bena Tsemay Wereda, Gissima Kebele, Tel. (Mobile): 093 006 9488, Jinka, Ethiopia, July, 2015.
19. EIA study for Repi Wilmar Industries Share Company, Vegetable Oils Seeds Processing Plants, Tel: +251 11 348 0770/+251 11 348 7864 and Email: Info@Repisc.Com, 0911 22 4114(Mobile), June, 2015; Addis Ababa, Ethiopia.
20. Environmental Review Report of *Sodo and Gubre AGP Poultry Productions Project*, South Nations Nationalities and Peoples Region State, USAID/ETHIOPIA, MercyCorps PRIME Project, May, 2014.
21. *Repi Oil Seeds Processing Share Company Projec*t Environmental Impact Assessment, Oromia National Regional State, Sebeta Town Administration, May, 2014.
22. Amhara National Regional State, Wag Himera Zone, *16 kebeles water supply projec*t EIA Study, Ministry Water, Irrigation and Energy; Electric Light and Power Corporation, Addis Ababa, 2014.
23. *Barwako Milk Processing Factory* Environmental Review Report, USAID/Mercy Corps Ethiopia, Ethiopian Somali Region, Jigjiga, September, 2014,
24. Middle Awash *Feasibility and Detail Design Multipurpose Dam Project* EIA Study, Middle Awash Authority, Ministry of Water Irrigation and Energy, Addis Ababa, 2014.
25. Golden Siera Abyssinia Industry PLC *Soap and Detergent Factory* EIA study, July, 2014.
26. Salvation General Trading PLC *Dairy farm and processing factory* EIA study, in collaboration with Goro Environment and Development consulting, June, 2014;

27. *Six Small Scale Irrigation Projects (Holeta, Dabis, Bejiro, Kile, Barochu and Gunjo)* of West and South West Shewa Zone, EIA study, June 2013.
28. *Feasibility and Detail Design Study of Upper Guder Multipurpose Dam Project*, EIA Study, Oromia National Regional State, Ministry of Water Irrigation and Energy, Addis Ababa, 2013
29. *Five Small Scale Irrigation Projects (Adami, Borer, Deneba, Fincha Debsa and Jida)* EIA study, Horo Guduru Wellega Zone, February-March, 2013. ,
30. *Klaver Flower PLC*, Environmental Impact Assessment, Hawassa Zuriya, Dore Bafano Wereda, Makibasa Korike Kebele, Hawassa, Ethiopia, April, 2013.
31. Welenchiti Bofa 8740 ha *irrigation Design expansion projec*t EIA study, Wonji Showa, Sugar Factory, 2012.
32. *MOHA Soft Drinks Factory EIA* study, Oromia National Regional State, Jimma Zone, Jimma Town, Bossa Addis Ketema, Shenkore Industry Zone, October, 2012,
33. *Fresh Trinity Electrical and household appliances factory* EIA study, Oromia National Regional State, Finfinne Special Environ, Sendafa Town, October, 2012;
34. *Mesay Negash Aquaponics Development and Processing Project*, Environmental Impact Assessment, Oromia National Regional State, East Shewa Zone, Bora Wereda, Alem Tena, October, 2012.
35. *Muktar Pvc Pipe and Conduit Manufacturing Project*, EIA study, Oromia National Regional State, Finfinne Environ Special Zone, Menagesha Kolobo Town Administration, Menagesha, September, 2012.
36. *Kaleb Agricultural Machinery Assembly*, EIA study, Oromia National Regional State, West Arsi Zone, Shashemene Town Administration, August, 2012.
37. *Five Small Scale Irrigation Projects (Bareda Lencha, Mojo Hargeti and Hargeti Tirtiro of Gola Oda Wereda and Ula Jeneta of Kurfa Chale Wereda)*, Oromia National Regional State, East Hararghe Zone, Ethiopia, September, 2012.
38. *Kidi PVC and HDPE Products Manufacturing Factory*, EIA study, Oromia National Regional State, Finfinne Zuria Special Zone, Sebeta Town Administration, Daleti Area, June, 2012.
39. *Tsedey Mar Processing and Exporting Enterprise Beekeeping project* EIA study, Oromia National Regional State, North Shewa Zone, Girar Jarso District, March, 2012.
40. *Eskinder Teshome Tsedey Ecotourism Investment Lodge Project* EIA study, Oromia National Regional State, North Shewa Zone, Girar Jarso District, March, 2012.
41. Right Edible Oil Processors Association Project EIA study, Adama Town Administration of Oromia National Regional State, October 2012, Adama.
42. *Kuraz Sugar Development 175,000ha Irrigation and drainage project* EIA Study, Ethiopian Sugar Corporation, Addis Ababa, 2011.

43. *Beseka Lake level rise and expansion Project–II* ESIA Study, Ministry Water, Irrigation and Energy, Addis Ababa, Ethiopia, 2010.
44. Rate 10,000ha *Irrigation and drainage project* EIA Study, Southern Nations, Nationalities' and Peoples' Regional State, Water Development Bureau, 2010.
45. *Daniel Facil irrigation project* (5,000 ha.) EIA Study, Daniel Facil Agricultural Development Enterprise, Oromia Regional State, South Omo Zone, Dassenech District, June, 2011.
46. *Mela irrigation project* (5,000 ha.) EIA Study, Mela agricultural development enterprise, OROMIA, South Omo Zone, Dassenech District, July, 2011.
47. *Qiantang Inchini Cement Producing Plant* EIA study, Qiantang Inchini Cement Product Plc, Oromia National Regional State, West Shewa Zone, Tikur Inchini District, October, 2011.
48. *Beles Farm, Mechanized Rain fed Farm* (5,000 ha.), EIA Study, Tracon Trading Private Limited Company, Beneshangul Gumuz Regional National State, Dangur District, May, 2011.
49. *Kota Agricultural Production Project, Rain fed Mechanized Farm* (3,000 ha.), EIA Study, Getafan Mechanized Farming PLC, Beneshangul Gumuz Regional National State, Dangur District, December, 2011.
50. *Ferdose Lower Valley Irrigation Farm Development Project* (100,000 hectares), EIA Study, Beneshangul Gumuz Regonanl National State, Asosa Zone,Wange District, Mac-Mela Agro-Industry Private Limited Company; September, 2010.
51. *Welding Electrode Manufacturing Factory* EIA study, Metawe General Business Private Limited Company (☎ 01146614 99; 0911-207302), Addis Ababa City Administration, Akaki Kality Sub-City, Akaki District, Addis Ababa, April, 2010.
52. *Construction, Agricultural and Other Machinery Factory Project* EIA study, Roda Business Group PLC, Oromia National Regional State, East Shewa Zone, Ada'a District, Dukem Town, January, 2010.
53. Gypsum Mining and Processing Project EIA study, Ruh International Trading Plc, Oromia National Regional State, North Shewa Zone, Wara Jarso District, Filkilik Mining Locality. October, 2007.

8.2 Socioeconomic Study

1. Amhara National Regional State, Wag Himera Zone, 16 kebeles water supply project *Socio-economic Study*, Ministry Water, Irrigation and Energy; Electric Light and Power Corporation, Addis Ababa, 2014.
2. Adwa Town, Midmar Water Supply Project, Socio-economic Study, Tigray National regional State, Water Resources, Irrigation and Energy Bureau, 2013, Ethiopia.
3. Erob Town Water Supply Project, Socio-economic Study, Socio-economic Study, Tigray National regional State, Water Resources, Irrigation and Energy Bureau, 2013, Ethiopia.

4. Design and Supervision of Adama Migira Pond Inundation and Flood Control Project, Socioeconomic Study, Oromia National Regional State, Adama Town Administration, 2013.

8.3 Environmental Audit Study

1. Environmental and Social Performance Audit (April, 2013) Mekelle, Adigrat, Axum and Shire Endasillassie cities of the Tigray National Regional State ULGDP
2. Environmental and Social Performance Audit (December 2011 –.January 2012), Mekelle, Adigrat, Axum and Shire Endasillassie cities of the Tigray National Regional State ULGDP, under the Ministry of Works and Urban Development.
3. Ayka Addis Textile Factory Environmental Audit, Oromia National Regional State, Sebeta Hawas District, Alemgena Town, July 2011.
4. Environmental Audit (2008) of Ethiopia Cuttings Flowering Industry, Oromia National Regional State, Lume District, Koka Area, Koka.
5. Environmental Audit (2007) of HAFDE Tannery PLC, Oromia National Regional State, Sebeta Town Administration, Sebeta.
6. Environmental Audit (2007) of Geoteraco tannery PLC, Oromia National Regional State, Lume District, Mojo Town Administration.
7. Environmental Audit (2006) Colba Tannery, Oromia National Regional State, Lume District, Mojo Town Administration and
8. Environmental Audit (2005), Colba and Shewa Tanneries, Oromia National Regional State, Lume District, Mojo Town Administration.

9. Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications and experiences. I understand that any willful statement described herein may lead to my disqualification or dismissal, from an agreement.

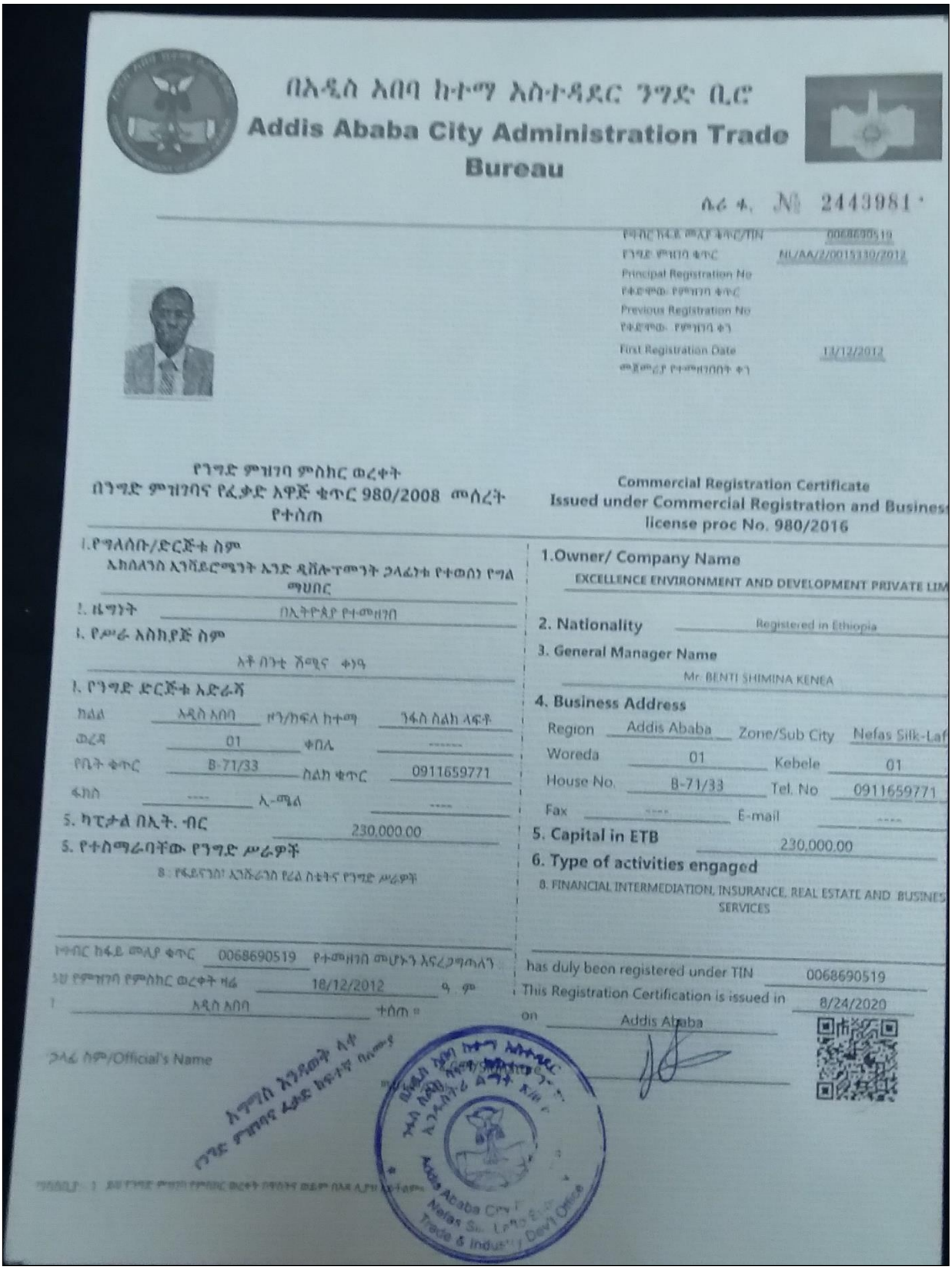
10. References

1. Mr. Teshome Afrasa, General Manager, Generation Integrated Rural Development Consult – First Class National Consultant, Tel. (Mobile): 0911 63 41 95, Addis Ababa, Ethiopia, and
2. Mr. Sileshi Ashenafi, Manager for Environment and Socio-economy sub process, Ethiopian Construction Design and Supervision Works Corporation, Tel. (Mob.) 0911 156837, Addis Ababa, Ethiopia.

Benti Shimina		April, 2022
Name of Expert	Signature	Date

Annex-11: Consulting firm legal documents

- **Commercial Registration**
- **Trade License**
- **TIN Number**
- **VAT Registration**
- **Level-1 Firm Competence Certificate of the Federal EPA**
- **2013 E.C Clearance Certificate**



በአዲስ አበባ ከተማ አስተዳደር ንግድ ቢሮ

Addis Ababa City Administration Trade Bureau

ሰሪ ቁ. № 2443981

የግብር ከፋይ መለያ ቁጥር/TIN 0068690519

የንግድ ምዝገባ ቁጥር ET/AA/Z/00153330/2012

Principal Registration No

የቀድሞው የምዝገባ ቁጥር

Previous Registration No

የቀድሞው የምዝገባ ቀን

First Registration Date 13/12/2012

መጀመሪያ የተመዘገበበት ቀን

የንግድ ምዝገባ ምስክር ወረቀት
በንግድ ምዝገባና የፈቃድ አዋጅ ቁጥር 980/2008 መሰረት የተሰጠ

Commercial Registration Certificate
Issued under Commercial Registration and Business license proc No. 980/2016

1.የግለሰቡ/ድርጅቱ ስም
ኤክሰለንስ ኢንቫይሮሜንት ኤንድ ዲቨሎፕመንት ኃላፊነቱ የተወሰነ የግል ማህበር

1. Owner/ Company Name
EXCELLENCE ENVIRONMENT AND DEVELOPMENT PRIVATE LIM

2. ዜግነት በኢትዮጵያ የተመዘገበ

2. Nationality Registered in Ethiopia

3. የሥራ አስኪያጅ ስም
አቶ በንቲ ሽሚና ቀነዓ

3. General Manager Name
Mr. BENTI SHIMINA KENEA

4. የንግድ ድርጅቱ አድራሻ

4. Business Address

ክልል አዲስ አበባ ዞን/ክፍለ ከተማ ንፋስ ስልክ ላፍቶ

Region Addis Ababa Zone/Sub City Nefas Silk-Laf

ወረዳ 01 ቀበሌ -----

Woreda 01 Kebele 01

የቤት ቁጥር B-71/33 ስልክ ቁጥር 0911659771

House No. B-71/33 Tel. No 0911659771

ፋክስ ---- ኢ-ሜይል ----

Fax ---- E-mail ----

5. ካፒታል በኢት. ብር 230,000.00

5. Capital in ETB 230,000.00

5. የተሰማራባቸው የንግድ ሥራዎች

6. Type of activities engaged

8. የፋይናንስ፣ ኢንሹራንስ የሪል ስቴትና የንግድ ሥራዎች

8. FINANCIAL INTERMEDIATION, INSURANCE, REAL ESTATE AND BUSINES SERVICES

የግብር ከፋይ መለያ ቁጥር 0068690519 የተመዘገበ መሆኑን እናረጋግጣለን

has duly been registered under TIN 0068690519

እ.ህ የምዝገባ የምስክር ወረቀት ዛሬ 18/12/2012 ዓ.ም

This Registration Certification is issued in 8/24/2020

አዲስ አበባ ተሰጠ

on Addis Ababa

ኃላፊ ስም/Official's Name

Addis Ababa City ... Nefas Si... Trade & Indus... Devt Office

በአዲስ አበባ ከተማ አስተዳደር ንግድ ቢሮ
Addis Ababa City Administration Trade Bureau

ሴሪ ቁ. № 2906872

የግብር ከፋይ መለያ ቁ /TIN 0068690519
የንግድ ምዝገባ ቁ. NL/AA/2/0015330/2012
Principal Registration No.
የቀድሞው ንግድ ፈቃድ ቁጥር
Previous License No.
የንግድ ሥራ ፈቃድ ቁጥር NL/AA/14/666/3702961/2012
Business License No.
ቀድሞ ተሰጠበት ቀን
Previous Date of issuance
የተሰጠበት ቀን 13/12/2012
Date of issuance
የታደሰበት ቀን: 25/2/2014
Renewal Date

የንግድ ሥራ ፈቃድ

በንግድ ምዝገባና ፈቃድ አዋጅ ቁጥር 980/2008 መሰረት ተሰጠ

1. የግለሰቡ/ድርጅቱ ስም: ኤክሰለንስ ኢንቫይሮሜንት ኤንድ ዲቨሎፕመንት ኃላፊነቱ የተወሰነ የግል ማህበር
2. ዜግነት: በኢትዮጵያ የተመዘገበ
3. የንግድ ስም
4. ሥራ አስኪያጅ ስም: አቶ በንቲ ሽሚና ቀነዓ
5. የንግድ ድርጅቱ አድራሻ
   ክልል: አዲስ አበባ ዞን/ክፍለ ከተማ: ንፋስ ስልክ ላፍቶ
   ወረዳ: 01 ቀበሌ: -----
   የቤት ቁጥር: B-71/33 ስልክ ቁጥር: 0911659771
   ፋክስ: ---- ኢ-ሜይል: ----
6. የንግድ ሥራ መስክ
   (86313)በአግሮ ኢኮሲስተም ልማት እና በእርሻና ተፈጥሮ ሃብት ዙሪያ የማማከር አገልግሎት
   (86312)በአካባቢ ኦዲትና አካባቢ አጠባበቅ የማማከር አገልግሎት
7. ካፒታል በኢት ብር: 230,000.00

ይህ የንግድ ፈቃድ ዛሬ 25/2/2014 በ አዲስ አበባ ተሰጠ ።

የሃላፊ ስም/Name of Official
ፊርማ/Signature

ማሳሰቢያ- 1. ይህ የንግድ ፍቃድ በዓዋጅ ፈቃድ ቁጥር 980/2008 መሠረት እንደ የበጀት ዓመቱ በየአዋጁ በተደነገገው መሰረት መታደስ አለበት።
N.B. This License Shall be renewed in accordance with Proclamation No. 980/2008 as per the fiscal year.
2. ይህ የንግድ ፈቃድ የምስክር ወረቀት በዋስትና ወይም በእዳ ሊያዝ አይችልም።
The holder of this License is forbidden for surety ship or debt

Business License

Issued Under Commercial Registration and Business license proc.No 980/2016

1. Owner/Company Name: EXCELLENCE ENVIRONMENT AND DEVELOPMENT PRIVATE LIM
2. Nationality: Registered in Ethiopia
3. Trade Name
4. General Manager Name: Mr. BENTI SHIMINA KENEA
5. Business Address
   Region: Addis Ababa Zone/Sub City: Nefas Silk-Lafto
   Woreda: 01 Kebele: -----
   House No: B-71/33 Tel.No: 0911659771
   Fax: ---- E-mail: ----
6. Field of Business
   (86313)Agro ecosystem development consultancy service
   (86312)Environmental auditing and environmental protection consultancy service
7. Capital in ETB: 230,000.00

This Business License is issued in Addis Ababa this day 11/4/2021

ማህተም Seal

Nefas Silk Lafto Sub/City Administration Trade Office

የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የኢትዮጵያ ገቢዎችና ጉምሩክ ባለሥልጣን
Federal Democratic Republic of Ethiopia
ETHIOPIAN REVENUES AND CUSTOMS AUTHORITY
የግብር ከፋይ ምዝገባ ሰርተፊኬት
TAXPAYER REGISTRATION CERTIFICATE

የግብ ከፋይ መለያ ቁጥር:
Taxpayer Identification Number:
0068690519

የድርጅት/የግለሰብ ሥም:
Name of Business/Individual:
ኤክሰለንስ ኢንቫይሮንሜንት ኤንድ ዴቨሎፕመንት ኃላ/የ/የግ/ማህ:
EXCELLENCE ENVIRONMENT AND DEVELOPMENT PLC

የተመዘገበ አድራሻ/Registered Address:
ክልል:
Region:
አዲስ አበባ
ADDIS ABABA
የኃ/ክ/ከተማ:
Zone/Sub City:
ንፋስ ስልክ ላፍቶ
NEFAS SILK LAFTO
ወረዳ:
Woreda:
WOREDA 01
ቀበሌ /አስተዳደር/:
Kebele/Farmer's Assoc.:
WOREDA 01
የቤት ቁጥር:
House No.:
B-71/33

ESIC Sub-group:
ESIC Sub-group:
86312 - Environmental auditing and environmental protection consultancy servic

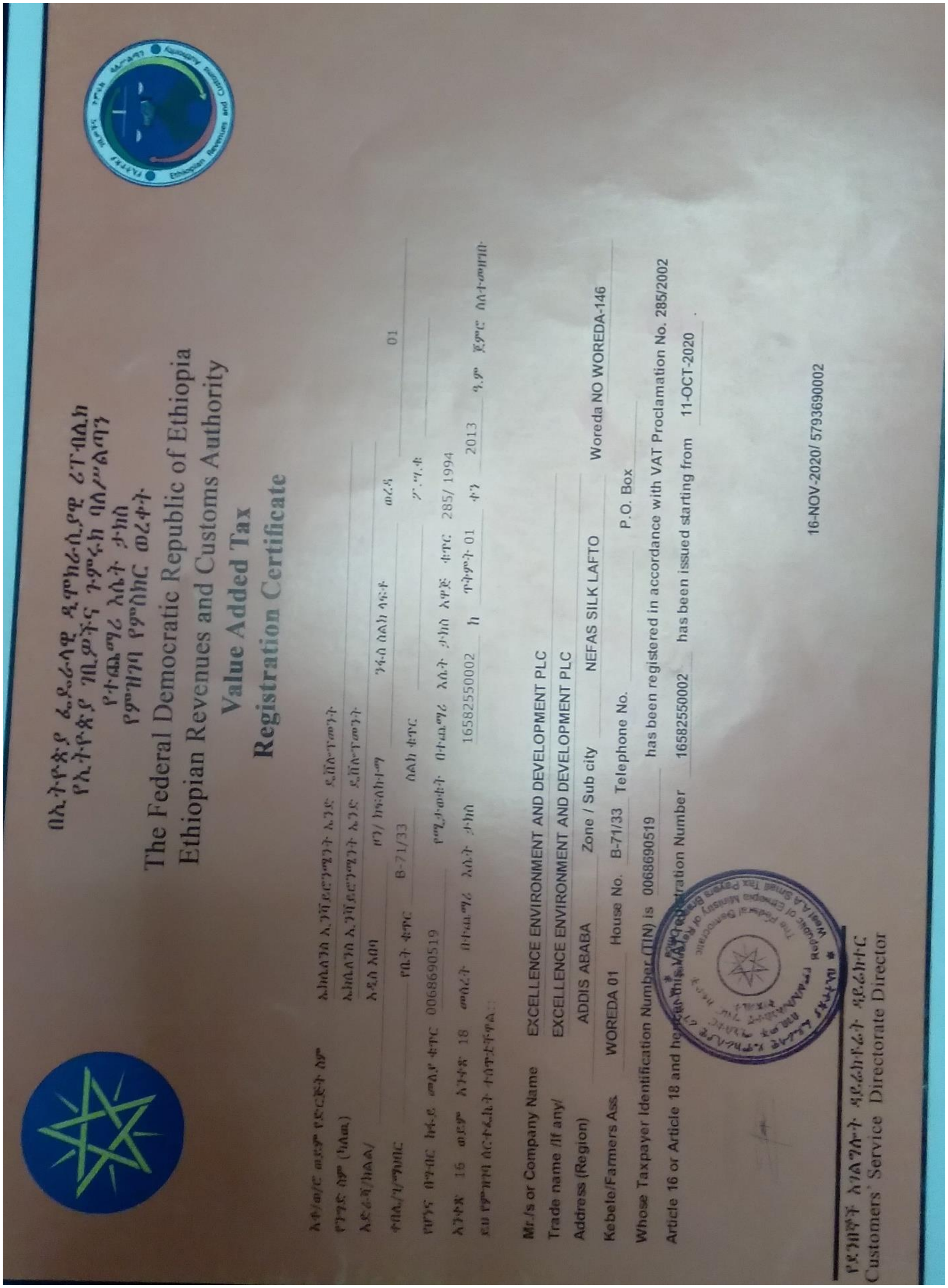
የሰጠው ተቋም:
Issuing Authority:
የኢትዮጵያ ገቢዎችና ጉምሩክ ባለሥልጣን
ETHIOPIAN REVENUES AND CUSTOMS AUTHORITY
የተሰጠበት ቀን:
Date of Issuance:
11 NEHASIE 2012
17-AUG-20

ይህ የምስክር ወረቀት የግብር ከፋዩን ብቸና የግብር ከፋይነት ምዝገባ ለሠን ከዚህ ቀደም የሰጡ የግብር ከፋይነት ምዝገባ ሰነዶች
ከፋ በዚህ ሰነድ የተጠየቁ መረጃ ማንኛውም አይነት ለውጥ ቢደረግ ግብር ከፋዩ ለሚመለከተው የግብር ሰብዓዊ ጽ/ቤት የማሳወቅ
ግዴታ አለበት።
This certificate represents the sole and only registration as a taxpayer and supersedes all prior registration
documentation.
The taxpayer is responsible for notifying the appropriate Tax Office of any changes to the above information.

የሰርተፊኬት ቁ.:
Certificate No.: 1508676680002

1508676680002

የባለሥልጣኑ መ/ቤት ማህተም
Seal of Issuing Authority



በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የኢትዮጵያ ገቢዎችና ጉምሩክ ባለሥልጣን
የተጨማሪ እሴት ታክስ
የምዝገባ የምስክር ወረቀት

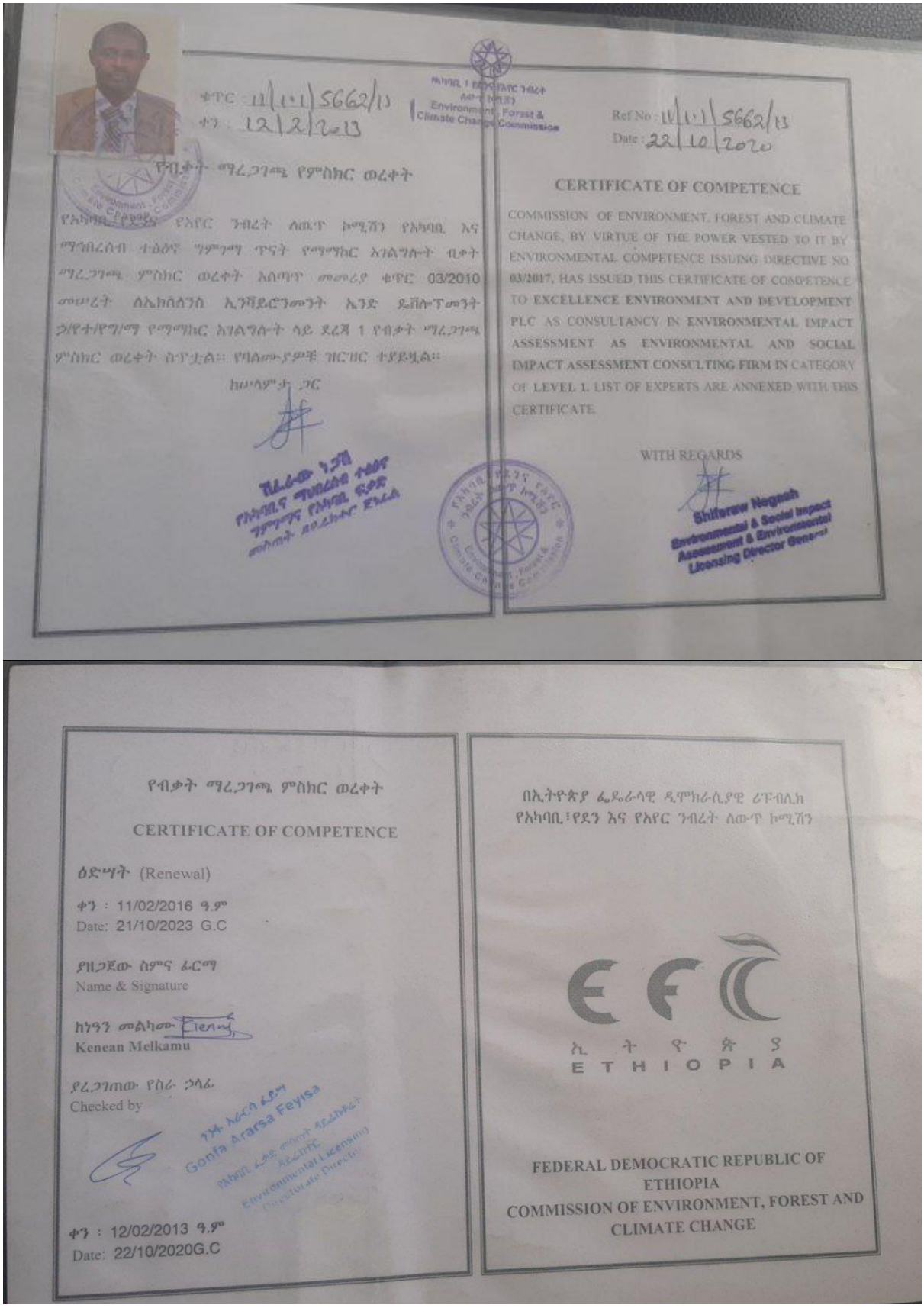
The Federal Democratic Republic of Ethiopia
Ethiopian Revenues and Customs Authority
Value Added Tax
Registration Certificate

0068690519 B-71/33 01 1658255002 285/1994 2013

Mr./s or Company Name EXCELLENCE ENVIRONMENT AND DEVELOPMENT PLC
Trade name /If any/ EXCELLENCE ENVIRONMENT AND DEVELOPMENT PLC
Address (Region) ADDIS ABABA Zone / Sub city NEFAS SILK LAFTO Woreda NO WOREDA-146
Kebele/Farmers Ass. WOREDA 01 House No. B-71/33 Telephone No. P.O. Box
Whose Taxpayer Identification Number (TIN) is 0068690519 has been registered in accordance with VAT Proclamation No. 285/2002
Article 16 or Article 18 and hereby this VAT Registration Number 1658255002 has been issued starting from 11-OCT-2020 .

16-NOV-2020/ 5793690002

Customers' Service Directorate Director



የብቃት ማረጋገጫ የምስክር ወረቀት

የአካባቢ፣ የደን እና የአየር ንብረት ለዉጥ ኮሚሽን የአካባቢ እና ማኅበረሰብ ተፅዕኖ ግምገማ ጥናት የማማከር አገልግሎት ቢቶት ማረጋገጫ ምስክር ወረቀት አሰጣጥ መመሪያ ቁጥር 03/2010 መሠረት ለኤክሰለንስ ኢንቫይሮንመንት ኤንድ ዴቨሎፕመንት ኃ/የተ/የግ/ማ የማማከር አገልግሎት ሳይ ደረጃ 1 የብቃት ማረጋገጫ ምስክር ወረቀት ሰጥቷል። የባለሙያዎቹ ዝርዝር ተያይዟል።

ከሠላምታ ጋር

CERTIFICATE OF COMPETENCE

COMMISSION OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, BY VIRTUE OF THE POWER VESTED TO IT BY ENVIRONMENTAL COMPETENCE ISSUING DIRECTIVE NO 03/2017, HAS ISSUED THIS CERTIFICATE OF COMPETENCE TO EXCELLENCE ENVIRONMENT AND DEVELOPMENT PLC AS CONSULTANCY IN ENVIRONMENTAL IMPACT ASSESSMENT AS ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT CONSULTING FIRM IN CATEGORY OF LEVEL 1. LIST OF EXPERTS ARE ANNEXED WITH THIS CERTIFICATE.

WITH REGARDS

Shiferaw Negash
Environmental & Social Impact Assessment & Environmental Licensing Director General

የብቃት ማረጋገጫ ምስክር ወረቀት

CERTIFICATE OF COMPETENCE

ዕድሣት (Renewal)

ቀን : 11/02/2016 ዓ.ም
Date: 21/10/2023 G.C

ያዘጋጀው ስምና ፊርማ
Name & Signature

ከነዓን መልካሙ
Kenean Melkamu

ያረጋገጠው የስራ ኃላፊ
Checked by

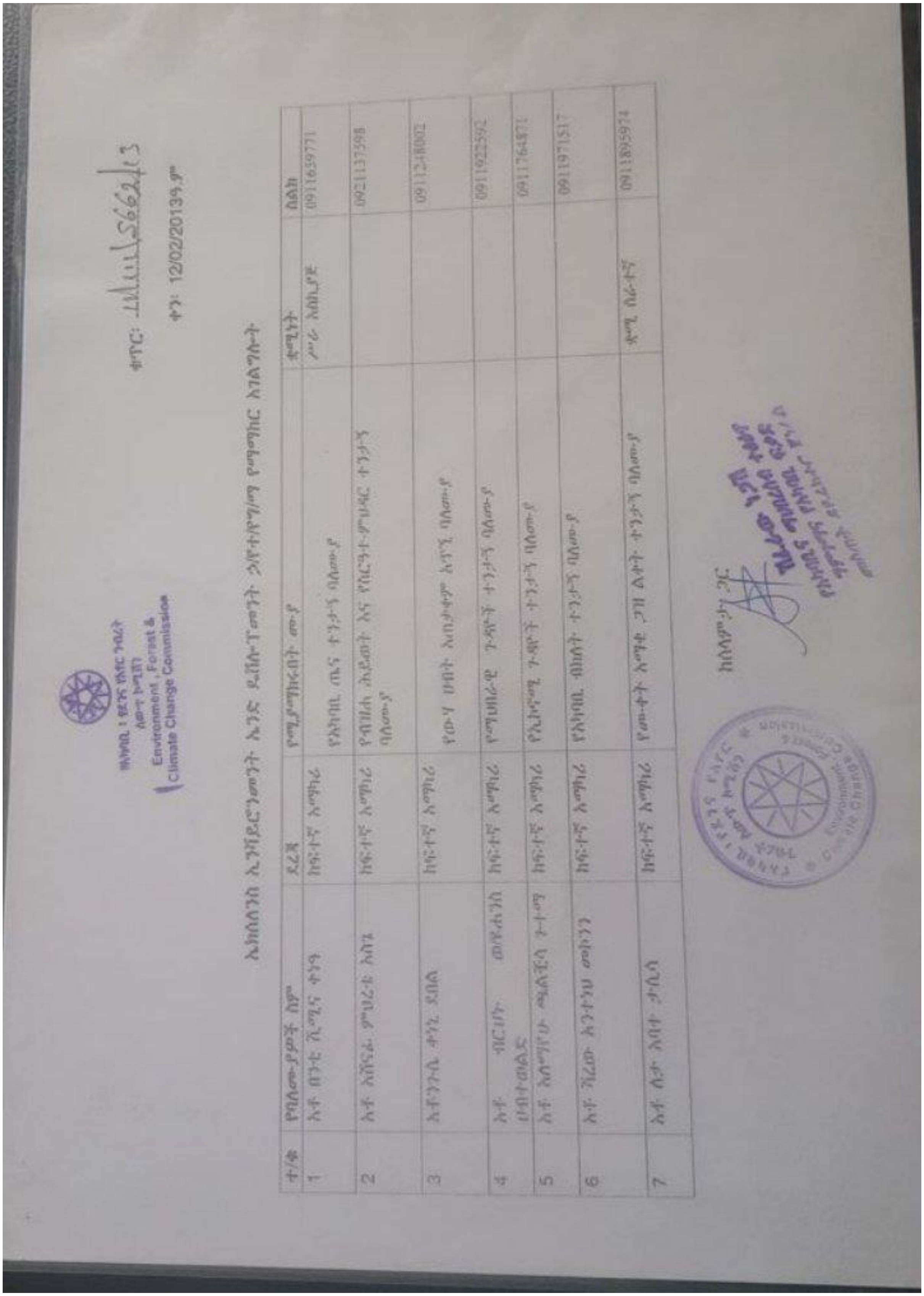
Gonfa Ararsa Feyisa

ቀን : 12/02/2013 ዓ.ም
Date: 22/10/2020G.C

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፑብሊክ
የአካባቢ፣የደን እና የአየር ንብረት ለውጥ ኮሚሽን

ኢ ት ዮ ጵ ያ
E T H I O P I A

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
COMMISSION OF ENVIRONMENT, FOREST AND CLIMATE CHANGE



Environment, Forest & Climate Change Commission

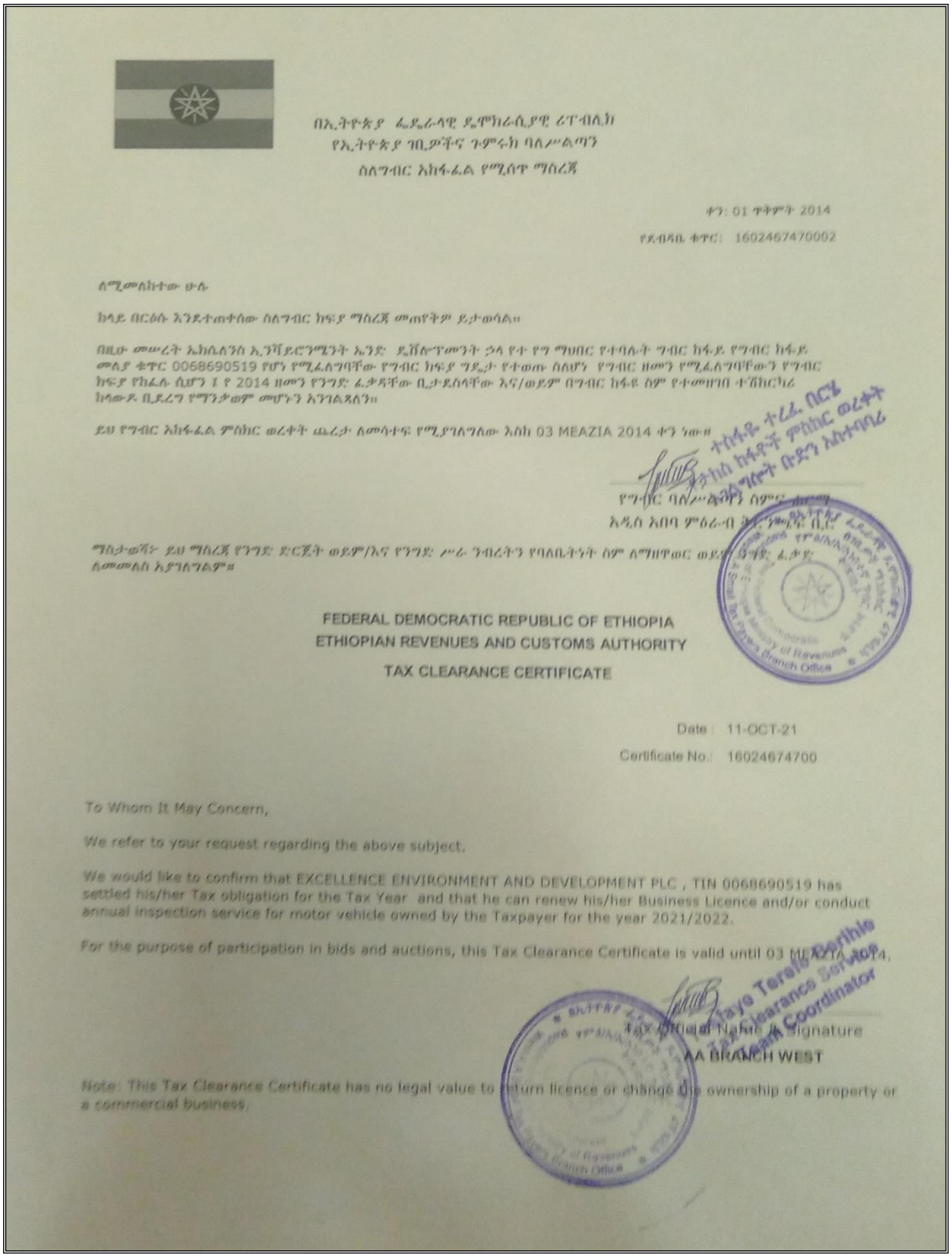
ቁጥር: ፲፬/፲፩፲፩/S662/13

ቀን: 12/02/2013ዓ.ም

ኢክሰለንስ ኢንቫይሮንመንት ኤንድ ዴቨሎፕመንት ኃ/የተ/የግ/ማ የማማከር አገልግሎት

ተ/ቁ	የባለሙያዎች ስም	ደረጃ	የሚያማክሩበት ሙያ	ቋሚነት	ስልክ
1	አቶ በንቲ ሺሚና ቀነዓ	ከፍተኛ አማካሪ	የአካባቢ ጤና ተንታኝ ባለሙያ	ሥራ አስኪያጅ	0911659771
2	አቶ አሸናፊ ምህረቴ አስጌ	ከፍተኛ አማካሪ	የብዝሐ ሕይወት እና የስርዓተ-ምህዳር ተንታኝ ባለሙያ		0921137598
3	አቶንጉሴ ቀነኒ ደበሌ	ከፍተኛ አማካሪ	የውሃ ሀብት አጠቃቀም አጥኚ ባለሙያ		0911248002
4	አቶ ብርሀኑ ወ/ዩሐንስ ሀብተወልድ	ከፍተኛ አማካሪ	የማህበራዊ ጉዳዮች ተንታኝ ባለሙያ		0911922592
5	አቶ አለማየሁ ጫልቺሳ ጉተማ	ከፍተኛ አማካሪ	የኢኮኖሚ ጉዳዮች ተንታኝ ባለሙያ		0911764871
6	አቶ ሻረው አንተነህ መኮንን	ከፍተኛ አማካሪ	የአካባቢ ብክለት ተንታኝ ባለሙያ		0911971517
7	አቶ ለታ አባተ ታሲሳ	ከፍተኛ አማካሪ	የሙቀት አማቂ ጋዝ ልቀት ተንታኝ ባለሙያ	ቋሚ ሰራተኛ	0911895974

ከሰላምታ ጋር



በኢትዮጵያ ፌዴራላዊ ዴሞክራሲያዊ ሪፐብሊክ
የኢትዮጵያ ገቢዎችና ጉምሩክ ባለሥልጣን
ስለግብር አክፋይ የሚሰጥ ማስረጃ

ቀን: 01 ጥቅምት 2014
የደብዳቤ ቁጥር: 1602467470002

ለሚመለከተው ሁሉ

ከላይ በርዕሱ እንደተጠቀሰው ስለግብር ከፍያ ማስረጃ መጠየቅም ይታወሳል።

በዚሁ መሠረት ኤክሲለንስ ኢንቫይሮንሜንት ኤንድ ዴቨሎፕመንት ኃላ የተ የግ ማህበር የተባሉት ግብር ከፋይ የግብር ከፋይ መለያ ቁጥር 0068690519 የሆነ የሚፈለግባቸው የግብር ክፍያ ግዴታ የተወጡ ስለሆነ የግብር ዘመን የሚፈለግባቸውን የግብር ክፍያ የከፈሉ ሲሆን 1 የ 2014 ዘመን የንግድ ፈቃዳቸው ቢታደስላቸው እና/ወይም በግብር ከፋዩ ስም የተመዘገበ ተሽከርካሪ ከላውዶ ቢደረግ የማንቃወም መሆኑን እንገልጻለን።

ይህ የግብር አክፋይ ምስክር ወረቀት ጨረታ ለመሳተፍ የሚያገለግለው እስከ 03 MEAZIA 2014 ቀን ነው።

የግብር ባለሥልጣን ስም፡ ፊርማ
አዲስ አበባ ምዕራብ ቅ/ጽ/ቤት ንብረት ቢሮ

ማስታወሻ፡ ይህ ማስረጃ የንግድ ድርጅት ወይም/እና የንግድ ሥራ ንብረትን የባለቤትነት ስም ለማዘዋወር ወይም ውክልና ለመመስረት አያገለግልም።

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ETHIOPIAN REVENUES AND CUSTOMS AUTHORITY
TAX CLEARANCE CERTIFICATE

Date: 11-OCT-21
Certificate No.: 16024674700

To Whom It May Concern,

We refer to your request regarding the above subject.

We would like to confirm that EXCELLENCE ENVIRONMENT AND DEVELOPMENT PLC , TIN 0068690519 has settled his/her Tax obligation for the Tax Year and that he can renew his/her Business Licence and/or conduct annual inspection service for motor vehicle owned by the Taxpayer for the year 2021/2022.

For the purpose of participation in bids and auctions, this Tax Clearance Certificate is valid until 03 MEAZIA 2014.

Tax Official Name & Signature
AA BRANCH WEST

Note: This Tax Clearance Certificate has no legal value to return licence or change the ownership of a property or a commercial business.