

Federal Democratic Republic of Ethiopia

Ministry of Agriculture

Drought Resilience and Sustainable Livelihood Program



ETHIOPIA

Executive Summary of Environmental and Social Impact Assessment /ESIA/ of Multipurpose Community Water Distribution System in Afar Region



**Consultant: Ethiopian Construction Design and Supervision Works
Corporation**

Client: Ministry of Agriculture

September, 2021
Addis Ababa, Ethiopia

Table of Contents

LIST OF TABLES.....	III
ABBREVIATIONS/ACRONYMS.....	IV
1. INTRODUCTION	1
1.1 General Background.....	1
1.2 Objectives.....	1
1.2.2 Specific Objectives of the ESIA Study	1
1.3 Scope of the ESIA Study	2
1.4 The Study Approach.....	2
1.5 The ESIA Study Methodologies	3
2. LEGAL, POLICY AND ADMINISTRATIVE FRAMEWORKS,.....	3
2.1 Legal Frameworks	3
2.1.1 The Constitution.....	3
2.1.2 Environmental Framework Legislations.....	3
2.1.3 Proclamation on Rural Land Administration and Land Use.....	4
2.2 Policy Framework	4
2.2.1 Environmental Policy of Ethiopia	4
2.2.2 Water Resource Management Policy	4
2.2.3 Health Policy	4
2.2.4 National Biodiversity Policy	4
2.2.5 Sustainable Development and Poverty Reduction Strategy.....	5
2.3 Environmental Assessment Guidelines.....	5
2.3.1 The Procedural EIA Guideline	5
2.4. Institutional and Administrative Frameworks.....	6
2.4.1 National Level Institutional Arrangements	6
2.4.2 Sectoral Environmental Protection Unit.....	6
2.4.3 Regional Environmental Protection Agencies.....	7
2.4.4 Wereda Environment, Forest and Climate Change Office	7
2.5 African Development Bank Guidelines.....	7
2.5.1 AfDB Integrated Environmental and Social Impact Assessment Guidelines	7
2.5.2 AfDB Integrated ESIA Guidelines.....	7
3. IMPLEMENTATION RESPONSIBILITIES	8
3.1 Federal Sector Ministries	8
3.2. Environment, Forest and Climate Change Commission (EFCCC)	8
3.3. Project Implementation Unit.....	8
3.4. Regions Bureaus	9
3.5. Woreda and Kebele	10
3.6. African Development Bank, Ethiopia Country Office	10
4. DESCRIPTIONS OF THE PROJECTS	11
4.1 Project Area Description	11
5. PROJECT ALTERNATIVES.....	11
6. ENVIRONMENTAL AND SOCIAL IMPACTS PREDICTION, EVALUATION & ANALYSIS AND THEIR MITIGATION MEASURES	12

6.1 Potential Impacts Identification and Prediction.....	13
6.1.1 Potential Positive Impacts of the Multi-Purpose Water Infrastructures.....	13
6.2 Evaluation of Potential Environmental and Social Impacts.....	13
6.3 Adverse Environmental and Social Impacts Analysis.....	20
6.4 Adverse Environmental and Social Impacts during Operation Phase.....	23
7. NATURE OF PUBLIC CONSULTATION	25
7.1 Stakeholder Analysis	25
7.2 Stakeholder Involvement	26
7.3 Consultations with the Administration and Line Offices	26
7.4 Consultations with the Local Community	26
7.5 Grievance Redress Mechanism.....	26
7.5.1 Introduction	26
7.5.2 Objectives of GRM.....	27
7.5.3. Grievance Resolution Committee (GRC).....	28
7.5.4 Grievance Redress Record and procedure.....	28
7.5.5 The GRM Process.....	29
7.5.6 Traditional Grievance Redress Mechanism	29
8. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS	30
8.1 Capacity Assessment	36
8.1.1 Institutional Capacity Assessment.....	36
8.1.2 Technical capacity building	36
8.1.3 Institutional strengthening measures	38
9. ENVIRONMENTAL MONITORING AND AUDITING PLAN.....	39
9.1 Environmental and Social Monitoring Programs	40
9.1.1 Short term Monitoring program.....	40
9.1.2 Long term Monitoring program	40
9.2 Final Review	44
9.3 Review of the organizational arrangements	44
10. ENVIRONMENTAL AND SOCIAL REPORTING AND DISCLOSURE	44
10.1 Monthly and Quarterly Base Site Inspection Report.....	45
10.2 Site Environmental Management Plan Report	45
10.3 Record Keeping and Reporting.....	45
11. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING BUDGET	45
10.1 Environmental Management Body	45
10.2 Capacity Building and Institutional Strengthen	45
10.3 Budget summary	46
12. CONCLUSION AND RECOMMENDATIONS	47
12.1 Conclusion.....	47
12.2 Recommendations.....	48

LIST OF TABLES

Table 4. 1 List of the Selected Deep and Shallow Wells Sites in the five Program Target Woredas and Beneficiary kebeles	11
Table 6. 1 Summary of Prediction and Evaluation of Potential Environmental and Social Impacts	18
Table 8. 1 Environmental and Social Management Plan	31
Table 9. 1 Environmental and Social Monitoring Plan	41
Table 9. 2: Short-term Environmental Monitoring	44

ABBREVIATIONS/ACRONYMS

ABE	Alternative Basic Education
ADLI	Agricultural Development Led Industrialization
AfDB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
ANRS	Afar National Regional State
BoLSA	Bureaus of Labour and Social Affairs
BP	Bank Policy
CETU	Confederation of Ethiopian Trade Unions
CHA	Controlled Hunting Areas
CSA	Central Statistical Agency
DRSLP	Drought Resilience and Sustainable Livelihood Project
EA	Environmental Assessment
ESIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EWCO	Ethiopian Wildlife Conservation Organization
FPIC	Free, Prior and Informed Consent
HIV	Human Immunodeficiency Virus
IEC	Information, Education and Communication
ILO	International Labour Organization
IPMP	Integrated Pest Management Plan
KII	Key Informant Interview
MoA	Ministry of Agriculture
MoLSA	Ministry of Labour and Social Affairs
MoWE	Ministry of Water & Energy
NBP	National Biodiversity Policy
NBSAP	National Biodiversity Strategy and Action Plan
NGOs	None Governmental Organizations
OP	Operational Phase
OP	Operational Policy
OSHWED	Health and Working Environment Department
PAP	Project Affected Person
PMP	Pest Management Plan
PPE	Personal Protective Equipment
RPF	Resettlement Policy Framework
STD	Sexually Transmitted Disease
WB	World Bank
WRM	Water Resources Management

1. INTRODUCTION

1.1 General Background

Pastoral and agro-pastoral communities living in low land areas of Ethiopia are vulnerable to droughts, trans-boundary animal diseases; human and livestock water supply shortage and rangeland resources-based conflicts. The livelihood of the communities has been affected by these environmental resource's degradation and climate change.

The idea of impact assessment and sustainability has been introduced to reduce adverse impacts and ensure long term benefits. Environmental and Social Impact Assessment thus has been recognized as an integral part of the early planning studies of development initiatives in order to identify any expected negative impacts and to suggest the necessary actions to curb the problem. In addition, ESIA can consider different design alternatives for the projects as an essential step for better decision making.

The ESIA study of Drought Resilience and Sustainable Livelihood Project (DRSLP-I) in 5 woredas (Adaar, Afdera, Elidaar, Erebtu and Hadelela) Weredas and 4 zonal administrations Awsi Rasu (Zone-1), Kilbet Rasu (Zone-2), Gabi Rasu (Zone-3) and Fenti Rasu (Zone-5] of Afar Region Multi-Purpose Water distribution system Projects for human and livestock is to carry out an assessment of the various multi-purpose Water distribution system to determine whether or not the construction and operation and associated activities will have any adverse impacts on the environment, taking into account biophysical, social, cultural, legal and economic considerations.

1.2 Objectives

1.2.1 General Objectives of the ESIA Study

The general objective is indispensable to carry out Environmental and Social Impact Assessment (ESIA) study for such projects and hence this report presents the Environmental and Social Impact Assessment (ESIA) Report of Multi-Purpose Water Infrastructures. The ESIA study also ensures consistency of the planning, design and implementation of the projects in line with the relevant national environmental and social management requirements as well as the financier (the African Development Bank) environmental and social safeguard policies applicable to the projects.

1.2.2 Specific Objectives of the ESIA Study

The specific objectives of undertaking Environmental and Social Impact Assessment studies of the water supply and distribution projects in the 4 zones and 5 Woredas of the Afar National Regional State entailed by DRSLP project are to:

- meet the national and funding organization (the African Development Bank, AfDB) environmental and social policy and legal requirements;

- review pertinent national, regional and international policies, legal and administrative frameworks governing environmental matters of the project;
- identify and describe baseline physical, biological and socio-economic environmental conditions of the proposed project that may affect the projects or be affected by the project's activities;
- identify, predict and evaluate adverse and beneficial environmental and social impacts of the project's construction and subsequent operation activities;
- propose environmental and social mitigation measures for the identified adverse impacts and recommend enhancement measures for the beneficial impacts of the projects;
- develop environmental and social management and monitoring plans and define institutional responsibilities to guide implementation of the recommended remedial measures, and
- propose indicative budget for the implementation of the recommended measures;

1.3 Scope of the ESIA Study

- **Spatial Scope;** The geographic coverage of the ESIA study areas of the multi-purpose water infrastructure projects include 5 DRSLP-I target woredas (Abaar, Afdera, Elidaar, Erebti and Hadelela) which are found in 4 zonal administrations Awsi Rasu (Zone-1), Kilbet Rasu (Zone-2), Gabi Rasu (Zone-3) and Fenti Rasu (Zone-5)] of the Afara National Regional State.
- **Thematic Scope;** The thematic scope of the ESIA study primarily includes description of baseline conditions of the project area, identification of potential impacts of the proposed multi-purpose water distribution system projects;
 - Characteristics of micro-catchments draining into each project site especially for micro-basins and possible impacts which may include land use/land cover, topography, soils types and soil erosion, climatic factors, settlement patterns, displacement and potential problems like siltation, water pollution, etc.
 - Potential impacts on terrestrial and aquatic ecology (flora and fauna) in the direct impact zone of the proposed project activities.
 - Impacts of water supply schemes particularly on epidemiology of water related diseases (malaria and bilharzias) comparing with the existing conditions.
 - Project water sources baseline quantity and quality and potential effects on public health, etc.

1.4 The Study Approach

The general approaches followed in conducting the ESIA study of the multi-purpose water distribution system projects is based on the ESIA guiding principles which among others include participation of interested and affected parties' integration, focusing on major environmental issues, practicality, professionalism and objectivity. Furthermore, the consultant carefully depends and addresses the Terms of Reference (ToR) and review of project specific documents.

1.5 The ESIA Study Methodologies

- Data was collected using secondary and primary techniques of data gathering. Review of secondary materials was done to grasp the legal and regulatory frameworks of Ethiopia, African Development Bank and the World Bank as well as understand the Drought Resilience and Sustainable Livelihood Project (DRSLP).
- Through the primary data collection method qualitative information was gathered to achieve the purpose of the environmental and social assessment by key informant interview and field observation.
- Besides, public consultation minutes were documented that shows free discussion about the sub-project.
- On the site, discussions with the services users were also held so as to have firsthand information from project affected people and beneficiaries.
- Note taking and photographing are important tools to record observation during field visits.
- Field level observations would be believed to assist significantly the analysis and writing up the final environmental and social assessment report.
- Due to the complexity of the environmental and social assessment and to verify the results obtained through triangulation, the following methods of data collection were employed.

2. LEGAL, POLICY AND ADMINISTRATIVE FRAMEWORKS,

2.1 Legal Frameworks

2.1.1 The Constitution

The 1995 Constitution of the Federal Republic of Ethiopia provides overriding principles and legal provisions for all legislative frameworks in the country. The document is a major binding document for all national and regional policies, laws and regulations.

Articles 43, 44 and 92 of the constitution were especially reviewed as these articles are among others, especially state *the right to development, the right to live in a clean and healthy environment* and also address *environmental objectives*, respectively.

2.1.2 Environmental Framework Legislations

There are four proclamations related to environmental protection and sustainable use of natural resources of the country, Ethiopia.

Environmental Protection Organs Establishment Proclamation

The Environmental Protection Authority, EPA, was established with Proclamation No.9/1995 and re-proclaimed under Proclamation No.295/2002 and as an autonomous Federal Environmental Protection Authority (EPA) and currently as the Ministry of Environment, Forest and Climate Change with Proclamation No.803/2005EFY. The institution is entrusted with the protection and conservation of natural resources of the country. The proclamations stipulate need to establish a

system that enables to foster coordinated but differentiated responsibilities among environmental protection agencies at Federal and Regional levels.

Environmental Impact Assessment Proclamation

EPA Proclamation No. 299/2002 has made “Environmental Impact Assessment” to be a mandatory legal prerequisite for the implementation of major development projects, programs and plans. This proclamation is a proactive tool and a backbone to harmonize and integrate environmental, economic and social considerations into decision making process in a manner that promotes sustainable development of the country.

Environmental Pollution Control Proclamation

Environmental Pollution Control Proclamation No.300/2002 is promulgated with a view to eliminate or, when not possible, mitigate pollution as an undesirable consequence of social and economic development activities.

2.1.3 Proclamation on Rural Land Administration and Land Use

The Federal Democratic Republic of Ethiopia issued Rural Land Administration and Use with a Proclamation No. 456/2005. The objective of the proclamation is to conserve and develop natural resources in rural areas of the country by promoting sustainable land use practices. In order to encourage farmers to implement measures to guard against soil erosion, the proclamation introduces rural land holding certificate, which provides a level of security of tenure.

2.2 Policy Framework

2.2.1 Environmental Policy of Ethiopia

The Environmental Policy of Ethiopia (EPE, 1997) provides a number of guiding principles that require strong adherence to sustainable development. Article 3.1(s) of the policy, for example, indicates need for “undertaking full environmental, social and economic impact assessments of the project, that needs establishing programs of correcting projects negative environmental, social and economic impacts”.

2.2.2 Water Resource Management Policy

The overall goal of the Ethiopian Federal Water Resource Management Policy of 1998 addresses needs “to enhance and promote all national efforts towards efficient and optimum utilization of water resources of the country for socio-economic development on sustainable bases”. The policy indicates environmental conservation and protection as an integral part of water resources planning and project development.

2.2.3 Health Policy

The 1993 National Health Policy of Ethiopia was revised in April 1998. The policy gives emphasis to rural populations that constitute the overwhelming majority of the nation. The policy protects and promotes populations’ health and ensures friendly and healthy environment by controlling those environmental factors which are the direct and indirect causes for spread of environmental health related diseases.

2.2.4 National Biodiversity Policy

The policy provides 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 to traditional indigenous knowledge and communities' benefit sharing arrangements, which 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.

2.2.5 Sustainable Development and Poverty Reduction Strategy

The sustainable Development and Poverty Reduction Strategy was issued in July 2002. The program outlines fundamental development objectives of the government to build a free-market economic system that enables rapid economic development that extricates the country from poverty and dependence on food aid, where poor citizens will main beneficiaries.

2.3 Environmental Assessment Guidelines

With a view to implement the environmental policies and strategies, environmental guidelines have been issued by the then EPA and now MoEFCC. Among these, the following three (Technical ESIA Guideline, Procedural ESIA Guideline and Guideline for Reviewing ESIA Reports) are very relevant to the issue at hand. These guidelines are intended to guide developers, competent agencies, reviewers and other stakeholders in carrying out and managing ESIA endeavors.

2.3.1 The Procedural EIA Guideline

As a step forward in developing the environmental policies and legislations, the then EPA issued a procedural guideline which defines specific examinations to which a proposed project needs to be subjected in the process of environmental impact assessment. To this effect, at the project identification phase, based on EPA's guideline, projects are categorized in one of the following three schedules.

- **Schedule 1:** Projects which may have adverse and significant environmental impacts, and therefore shall require full ESIA;
- **Schedule 2:** Projects whose type, scale or other relevant characteristics have potential to cause some significant environmental impacts, but not likely to warrant full environmental impact study; and
- **Schedule 3:** It includes projects which will have no impact or do have beneficial impacts and hence it doesn't require environmental impact assessment at all.

Based on the guideline, all projects planned to be implemented at environmentally sensitive areas are treated as equivalent to Schedule 1 activities irrespective of the nature and scale of the project.

EIA guideline was issued in 2003 and provides details about the required procedures for conducting an ESIA, the permit requirements, the stages and procedures involved in EIA processes, and the roles and responsibilities of parties involved in the ESIA process. It also includes the categories of projects (schedule of activities) concerning the scale of EIA required (projects that may need Full, Partial and No ESIA at all), and list of project types under each category.

2.4. Institutional and Administrative Frameworks

The Proclamation for the Establishment of Environmental Protection Organs, No. 295/2002, issued a series of institutional mandates that extend powers and duties of the Federal Environmental Protection Authority (EPA) and the Environmental Protection Council (EPC) beyond those defined in the enabling legislation down to lower administrative levels as indicated under the following sections.

2.4.1 National Level Institutional Arrangements

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

Environmental Protection Council: The proclamation establishes Environmental Protection Council that ensures 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 Water, Mines and Energy, Commissioner of Science and Technology and General Manager of the Environmental Protection Authority.

Federal Environmental Protection Authority: The Federal Environmental Protection Authority (EPA), proclamation No. 295/2002, is a competent environmental agency at the Federal level in Ethiopia mandated to address environmental issues. The environmental legislation gives EPA powers to fulfill its role, support all federal agencies in establishing environmental units and develop skills in strategic environmental analysis of policies and public instruments. The EPA is involved in the development of environmental policy and legislation, setting environmental quality standards for air, water and soils, monitoring pollution, establishing EIA procedures and an environmental information system and undertaking capacity development in relevant agencies to ensure integration of environmental management in policy development and decision making.

Inter-ministerial Commissions and Coordinating Mechanisms: Besides Environmental Protection Council and Environmental Protection Authority, there are a number of inter-ministerial commissions that were 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.

2.4.2 Sectoral Environmental Protection Unit

EPA proclamation, Proc.№ 295/2002, requires at the Federal level that each Sectoral ministry to establish in-house Environmental Protection Unit to ensure harmony with respect to

implementation of the environmental proclamations and other environmental protection requirements. The duties and responsibilities of these Sectoral Environmental Units are to coordinate and follow up the integration of environmental requirements in a proactive manner so as to ensure environmental sustainability of sectoral development efforts. Based on this provision, the Ministry of Agriculture and others have established sectoral environmental units of which the Federal EPA recently delegated its power to review EIS to these institutions. Federal Agricultural Land Administration and Investment Agency (before under MoARD) is currently undertaking the guiding and supporting roles in undertaking agricultural investment environmental and social code of practice in agriculture investment sector.

2.4.3 Regional Environmental Protection Agencies

The Oromia National Regional State Environment, Forest and Climate Change Bureau is structured under the Regional Council. The bureau is responsible for coordinating formulation, implementation, review and revision of regional conservation strategies and undertakes environmental monitoring, protection and regulation based on powers and duties given it by the EPA establishment proclamation. Environmental Impact Assessment, EIA, Proclamation (Proc.No 299/2002) gives also the regional environmental body the responsibility to evaluate EIA study reports on projects that are licensed, executed or supervised by the regional states.

2.4.4 Wereda Environment, Forest and Climate Change Office

Similar to the regional Environment, Forest and Climate Change Bureau, the zonal and Wereda offices are structured under each of the three zones; Borena, East and West Guji Zones. In the same way, the project districts; Arero, Melka Soda, Girja, Goro Dola and Liben districts Environment, Forest and Climate Change Offices are structured under each District Councils.

2.5 African Development Bank Guidelines

The purpose and procedures of the African Development Bank Guidelines are to "ensure that the Bank-financed projects and programs are environmentally and socially sustainable as well as in line with Bank's policies and guidelines." Based on the Bank's screening criteria, the DRSLP-II projects are in "category-1", for which a full-scale environmental and social impact assessments are required. The scoping of the project was also conducted in order to "clearly identify the environmental and social assessment requirements at each phase of the cycle." The ESIA reports were thus prepared to fulfill the requirements.

2.5.1 AfDB Integrated Environmental and Social Impact Assessment Guidelines

To clearly understand and identify issues of focus areas the integrated environmental and social impact assessment (ESIA) guidelines of the Bank (AfDB, 2003) main focus areas; the irrigation, water supply, livestock and range management, crop production, dam and reservoirs guidelines were reviewed.

2.5.2 AfDB Integrated ESIA Guidelines

The integrated environmental and social impact assessment (ESIA) guidelines (AfDB, 2003, page 98) cover all types of projects and consider various steps of the water cycle, including water harvesting, and supply, storage, conveyance, on-farm distribution and drainage.

3. IMPLEMENTATION RESPONSIBILITIES

Institutional arrangement describes the role and responsibilities of organizations that have a stake in the implementation of the ESIA. In Ethiopia, regions are independent and have the right to issue region specific laws and regulation which is more stringent than the federal one. As far as the proposed projects are concerned, Afar Regional bureaus of Environment protection, rural land use and administration has a responsible to oversee environmental and social impacts of programs and projects at regional level and if the impacts beyond their boundary or more than on regions, it managed and federal level authorities (sector ministries).

3.1 Federal Sector Ministries

The implementation of the projects demands involvement of federal level ministries such as the Ministry of Agriculture, Ministry of Water, Irrigation and Energy, Ministry of Health, Ministry of Education, Ministry of peace, Ministry of Women, Child and Youth etc. Therefore, all of these stakeholders should oversee the overall implementation of this ESMP and subsequent ESIA. Furthermore, they should ensure that adequate resource (Finance, Manpower etc.) are allocated.

3.2. Environment, Forest and Climate Change Commission (EFCCC)

The environmental and social issues of the project are given to regional bureaus of Environment protection, rural land use and administration, it would be duplication of the same processes and activities and there will not be consistency in the process. Therefore, EFCCC will be mandated for the execution of social and environmental issues: to review screening report, decide categorization of the project, review of the ESIA reports and approval of the reports and conduct compliance monitoring against the ESMP. EFCCC can delegate the bureaus of Environment protection, rural land use and administration of the region to supervise implementation of the ESMP.

3.3. Project Implementation Unit

The main organization responsible for implementation of this ESMP/ESIA at federal level is the Ministry of Agriculture (MoA). The MoA, through the DRSLP-CU, will play a leading role in ensuring the proper implementation of the ESMP. It will ensure that the applicable GoE rules and regulations as well as AfDB Safeguard Policies and Procedures are enforced. At federal level and Regional DRSLP-CU steering committee (SC) (permanent Committee) and technical committee (RTC) (Temporal committee) will be established at federal and regional level with the same function. The project implementation unit for the project will host in the Ministry of agriculture and should have Environmental and Social safeguard specialists who will be responsible to:

- Recruitment of Environmental and Social Safeguard Expert (one for federal PIU I and one for regional program coordination office), who have adequate graduate training on the subject and experience to safeguard activities.
- Screening and categorization of the project in collaboration with other relevant bureaus at the region (Woreda) level.
- Preparation of Terms of References (ToR) for the recruitment of an independent consulting firm to prepare the ESIA and RAP (Resettlement action plan) (ARAP) reports if required,
- Monitoring the preparation of the reports as per the ToR,
- Supervision against the Environmental and Social management Plan,
- Ensure compensation are affected as per the newly issued proclamation
- Capacity building (deliver training) to the executing agencies at the region/Woreda& Keble level,
- Periodic reporting to the financiers,
- The PIU management will ensure allocation of adequate budget for the environmental and social activities execution based on approved plane.

3.4. Regions Bureaus

The Bureau of Livestock, Agriculture & Natural Resources Development (BoLANRD), through the DRSLP-RCU, plays a leading role in ensuring the proper implementation of the ESMP at regional level. It ensures that the applicable GoE rules and regulations as well as the Bank Safeguard Policies and Procedures are enforced.

At regional level, Environment protection, rural land use and administration responsible for ensuring the implementation of ESMP through review and approval of Environmental and social safeguard instruments, (especially ESIA and RAP if there,) and to conduct environmental and social audit to ensure effective implementation of the ESMP.

Similarly, the Environmental and Social safeguard assigned/ focal person/specialists within the regional DRSLP coordination units are responsible for conducting and assisting environmental and social screening the checklist filled at project site, preparation of ESMPs, or ESIA providing training, technical support, organizing experience sharing programs, for conducting supervision and monitoring and report the status of the implementation of the ESMP and RAP if there, at regional level for the subprojects, such as community water distribution system. To this end, the DRSLP Regional coordination Unit (RCU) will allocate budget for beneficiary Woreda so that they could carry out ESMP/ESIA implementation and compliance monitoring.

3.5. Woreda and Kebele

Woreda Level

At woreda level, DRSLP woreda Steering Committee (WSC) comprising of relevant offices is established to review and approve annual work plans and budgets, review implementation reports and ensure multi-sectoral coordination. DRSLP phase II Woreda Technical Committee (WTC) is also formed to give technical backstopping and supervision of the implementation of the program activities. The overall responsibility for supervision of the implementation of the ESMP and RAP if there, will be that of office of IA.

Each beneficiary woreda will assign /delegate as a focal person a qualified safeguards experts who will be oversee the implementation of the ESMP and RAP if there as ESIA prepared. They are also responsible for monitoring and follow up, during ESMP implementation and prepare ESIA documents and file it properly and report it to the region.

Kebele level implementation

Kebele Development Committees (KDCs) at Kebele and sub-Kebele levels are responsible to follow up and supervise implementation of the ESMP. The safeguards specialists to be delegated or assigned by each beneficiary Woreda will assist, follow up and ensure the implementation of ESMP. The Kebele level Natural Resources Management Development Agent (DA) has the responsibility to ensure the implementation of the /ESIA/ESMP.

3.6. African Development Bank, Ethiopia Country Office

The AfDB is availing most of the finance required for implementation of the project. The safeguard wing of the AfDB is also responsible to ensure that the AfDB policies on Environment and Society are adequately addressed in the project implementation. Therefore, AfDB will be responsible to:

- Ensure the project passes through the national and bank safeguards policies.
- Compliance monitoring against the banks policies on safeguard,
- Capacity building for the implementing and executing agencies,
- Ensure that adequate resource (Finance, Manpower etc.) are allocated,
- Ensure compensations are affected as per the newly issued proclamation.

4. DESCRIPTIONS OF THE PROJECTS

4.1 Project Area Description

The arid lowlands are endowed with abundant land resources, groundwater potential and numerous seasonal rivers. If these resources are utilized effectively, they have the potential to contribute for lasting prosperity in the five-program target woredas of Afar region. In order to harness the water potential of a ground water optimally, it is necessary to construct two types of hydraulic structures. These are:

- Storage structure, usually a drilling and storing, which acts like a pumping and reservoir for distribution and storing excess of water.
- Distribution structure, which have a pipeline uses to travel water for water user at water point, not for creating storage, but for allowing the water to get diverted through pipeline situated at one or either of its banks. The transported water passed through the pipeline may be used for domestic water and watering livestock needs or other purposes.

Table 4. 1 List of the Selected Deep and Shallow Wells Sites in the five Program Target Woredas and Beneficiary kebeles

No	Woreda	Kebele	Easting	Northing	Well Type
1	Erebtii	Ander gelo	621228	1434186	Deep Well
		Albo	617031	1455045	Deep Well
2	Adaar	Burqa	620476	1240342	Deep Well
		Woransonahormati	650869	1248250	Deep Well
		Jeldi	661788	1258311	Deep Well
3	Elidear	Elidear	817361	1336533	Deep Well
4	Afdera	Nemagubi	*	*	Shallow Well
5	Hadelala	Afetoha	*	*	Deep Well

Source; Field survey, 2018

* Indicates the date is not available

5. PROJECT ALTERNATIVES

The purpose analysis of alternatives is to identify and select best alternative among all possible options. The alternatives analyzed in this ESIA study refer to creating human and livestock domestic water supply accesses. The major known principles of alternatives selection that can help in optimizing possible expected adverse impacts of development projects are:

- Locating projects on sites where negative physical, biological and socio-economic impacts are minimized and most possible advantages obtained;
- Promoting project effectiveness
- Restoring or conserve and promote sustainable use of environmental resources

No Project Alternative: The “do nothing option” prevents the implementation of the multi-purpose community water distribution system in the area.

- It limits the socio-economic development of the projects area and prohibits the advantages of the local community that gains from modern structures.
- As a result, the benefits such as increased income (production) and improvement of living standard of the community will be lost.

Project Site and Design Alternative:

- The project site alternatives are analyzed based on the sitting of the head works (reservoir and stretching the of the main line as well as water user point), the canals alignment, construction techniques, and operation & maintenance procedures.
- The investigation involves an evaluation of physical (hydrology, geology and topography) biological and social parameters. Among the different sites the projects sites are preferred due to its geological stability (having bedrock foundation), low adverse environmental impacts, and low construction cost.
- A number of canal route options have been also considered to choose the canal alignment for pipeline. The proposed canal routes have been selected primarily due to their high socio-economic benefits and low adverse environmental impacts over the other options.

Time Schedule Alternative: The schedule for infrastructure works should be arranged after the rainy and agricultural off seasons, because the local community should be involved during construction works.

Resource Alternative:

- The materials used to construct the project structures are course aggregates of different size, fine aggregates, cement, water, angle iron, sand and selective materials.
- These materials are sourced from the projects surrounding areas.
- To prevent the occurrence of impacts on the natural environment excessive retrieval of construction materials from one source should be avoided.

6. ENVIRONMENTAL AND SOCIAL IMPACTS PREDICTION, EVALUATION & ANALYSIS AND THEIR MITIGATION MEASURES

- The planning and design of a development project should consider the potential environmental and social issues/impacts in order to intensify the positive impacts and avoid or minimize the damages likely to be caused due to the project’s implementation and operation.
- This would assist to propose appropriate avoidance or remedial measures in advance so that they would be considered in the projects planning and design and would be executed during the implementation phase or operation phase as appropriate.
- With this basic principle in mind, the likely positive and negative impacts of the envisaged multi-purpose community water distribution system projects have been

identified and described in the following sections together with their corresponding mitigation measures.

6.1 Potential Impacts Identification and Prediction

6.1.1 Potential Positive Impacts of the Multi-Purpose Water Infrastructures

The environmental consequences of community water supply and its reservoirs and water point are numerous and varied, and includes direct impacts to the biological, chemical and physical properties of the Multipurpose water development environments.

i. Promotes community health and sanitation

The water supply projects, either surface or groundwater supply source will essentially have beneficial impacts of which the main potential positive impacts are:

- Reduction in waterborne and water related diseases and promote community health;
- increased water supply for domestic, institutional and public uses of the areas;
- Creating more reliable and safe water supplies that promote social and economic development of the project target areas;
- Promotes urban centers and water supply target kebeles communities safe water supply, utilities, promotes hygiene and environmental sanitations;
- Promotes livestock water supplies that encourage the community livelihoods and development of the project areas

ii. Employment opportunities

One of the main positive impacts of the water supply system project is employment opportunities during project construction and operation phases. The employment opportunities are among the social and economic benefits for the areas. On the other hand, construction of the project and presence of labor forces will increase demand for food and basic consumer goods. This can increase their products and ensure selling of surplus products on local markets.

iii. Water supply

Water supply systems get water from a variety of locations; including groundwater and surface water sources such as rivers. Such water sources are purified and disinfected by chlorination. Treated water then either flows by gravity or pumped to elevated water towers for distribution. The project areas have been under serious water supply problems for domestic and cattle due to water shortage and quality which the intended projects can solve.

6.2 Evaluation of Potential Environmental and Social Impacts

Table 6.1 presents the main identified potential environmental and social impacts and their characterization in terms of impact type, duration and probability of occurrence, area extent, nature of impacts and magnitude. In addition, the significance of the impacts is evaluated on the basis of this characterization.

Table 6. 1 Summary of Prediction and Evaluation of Potential Environmental and Social Impacts

NO	Main Potential Impacts	Characterization														Evaluation		
		Type		Duration		Area Extent		Nature		Probability of Occurrence			Magnitude			Significance		
		Beneficial	Adverse	Short term	Long term	Localized	Extensive	Direct	Indirect	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
1	Impacts on Physical Environment																	
1.1	Temporary and Permanent Land Acquisition		X	X	X	X		X			X		X				X	
1.2	Obtaining Construction Materials from Quarries and Borrow Pits		X	X		X		X			X			X			X	
1.3	Excavated Soil (Spoil) Disposal		X	X		X		X			X				X		X	
1.4	Soil Erosion and Compaction		X	X		X		X				X		X				X
1.5	Sedimentation		X		X	X			X	X					X			X
1.6	Poor Waste Management and Water Pollution		X	X	X		X	X			X		X				X	
1.7	Sustainability of the Groundwater Resources		X		X		X	X			X			X			X	
1.8	Air and Noise Pollution		X	X		X					X			X			X	
2	Impacts on Biological Environment																	
2.1	Impacts on Terrestrial Vegetation and Environment		X	X		X		X			X			X			X	
2.2	Disturbance and Exploitation of Terrestrial Wildlife		X	X		X		X	X			X		X			X	
2.3	Impacts on Aquatic Ecology		X	X		X			X	X			X			X		
3	Impacts on Social Environment																	
3.1	Creation of Employment Opportunity	X		X	X	X			X	X			X	X			X	
3.2	Impacts on Housing Units		X	X		X			X	X			X	X			X	

NO	Main Potential Impacts	Characterization														Evaluation		
		Type		Duration		Area Extent		Nature		Probability of Occurrence			Magnitude			Significance		
		Beneficial	Adverse	Short term	Long term	Localized	Extensive	Direct	Indirect	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
3.3	Dust Nuisance and Hazard		X	X		X			X		X			X			X	
3.4	Impact on Agricultural or Grazing Lands		X	X		X			X	X			X			X		
3.5	Impacts on Plantation Trees, & Perennial Crops		X	X		X		X		X			X			X		
3.6	Impacts on Cultural Heritage Sites		X	X		X		X		X			X			X		
3.7	Impacts on Infrastructures and Traffic Mobility And Safety		X	X		X		X			X			X			X	
3.8	Employment of Outsiders		X	X		X		X			X			X			X	
3.9	Interruption of Existing Water Supply System		X	X		X		X		X			X			X		
3.10	Health and Occupational Safety Hazards		X	X		X		X			X			X			X	
3.11	Impacts on Public Health		X	X	X	X	X		X		X			X			X	
3.12	Impacts on Investment & Economic Development	X			X	X	X	X	X		X			X			X	

6.3 Adverse Environmental and Social Impacts Analysis

i. Land Acquisition by Construction of Camp Sites and Reservoirs

The contractor will need to establish camps including site offices, stores, vehicle parking and staff accommodation. Land will also be needed temporarily for aggregate processing, concrete manufacture, backup power generation and access roads.

Analysis: The total land requirement for contractor's camp and other facilities will be about 2.5 ha at a near distance of the proposed project sites. The land will be required for up to ten months for construction. The camp sites will also be foci for dust nuisance, waste generation and pollution.

Mitigation Measures

- Land of lowest value (non-cultivable and not used for grazing) should be allocated for the contractor's camp and quarry sites as much as possible;
- All the contractors' facilities should require best practice management in terms of site cleanliness, waste disposal and social management;
- Provide adequate compensation for the property losses and damages if it exists;

ii. Impact of Obtaining Construction Materials

Analysis: The project will require huge quantity of materials for infrastructure construction (sub-base, base course) a much quantity of earth for embankments, and small quantity of stone works & concrete. The project will also require sand.

Mitigation Measures

- Maximize the re-use of excavated materials in the works as fill;
- Site borrow pits and quarries carefully so as to minimize impacts on existing land users;
- Strip all the available topsoil from borrows pits and quarries, and store it safely for use in site restoration;
- Cloth all borrow pits and quarries in accordance with the plan to minimize health and safety hazards;
- Ensure sand is only sourced from approved sources;

iii. Impact of Excavated Soil (Spoil) Disposal

The projects will involve the excavation of soil and rock surplus to the requirement for fill or unsuitable for re-use in the works. This requires disposal.

Analysis: The project will generate hundreds to thousands cubic meter of spoil from common excavation for infrastructures depending on the type of structure. Unmanaged disposal of spoil

can result in sterilization of productive land and the creation of ongoing erosion, sedimentation or drainage problems.

Mitigation Measures

- Maximize the re-use of all excavated materials in the works
- Dispose of surplus materials (“spoil”) only at designated sites approved by the responsible local authority and only by approved methods, if agriculture, the methods must consider topsoil conservation and quality, if infrastructural the method must consider long term soil stability against shrinking and swelling;
- in all cases steps must be taken to prevent erosion and maintain the stability of the material after placement.

iv. Poor Waste Management and Pollution at Camp Sites & Work Areas

Analysis: Construction will result in the creation of various solid wastes, principally surplus earth and rock, metal scraps, plastics (wrapping and containers). The project will also involve the use of stationary and mobile plant and equipment requiring refueling, mainly with diesel and the construction of permanent and temporary fuel storage.

Mitigation Measures

- Identify all waste streams for effective management
- Manage the wastes based on the three Rs (reduce, re-use, recycle)
- Give training for all the staff members
- Minimize the production of waste that must be treated or eliminated
- Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands).
- Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands)

v. Health and Occupational Safety Hazards

To build the project several workers will be involved in construction activities. This is highly likely to result in accidents and injuries to workers. In addition, the workers are often involved in risky behavior off-site and therefore potentially subject to high rates of HIV transmission.

Analysis: Construction is a high-risk occupation especially in the absence of basic safety measures and lack of personal protective equipment (PPE) like gaunt, eye glass, working cloths, shoe etc. Moreover, many construction workers are either males or females living away from home and with money in their pockets; depending on local cultural circumstances, this can result in risky sexual behavior and high rates of transmission of HIV and other STDs.

Mitigation Measures

- Ensure the presence of Health and Safety standards on site like gaunt, eye glass, working cloths, shoe and first aid kits;
- Compulsory HIV/AIDS and STD awareness and prevention (IEC: information, education, communication) training for all workers including truck drivers delivering supplies to the site, and including free access to condoms;
- Ensure tender documents include standard best practice clauses for topics ranging from accommodation to waste management and quarry and borrow-pit operation and closure;
- Employ the local people for labor work;

vi. Communicable Disease Impacts

The most serious potential adverse social and health impacts of these days are COVID-19 and sexually transmitted diseases (STDs) such as HIV/AIDS due to semi, skilled and laborers man powers mobility. It was identified that there are two HIV/AIDS cases in the project area kebele. It could be exacerbated through spread of the disease by more labor forces, workers and prostitutes attracted to the area. This risk is expected to increase as a result of more workforce immigration by the project.

Mitigation measures

To control such communicable diseases:

- ensure STD/HIV/AIDS and COVID-19 awareness and prevention program into training program for all construction workers and project beneficiaries.
- promoting safe sex awareness and protection for construction and in-flow workforces;
- promote STD/HIV/AIDS and COVID-19 awareness and prevention system to local communities; and
- initiate & coordinate distribution of anti-retrieval treatments at nearest health center, etc.

vii. Impacts on Terrestrial Vegetation and Environment

Analysis:

- The major impact on the flora in and around the project area might be due to increased level of human interferences.
- The workers may also cut trees to meet their requirements for construction of houses and fuel wood. Thus, if proper measures are not undertaken, adverse impacts on trees are anticipated.
- Indigenous tree with good cover is not found everywhere in the project area. So, loss of these trees in various project areas would not lead to significant impacts on the availability of fuel wood to locals and other undetermined impacts.

Mitigation Measures

- Avoid all construction activities within key habitats.
- Construction zone limits should be identified and physically marked, to avoid (or at least minimize) off-site trafficking and damage.

viii. Disturbance and Exploitation of Terrestrial Wildlife

Analysis: construction may involve blasting and attendant noise, and/or hydraulic rock-pickers; frequent heavy vehicle movements and associated noise and dust; bright night-time lights (for security) at the contractor's main camp and work sites; increased movement of humans and light vehicles; and the creation of additional potential markets for natural products (workforce with cash).

Mitigation Measures

- Use blasting blankets to minimize blasting noise (standard best practice for safety reasons);
- Use directional security lights that minimize casting light outwards or upwards;
- Physically identify sensitive habitats (specifically, remaining wetlands) and ensure that workers do not enter these for any reason;
- Establish a ban on the purchase of wildlife products (e.g. skins, eggs, feathers) by all members of staff and workforce;

ix. Employment of Outsiders

Analysis: The population is poor and resources are scarce. Therefore, although construction wages are not high, the temporary employment opportunities offered by the project will be significant and competition is likely to be intense. "Outsiders" are likely to be attracted to the area in search of work. The project involves a large volume of earthworks, but much of this has to be carried out with considerable accuracy and therefore is likely to be machine-intensive rather than labour intensive. However, there will still be a large unskilled labour requirement.

Mitigation Measures

- Recruitment policies will need to consider social issues and project acceptability.
- Considering the high local impact of the project in terms of land and disruption of existing lifestyles, together with the distrust of "outsiders", it is probably wise to maximize local employment.
- Local residents are looking forward to construction-related employment opportunities, especially women and youth.

6.4 Adverse Environmental and Social Impacts during Operation Phase

i. Health Problems

Analysis: The primary health risks associated with the projects is related to water and vector borne diseases. This health-related environmental impacts should be considered and a good deal of attention should be given to the matters.

The main diseases in the context of the projects area are malaria, diarrhoea and water borne diseases (gastroenteritis, intestinal parasites, typhoid, etc.).

Mitigation Measures:

- Conduct training activities and community awareness programs;
- Design intake structures in the scheme without ponding and incorporate good standards (lined and no stagnation) in the canals during the planning stage;
- Popularize the use of mosquito net;

ii. **Water Pollution from Domestic and Animal Sources**

Current and future domestic and industrial effluents as well as from current animal production, can lead to the degradation of the surface water sources and the groundwater quality.

Mitigation Measures

With respect to danger of contamination of surface and ground water sources from within the projects area it may be relevant to secure or protect a certain area around the sources to limit the risk of pollution. In addition, appropriate sanitation measures and liquid and solid waste disposal systems shall be established by the townships and the rural communities in the project area.

iii. **Conflicts on Resource Use**

All inhabitants of the project area expect to have plots of irrigable lands which they previously do not have within the project command area. In addition to normal water use problems, conflicts may exist with those community members.

Mitigation measures; To promote community livelihood enhancements and control such resource use-based conflicts:

- any communal resource uses among beneficiaries shall be guided by a committee composed of project beneficiaries' representatives, and
- promote community awareness on water utilization and management, livelihood enhancement and harmonize any negative effects of the planned development with the existing project area ecological, social and economic environmental conditions.
- Implement the local conflict resolution mechanism at early stage by the elders and clan leaders,
- Provided the capacity building for the water user committee on the management skill

iv. **Impacts associated with drilling**

- This will be executed through the application of drilling fluids that can likely cause groundwater contamination and other related impacts.

- During drilling works; drilling fluid, drilling mud, mud additives and other chemicals associated with drilling can have impacts on the surrounding environment.
- Bacteriological or chemical contamination of aquifers can be occurring by drilling equipment.
- Greasing of drilling equipment can also cause soil contamination if appropriate care is not taken.
- Sites near well fields can be affected by drilling that has aesthetic and visual effects.
- If wastewaters from such well fields are directed to nearby water body, it can also likely to pollute surface water bodies.

Mitigation measures These impacts can be reduced through:

- use of biodegradable drilling fluids and mud additives;
- drain immediate surroundings of water wells to avoid infiltration of contaminated water;
- restore the site affected by drilling to its initial condition;
- dry drilling fluid of the site, mix with earth and spread over the site;
- construct properly designed and water tight well heads with proper pump sealing to well heads;
- pump and other equipment submerged into wells need initially disinfected and at each extraction;
- ensure safe hazardous materials management (hydrocarbons, chemical products, etc.);

7. NATURE OF PUBLIC CONSULTATION

Accordingly, as an ESIA consultant, we organize and implement public consultation process in undertaking the ESIA in collaboration with woreda and kebele office authorities. To meet the requirements of both the national and regional regulatory authorities and the multi-purpose water infrastructure projects donors, different stages of consultation have been implemented by the ESIA team members including:

The consultation was to encompass:

- Informing stakeholders about the proposed multi-purpose water infrastructure projects, and soliciting their concerns;
- Involving stakeholders in further refining the definition of issues to be addressed in the ESIA, of what adverse impacts might be created, and of what mitigation approaches & measures might thus be appropriate; and
- Soliciting comments on the final ESIA reports;

7.1 Stakeholder Analysis

Stakeholder analysis involves stakeholder identification, initial consultation, analysis of stakeholders' interests and experience with participation of the stakeholders in accordance with their capacity and relevance to each issue.

7.2 Stakeholder Involvement

During this stage stakeholders were consulted with respect to the significance of impacts and to assist in formulating mitigation measures. This stage was extremely important since it ensured, through stakeholder internalization (“buy-in”), that the mitigation measures will be acceptable to the organizations’ for applying them, and practical, and therefore will actually be implemented.

7.3 Consultations with the Administration and Line Offices

Consultations and discussions were held with the authorities of the five-program target Woredas Administration and the authorities of selected beneficiary Kebeles, as well as with authorities and experts of the various line offices operating in the woreda and its environs.

7.4 Consultations with the Local Community

The main issues (agendas) of discussion for the consultation forum were: (a) attitude of the community towards the upcoming projects; (b) responsibilities of the local community; (c) dedication of the beneficiaries to form water user’s committee; (d) opinion of the community to produce forage crops; (e) contribution & participation of the community on the projects; (f) views and fears of the community on the project implementation;

During the discussion forum the community reflects their fear, views & suggestions and forwards some questions on the issues as follows.

- They express their willingness to contribute labor and materials and participate during construction period;
- They reflect their willingness to cultivate forage crops and to establish water distribution system users’ associations and to set by-laws that govern the members;
- The community believes that the projects will increase their fodder production by the water;
- The community also reflects their fear with respect to the design of the projects and dalliance of the project implementation;
- The community also added their fear on the availability of enough water distribution system.

Generally speaking, the project has got acceptability by different stakeholders at kebele as well as woreda levels.

7.5 Grievance Redress Mechanism

7.5.1 Introduction

Project implementation may be a source of grievance. Grievance may be during construction, compensation, payment modality, pollution, resource use conflict etc. The government of Ethiopia has a system of addressing grievances using the Ethiopian Ombudsman Institution and Public Grievance Hearing Offices (PGHO) at all levels of the decentralized administration.

A 'grievance' is a perceived injustice evoking an individual's or a group's sense of entitlement, which may be based on law, contract, explicit or implicit promises, customary practice, or general notions of fairness of aggrieved communities. In effect it could be either perceived or actual issue, concern, problem, or claim that an individual or community group wants a project or contractor to resolve. Grievance related exercise include questions, requests for information, or general perceptions that may or may not be related to a specific impact or incident. If not addressed to the satisfaction of the person or group sensed it, concerns may well become complaints, and will lead to a loss in the projects to operate or failure for successful delivery of the intended development goal of the project.

Emerging trends toward the project shall be identified and addressed through community engagement before they escalate. Complaints or grievances including all allegations of specific incidents and of any damage, impact or dissatisfaction resulting from projects or contractor actions, whether perceived or actual should be identified, documented and addressed properly.

Good practice in environmental and social performance of projects required the implementation of feedback mechanisms to enable stakeholders to provide input and to make the community being heard for any grievance developed during the project. To materialize this project needs to have participatory and culture friendly grievance mechanism. In line with this fact a Grievance Redress Mechanism will be implemented to ensure that all complaints from local communities are dealt with appropriately, with corrective actions being implemented, and the complainant is informed of the outcome. It will be applied to all complaints from affected parties. It will provide a formal avenue for affected groups or stakeholders to engage with the project implementers or owners on issues of concern or unaddressed impacts. Concerns will be addressed promptly using an understandable and transparent process that is culturally appropriate and readily acceptable to all segments of affected communities, at no cost and without retribution. GRM should be appropriate to the scale of impacts and risks presented by a project.

7.5.2 Objectives of GRM

The GRM should be culturally appropriate and, as far as possible, dependable with existing mechanisms both at community level and in the administrative system/contractors. The project will establish a Grievance Redress Mechanism (GRM) for the objectives of;

- To provide project-affected peoples (PAPs) with easily accessible procedures for settlement of complaints.
- To provide a reliable way for the project to address and resolve disputes.
- To contribute to building trust between the project, PAPs and other stakeholders.
- To avoid illegal proceedings.
- Ensure transparency and accountability throughout the implementation of project
- Resolve any emerging environmental and social grievances in project areas.
- To promote relations between the project implementers, executors and beneficiaries

7.5.3. Grievance Resolution Committee (GRC)

In view of the above, a Grievance Resolution Committee (GRC) shall be set up by the PMU at woreda level to inform and coordinate the relevant stakeholders and to provide resources for resolution activities. The Committee will maintain all records from complaint to final decision for future reference. It will also ensure that public participation and consultation is always a part of the process to promote understanding and prevent unnecessary complaints and disputes. The GRC will be mandated to deal with all types of grievances arising at the community level due to the proposed project and its sub-projects. The GRC members shall be comprise of qualified, experienced, and competent personnel who will be able to interact and gain the trust of the complainants in the local communities. The GRC should consist of both male and female representatives. They should be able to accept complaints, provide relevant information on the process, discuss the complainants' situations with the concerned person, and explore possible approaches for resolution.

There is a need for clear standard procedure and plan of how to register (how, where, and when) grievance and this GRM shall be disseminated within the project implementation level with focuses to communities at Kebele and Woredas where for concerns/grievances of the program are expected to be presented due its size of the proposed intervention and site specificity of the activities. When affected or concerned persons present their grievance, they expect to be heard and taken seriously so woreda and Kebele levels project stakeholders, particularly kebele focal person is required to inform the project GRM system and provide adequate information.

7.5.4 Grievance Redness Record and procedure

The grievance resolution process includes four key stages –

(i) Receive; Relevant personnel in each project site (SC and Contractor) will be required to accept formal grievances and ensure avenues for lodging grievances are accessible to the public and affected persons. Avenues will include: face to face with the contractor, government representative or community representative, by telephone or in writing to the above or via email.

(ii) Investigate/Enquire; information may be gathered from any other sources in order to more clearly describe the cause and effects of grievance, its level of urgency or severity and its relationship to subproject. Investigations may include site visits and meetings to determine: the scale and impact of the grievance and what options there may be for appropriate responses or resolutions.

(iii) Respond and Resolve; The response should communicate findings of the investigation and resolution, and seek approval from the Complainant. If the Complainant is satisfied with the

outcome, then the grievance is closed out and they provide their signature (or fingerprint) on the agreement as confirmation

(iv) Follow up/Close Out; A grievance is closed out when no further action can be or needs to be taken. All grievances should be closed out within the initial 30 days or as soon as possible thereafter and after all reasonable attempts to resolve the grievance have been attempted.

The received complaint has to be documented in writing using a standard format containing specific time plan for resolving conflict/complaint. After registration using standard format, it should be examined; investigated and remedial actions shall be taken. A GRM Register will be maintained at each Regional PCU by the Regional Project Coordinator based on the Complaint Forms, records of meetings and decisions and Appeal Forms received from the Woreda FPs will comprise a hard copy file and an Excel spreadsheet including the type of complaint, location, date of complaint and decision, actions to address the complaint, and final outcome.

7.5.5 The GRM Process

- At community level any person who has complaints regarding the Project activities can raise these issues with the Kebele-level contact point (Focal Person (FP), normally the Kebele manager). All received complaints and responses will be documented and copies sent to the Kebele administration and Woreda FP.
- If the issue cannot be resolved by informal discussion between the project and the complainant, the complaint can be brought to the Kebele Development Committee (KDC). The complaint and decisions made will be documented and copies sent to the Kebele administration and Woreda FP.
- Complaints unresolved at Kebele level will be brought to the Woreda Pastoral Development Office for review, before being sent to the Woreda steering committee for investigation and decision.
- The complaint that is beyond the kebeles and at woreda level is collected together and transferred to the region and follow up whether it solved.
- Any person or community group not satisfied with the decision at regional SC level may submit its appeal to Regional Omdurman office or Federal Commission of Omdurman as required or take its case to Court.

7.5.6 Traditional Grievance Redress Mechanism

Afar elders strongly underscore that all Afar are governed by the same custom (Ada) irrespective of their clan affiliation, area of residence or changes in national politics. The Afar people have a strong sense of respect to the legendary traditional rules and guidelines that descended to them from their predecessors. When a breach of conduct or misbehavior is detected, reference is quickly made to such unwritten customary laws the basis of which is the normative framework and values systems entrenched in their culture from time immemorial. One such fundamental norm is the fear of and respect for elderly personalities in the respective

villages. Elders are believed to have the wisdom and insightful thought accumulated over long period of time. They are considered instrumental for the transfer of traditional knowledge and custom to successive generations.

The Afar believe that all disputes within their ethnic group should be settled peacefully and according to the long-standing customary laws (Mad'aa). Mad'aa consists of specified guidelines and rules on how to handle dispute cases. Offence against another member of the Afar community, group or individual is usually resolved upon the payment of some compensation both in livestock and cash. In this regard, an entire clan or sub-clan is said to be responsible for a crime committed by one or some of its members.

According to Afar customary law, the amount of compensation depends on the type of the offence and its context. This payment is called Maldino. In case of a minor wound, there are special steps to follow before reconciliation can be achieved through the involvement of clan leaders. A wound is considered minor by a traditional healer if the bones are not exposed. Then after a day or two he again offers another to “heal the wound”.

In any dispute, an Afar has two main options for resolution of violent conflict: resort to the modern system of state courts or recourse to the indigenous Afar institutions of conflict resolution that work on the basis of customary laws. Resolutions by local mediators may take the form of negotiation or arbitration and are generally reached with reference to Afar norms and values and proceedings of mediation may, in principle, be subject to manipulation by the different parties, including the arbitrators. Generally, however, such manipulation seems severely constrained by the elaborate and meticulous provisions of Afar customary law (Ma'ada) at the inter-clan level.

8. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

The ESIA has identified a number of potential adverse environmental and social impacts associated with the project and has developed mitigation measures for these. Thus, for the effective implementation of the ESMP, various stakeholders should be involved. The ESMP should contain the following necessary contents.

- A description of the possible adverse impacts that the ESMP is intended to address
- A description of planned mitigation measures, and how and when they will be implemented
- A description of who will implement the ESMP and
- A cost estimate and its source

Table 8.1 also indicates (summarizes) the main environmental issues of the multi-purpose water distribution system projects, the proposed mitigation measures and time of implementation, responsible institutions that implement the mitigation measures, and the estimated cost of implementation.

Table 8. 1 Environmental and Social Management Plan

No	Potential Impacts	Proposed Mitigation Measures	Institutional Responsibilities	Implementation Schedule	Cost Estimate (USD)
1	Land Acquisition by Construction of Camp Sites and Reservoirs	<ul style="list-style-type: none"> ➤ Land of lowest value (non-cultivable and not used for grazing) should be allocated for the contractor's camp and quarry sites as much as possible; ➤ All the contractors' facilities should require best practice management in terms of site cleanliness, waste disposal and social management; ➤ Provide adequate compensation for the property loses and damages if it exists; 	Woreda and Kebele Administrations	Prior to land acquisition	Management Overhead
2	Impact of Obtaining Construction Materials	<ul style="list-style-type: none"> ➤ Maximize the re-use of excavated materials in the works as fill; ➤ Site borrow pits and quarries carefully so as to minimize impacts on existing land users; ➤ Strip all the available topsoil from borrow pits and quarries, and store it safely for use in site restoration; ➤ Cloth all borrow pits and quarries in accordance with the plan to minimize health and safety hazards; ➤ Ensure sand is only sourced from approved sources; 	Contractor; Consultant, Woreda Administration Woreda water, mining and energy office	During Construction	714.3
3	Impact of Excavated Soil (Spoil) Disposal	<ul style="list-style-type: none"> ➤ Maximize the re-use of all excavated materials in the works ➤ Dispose of surplus materials ("spoil") only at designated sites approved by the responsible local authority and only by approved methods, if agriculture, the methods must consider topsoil conservation and quality, if infrastructural the method must consider long term soil stability against shrinking and swelling; in all cases steps must be taken to prevent erosion and maintain the stability of the material after placement. 	Contractors and Consultants Woreda Administration Woreda water, mining and energy office	Throughout Construction phase	Contractors' Overhead

No	Potential Impacts	Proposed Mitigation Measures	Institutional Responsibilities	Implementation Schedule	Cost Estimate (USD)
4	Poor Waste Management and Pollution at Camp Sites & Work Areas	<ul style="list-style-type: none"> ➤ Identify all waste streams for effective management ➤ Manage the wastes based on the three Rs (reduce, re-use, recycle) ➤ Give training for all the staff members ➤ Minimize the production of waste that must be treated or eliminated ➤ Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands). Dispose in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials. ➤ Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands) 	Contractor; local administration and client	During Construction	Contractors' Overhead
5	Dust Nuisance and Hazard	<ul style="list-style-type: none"> ➤ Identify settled areas on project access routes and establish specific maximum speeds for project vehicles through these areas (e.g. Kebele headquarters); ➤ In the event of dust nuisance, water the access roads or working sites twice a day; ➤ Re-vegetate exposed earth surfaces as soon as feasible (first rainy season after construction); 	Contractor, Woredas' Agricultural Offices	During construction Phase	714.3
6	Health and Occupational Safety Hazards	<ul style="list-style-type: none"> ➤ Ensure the presence of Health and Safety standards on site like gaunt, eye glass, working cloths, shoe and first aid kits; ➤ Compulsory HIV/AIDS and STD awareness and prevention (IEC: information, education, communication) training for all workers including truck drivers delivering supplies to the site, and including free access to condoms; ➤ Ensure tender documents include standard best practice clauses for topics ranging from accommodation to waste 	Contractor, Consultant	Throughout Construction phase	714.3

No	Potential Impacts	Proposed Mitigation Measures	Institutional Responsibilities	Implementation Schedule	Cost Estimate (USD)
		<ul style="list-style-type: none"> management and quarry and borrow-pit operation and closure; ➤ Employ the local people for labor work; 			
7	Impacts on Terrestrial Environment	<ul style="list-style-type: none"> ➤ Avoid all construction activities within key habitats. ➤ Construction zone limits should be identified and physically marked, to avoid (or at least minimize) off-site trafficking and damage. 	Contractor, Woreda Administration	During construction	Nil
8	Disturbance and Exploitation of Wildlife	<ul style="list-style-type: none"> ➤ Use blasting blankets to minimize blasting noise (standard best practice for safety reasons); ➤ Use directional security lights that minimize casting light outwards or upwards; ➤ Physically identify sensitive habitats (specifically, remaining wetlands) and ensure that workers do not enter these for any reason; ➤ Establish a ban on the purchase of wildlife products (e.g. skins, eggs, feathers) by all members of staff and workforce; 	Construction Contractor	>>	833.3
9	Employment of Outsiders	<ul style="list-style-type: none"> ➤ Considering the high local impact of the projects in terms of land and disruption of existing lifestyles ➤ Maximize local employment 	Contractor	>>	Nil
10	Soil Erosion	<ul style="list-style-type: none"> ➤ Consolidating quarry sites and re-vegetating borrow areas will be an important means to avoiding and controlling the potentially high erosion and run-off from these highly disturbed areas. Direct seeding with grass or herbaceous plants would be ideal; ➤ Planting shrubs and grasses on disturbed areas; ➤ Reuse the excavated soil from canals and quarries for leveling and filling quarry sites and borrow pits before abandoned; ➤ Constructing physical and biological soil and water conservation structures on the catchment area; ➤ Providing cut off drains that dispose the run off to the natural 	Construction Contractors, Woreda office of Agriculture	During construction as well as operation phases	952.4

No	Potential Impacts	Proposed Mitigation Measures	Institutional Responsibilities	Implementation Schedule	Cost Estimate (USD)
		water way and energy dissipating structures & outlets that reduce the flow of Storm water;			
11	Capacity limitation in implementing mitigation measures	<ul style="list-style-type: none"> ➤ The concerned stakeholders in the region and woreda will be capacitated in the implementation of mitigation measures 	<ul style="list-style-type: none"> ➤ RPCU, ➤ Regional Environmental Protection Agency and Woreda Offices 	During Operation phase	1196
12	Health Problems	<ul style="list-style-type: none"> ➤ Conduct training activities and community awareness programs; ➤ Design intake structures in the scheme without ponding and incorporate good standards (lined and no stagnation) in the canals during the planning stage; ➤ Popularize the use of mosquito net; 	Contractor and Health Institutions	During Operation Phase	240
13	Sustainability of the Groundwater Resources	<ul style="list-style-type: none"> ➤ The project should be planned and designed on the basis of adequate data on the volume and condition of the water resources. The hydrological mapping of the area which describes the capacity of the groundwater aquifer and the depth of the groundwater table should be well developed and has been implemented; ➤ There is also a need on the part of the Afar Regional Government and BoWRD to make certain that the extraction rate of groundwater does not exceed the natural replenishment of the resource based on the resource balance indicated in the hydro-geological study; 	Consultant, Clients	During Design Phase	Nil
14	Water Pollution from Domestic, Industrial and	<ul style="list-style-type: none"> ➤ Secure or protect a certain area around the sources to limit the risk of pollution; ➤ Establish appropriate sanitation measures on the liquid and 	Townships and the rural communities	During Operation Phase	480

No	Potential Impacts	Proposed Mitigation Measures	Institutional Responsibilities	Implementation Schedule	Cost Estimate (USD)
	Animal Sources	solid waste disposal systems;			
15	Conflict on water source	<ul style="list-style-type: none"> Community consultation on the water utilization, and management Implement the local conflict resolution mechanism at early stage by the elders and clan leaders, Provided the capacity building for the water user committee on the management skill, 	Woreda administration, Woreda Water Resource Development Office, Kebele development committee, Client	Operation phase	1196
16	Water Logging	<ul style="list-style-type: none"> Provision of surface or sub-surface drainage systems; Avoid excess application of water particularly in the initial years when the command area is not fully developed; Lining of canals to control seepage losses is an important control measure. 	<ul style="list-style-type: none"> Contractor and IWUA 	During construction and operation phases	240
	Total				7280.6USD

8.1 Capacity Assessment

The implementation of project interventions will be carried out in a decentralized fashion and the environmental and social requirements will be applied at the woreda level. Woreda level government offices staff do not have the necessary capacity to apply these safeguards instruments effectively. Staffs from different actors at all levels will therefore need further training to ensure appropriate implementation of safeguard issues for sub-projects as well as their implementation; and to ensure adequate monitoring. Capacity building training plan should be developed: -

- To enhance the capacity of all implementing entities at the Federal, Regional and Woreda level so that each level will be able to implement and monitor the execution of safeguard instruments; and
- To enhance capacity of community levels public administrative structures and community-based institutions to actively participate and monitor issues related to triggered safeguards.

Given limited capacity within DRSLP IAs, effective implementation of safeguards instruments will require the support from FPCUs and RPCU. The Social and Environmental Safeguard Specialist at FPCU will be responsible to assist the regional experts, the woreda experts and key stakeholders in terms of facilitating awareness and trainings on Safeguards management issues relevant to DRSLP Project by allocating budget.

8.1.1 Institutional Capacity Assessment

The project interventions will be undertaken in a decentralized approach and the safeguards instruments (ESIA/RAP and an enhanced social assessment) requirements will be applied at the woreda level and in some cases at regional level. Woreda level government offices do not have the essential capacity to apply these safeguards instruments effectively. GoE staff at all levels will therefore need training to strengthen social and environmental impact assessments for sub-projects as well as their implementation; and to ensure adequate monitoring. Additionally, specific training and capacity building of Development Agents (DAs), Kebele Development Committee (KDC) and Sub-Kebele Development Committee (KDC) involved in the identification, selection and approval of infrastructural projects will be provided.

8.1.2 Technical capacity building

In view of the above-mentioned apparent shortcomings, sufficient knowledge on environmental management principles, project screening, and impact mitigation, monitoring and follow-up is a necessity. Training and awareness creation is required at different levels of implementation for DRSLP implementing agencies. The capacity building training plan will be developed to (i) enhance the capacity of all implementing entities mainly at woreda and zone levels, and at regional level to be able to implement and monitor the execution of the safeguards instruments, and (ii) to enhance capacity of community level public administrative structures and community-based institutions to monitor the implementation of the safeguard's instruments.

As the need is indicated by the Performance Reviews or M&E activities, refresher courses will also be prepared and delivered during DRSLP phase II project life. Parallel to this, capacity-

buildings trainings focusing on the following major aspects, among others, should be provided for project implementers at Federal, regional, Woreda and Kebele levels: -

- 1) Legal and policy frameworks of the GoE and AfDB, relevant to environmental and social safeguards issues.
- 2) Environmental and Social Assessment Procedures for drought resilience plan.
- 3) Design and operationalization of Grievances Redress Mechanism.
- 4) COVID prevention for program stakeholders.
- 5) Development of a Manual of good environmental practices and safety standards for the program stakeholders.
- 6) Training on environmental and social safeguards, Environmental and Social Assessment Tools (Environmental and Social Impact Studies, Environmental and Social Management Plan, Environmental Audit, etc.) to actors who are responsible for ensuring the integration of the environmental and social safeguards of sub-projects (ESS expert, Monitoring and evaluation expert, Procurement expert, etc.).
- 7) The training involved in the management of environmental and social safeguards on the ISS of the AfDB and Ethiopia safeguards policies and procedures for environmental and social.
- 8) Training on prevention and management of cross border conflict using customary and formal laws and traditional institutions in pastoral and agro pastoral areas,
- 9) Gender mainstreaming in program,
- 10) Reporting, monitoring and follow-up the implementation of ESMP/ESIA etc;

Especial attention should be given to Woreda focal person, Environmental experts at woreda level, woreda Administration and other stakeholders from bureaus of Livestock Resource and Pastoral Development, Bureaus of water sector, Bureaus Environmental, Forest and Climate Change, etc, that will be involved in the screening of the sub-projects for the effective implementation of Environmental and social safeguards.

Furthermore, the technical committee will provide specific and practical capacity building and trainings to kebele and sub-kebele community structures who are involved in the identification, selection and approval of infrastructural projects at grass root level. The safeguard unit at FPCU should plan to provide at least one capacity building trainings on annual basis for the region pertinent to environmental and social safeguards management.

Following this training, the RPCU and woreda focal person should design a means to expand and cascade this training to grass root level through the provision of awareness creation interventions to woreda level experts, administrations and community level representatives.

At the AfDB level, efforts to provide and coordinate capacity building for Federal and regional safeguards experts in the form of exposure visits and experience sharing with other program benefited countries will be design. In this regard best experiences can be extracted from member countries with in AfDB and neighboring countries which are implementing drought resilient projects similar to DRSLP.

Such experience sharing trainings and exposures should focus on cross cutting issue mainly on how to promote Drought Resilience initiatives in the horn of Africa, Climate adaptation and mitigation measures, ISS (Integrated Safeguards Management System) of AfDB and ESAP

which can significantly accelerate the DRSLP interventions in member countries, including Ethiopia.

8.1.3 Institutional strengthening measures

For effective implementation of the ESMP, RPF and ESIA, technical assistance is required at Federal, region, Woreda and local (Kebele) level to build the capacity of the local communities, Development Agents/DAs/, Woreda, zone and region government staffs to discharge their responsibilities as per the requirements set out in this ESMP/ESIA as follow;

1. Recruit an environmental and social safeguard specialist for federal PIU and one for each of the four regionals PIU, and appointment of Safeguard focal person for each program implementing woreda that will report to woreda project coordinator and regional safeguard specialist. The safeguard specialist tasks will include;
 - Assist in environmental and social screening task,
 - Choice of mitigation measures,
 - Preparation of the draft ToR for sub-projects requiring separate ESIA,
 - Assist in the recruitment of qualified consultants to carry out EISA,
 - Sharing of HoA safeguards activities and reports to appropriate institutions,
 - Conduct of environmental and social monitoring and learning for the program,
 - Organize capacity building training and experience sharing on environmental and social safeguards tools to program implementation staffs and relevant stakeholders.
2. Program partnership and collaboration agreements with federal and regional institutions in charge of oversee environmental and social impacts and assessment of development projects.
3. Mainstreaming environmental and social management into the project to integrate the tools and recommendations of the safeguard documents into the manuals and management procedures and in the preparation of program and sub-project budget. This would strengthen inclusion of legislative, regulatory and institutional frameworks in HoA management and support procedures.
4. Updating the ESMP/ESIA (program, schedule and budget): At federal and regional level there is a need for some flexibility for adapting the ESMP/ESIA of the project to changing context and reality to reflect the changes in the program, budget and the implementation schedule.
5. Organizing ESMP best practice and lesson sharing with stakeholders as well as with other projects implemented by the public and NGO in similar thematic and context.
6. Adoption by the project of the Codes of conduct and action plan for the implementation of Environmental and social, health and safety (ESHS) and occupational health and safety (OHS) standards and the prevention of violence based on gender (GBV) and violence against children (VAC). This measure involves getting the project to adopt a set of key definitions, codes of conduct and guidelines. The application of these Codes of Conduct will make it conceivable to ensure that the project meets its objectives in terms of ESHS and OHS standards, as well as to prevent and / or mitigate the risks of GBV and VAC on the project site and in the local communities.

9. ENVIRONMENTAL MONITORING AND AUDITING PLAN

Environmental monitoring is an important tool in environmental management. It ensures implementations of the effectiveness of the recommended environmental mitigation measures. It helps in monitoring achievements of corrective and preventive actions of the environmental aspects periodically. The environmental monitoring activities will be implemented during project design, construction and operation phases.

The monitoring activities during design and *construction phases* of the project comprise visual observations and inspections. Few of the major aspects to be monitored are water supply distribution system, reservoir, water quality, pipe leakage and cracking, gullies erosion and other physical features that may hinder easy going of the project activities.

Similarly, the major environmental and social monitoring aspects during *project operation phase* depending on the project area environmental conditions can be conflict on water use, water quality, beneficiaries' livelihood trends, waterborne, water logging and water related disease trends, etc.

There are several other aspects of environmental and social management and monitoring which need be developed as a consequence of the project. They include:

- Effects of soil erosion, siltation, reservoir, micro-watershed management trends, deforestation and/or general land use change as a result of unexpected population influx and change in socio-economic bases of the area;
- Effects of increased waterborne diseases especially potential threat of schistosomiasis (Bilharzia) which could at some time become a real danger if not monitored carefully, especially during fetching activities of operation phases of the projects and
- Effects of land acquisition for the power energy generation plant, reservoir, water using point and ensuring long life of the water supply system.

These activities require comprehensive outlook than repetitive monitoring and operational actions, and imply need for long-term planning and monitoring capability with emphasis on increasing demand for energy.

They also imply re-enforcing or creation of new lines of coordination with other organizations, water user communities and institutions involved in expected water supply distribution projects.

At present, there are environmental regulatory bodies down to woreda level. Institutions such as the ministry of agriculture and ministry of Water, and Energy have environmental units with the physical, human and financial resources to undertake regulatory activities in addition to Environmental Protection Authority line sector. They are, therefore, responsible to carry out the environmental monitoring activities in order to maintain the national environmental quality standards to which the developer must adhere.

The woreda level structures must, therefore, take initiatives based on their mandates in undertaking necessary management and monitoring activities, although close links should be

maintained with other relevant agencies. To achieve the environmental monitoring and management objectives, a two-stages; short and long term Monitoring programs are proposed.

9.1 Environmental and Social Monitoring Programs

9.1.1 Short term Monitoring program

A short term program aims at monitoring the environmental impacts of the early stages of the project implementation, with particular emphasis on construction of the reservoir, water supply distribution line and water point.

9.1.2 Long term Monitoring program

A newly evolving long term program is to include developer's activities and wider implementations of water distribution system. Subsequent development of the area addresses the broad environmental interactions of all activities. This should proceed jointly with key developers; the water user community and the water, and energy sectors to undertake integrated environmental management and monitoring of the water resources and the environmental resources of the project areas.

Depending on outcomes of the short term environmental monitoring review; long-term environmental monitoring arrangements need formulations to ensure that there is suitable coordination with other organizations plan.

The long-term planning program should be formulated by the water distribution situations in close coordination with Environmental Protection line sector.

As environmental and social monitoring is an important tool in environmental management and the implementation of the project proceeds, monitoring process will need to be put in place to check progress and the resulting effects on the environment. Much of the work during construction stages of the components of water distribution system and the project can form part of the routine inspection of contractors' activities that shall be included in contract agreement. Recommended mitigation measures indicated in the environmental management plan should be key parts in the contractual agreement to be checked against their effectiveness in reducing possible negative impacts and/or enhance project benefits. The process should also include regular reviews of impacts of the projects that cannot be adequately assessed. Few of the parameters to be monitored, activities, frequency, responsible bodies and budget are presented in Table 9.1.

Table 9. 1 Environmental and Social Monitoring Plan

Proposed Mitigation Measure (for each impact and activities)	Monitoring objective	Parameters to be monitored	Indicators	Location	Measurements (Incl. methods & equipment)	Frequency of Measurement	Responsibilities (Incl. review and reporting)	Cost (equipment & individuals)
Construction Phase								500USD
Construct water distribution network system to use water more precisely and reduce or minimize waterlogging.	To construct reliable distribution system which that enables proper water flow to protect waterlogging	Design criteria	Design and constructed water distribution system network	Along Pipeline and water point area	Observation	One to two months during construction	<ul style="list-style-type: none"> Contractor, Woreda, zone & Regional technical committee 	Construction Budget
Cover transported excavated soil and other materials securely with tarpaulins.	To protect severe dust	<ul style="list-style-type: none"> Vehicle's speed, Covered transported construction materials. 	<ul style="list-style-type: none"> Low vehicle speed, Optimized dust 	In project site	Observation	One to two months during construction	<ul style="list-style-type: none"> Contractor, Woreda technical committee Local Community 	Construction Budget
Maximize re-use of excavated soils & materials in the project construction works.	To control excavated soils wastage.	<ul style="list-style-type: none"> Select soil disposal site, methods disposed. 	Proper disposal site	Waste disposal site	Observation	One to two months during construction	<ul style="list-style-type: none"> Contractor, Woreda technical committee Local Community 	Construction Budget
Water user should be provided based on existing rules and regulation.	To solve resource use conflicts	Water supply and demand	Absence of conflicts	Command area	Problem's identification & solutions	One to two months during construction	<ul style="list-style-type: none"> Land use & administration, Water user committee Technic committee Local community 	500USD
Operation Phase								6850 USD
Proper pipeline operation and timely maintenance.	To control water leakage	Community water demand	Water supply	Water user community area	Amount of water in pipeline system	Two times a year	<ul style="list-style-type: none"> Water users committee & Environmental personnel 	Operation Budget

Proposed Mitigation Measure (for each impact and activities)	Monitoring objective	Parameters to be monitored	Indicators	Location	Measurements (Incl. methods & equipment)	Frequency of Measurement	Responsibilities (Incl. review and reporting)	Cost (equipment & individuals)
Planting windbreaks around water and along Borehole well of the project command area.	To control wind erosion and its effects in the project area.	Planted wind break plantations	Planted trees	Project area	Number of planted trees	Yearly	<ul style="list-style-type: none"> • Woreda administration • engineer, • beneficiaries 	450USD
Train water users committee on efficient water uses so as to save water for the project command areas.	To avoid water shortage and conflict.	water availability & absences of water use conflict.	Regular water availability and peaceful water use	facility area & beneficiaries	Water use problems identification	Yearly refresh and whenever WUA committee changed.	<ul style="list-style-type: none"> • Engineer, • Technic committee, • Environmentalist, 	1500USD
Monitor groundwater discharges trend of the water wells so as to reduce or eliminate water depletion.	To protect ground water depletion	Water discharge trend.	Amount of discharge in liters per second.	Digital water well for the water supply.	Discharge in liters per second.	Two to three years.	<ul style="list-style-type: none"> • Engineer and • Water users committee 	800USD
Clearing of <i>prosopise Julifera</i> vegetation.	To control proliferation of new plant species impacts	Cleared area of <i>prosopise Julifera</i> .	Cleared <i>prosopise Julifera</i> .	Command area and its surrounding.	Number of farm plots controlled from <i>prosopise Julifera</i> .	Twice a year in campaigns.	<ul style="list-style-type: none"> • Woreda administration • Water user community 	350USD
Provide safe water supply to promote domestic safe water uses of project beneficiaries.	To avoid waterborne diseases	Domestic water supply	Provided domestic water supply.	Command area	Identifying number of sources	Once	<ul style="list-style-type: none"> • Health personnel • Water supply sector, • Beneficiaries 	Water supply sector Budget
Ensure awareness on STD HIV/AIDS and its prevention of all construction workers and project beneficiaries.	To prevent HIV/AIDS and other STD diseases expansion.	No of workers and project beneficiaries took awareness on HIV/AIDS & STD diseases. risk	Behavioral change and prevention	Command area	Interviewing	Quarterly	<ul style="list-style-type: none"> • Health personnel • Water users committee, • Beneficiaries 	1000USD
Promote community awareness on communal	To ensure sustainable	enhanced beneficiaries',	Good harmony of bio-physical	Project area	Problem's identification &	Yearly	<ul style="list-style-type: none"> • Engineer, 	1500USD

Proposed Mitigation Measure (for each impact and activities)	Monitoring objective	Parameters to be monitored	Indicators	Location	Measurements (Incl. methods & equipment)	Frequency of Measurement	Responsibilities (Incl. review and reporting)	Cost (equipment & individuals)
resource uses, livelihood enhancement and project area environmental and social harmony.	development of the project area.	livelihood, protected bio-physical & social environments.	and social environmental conditions of the project area		solutions		<ul style="list-style-type: none"> • Technic committee, • Project beneficiaries' 	
Promote project beneficiaries' awareness on risk management and protection.	To avoid project social risk	Awareness creation	Risk trends and attained behavioral changes.	Project beneficiaries.	Risk evaluation	Every year	<ul style="list-style-type: none"> • Engineer, • Environmental personnel & 	Awareness creation Budget
Promote project environmental personnel's capacity in harmonizing project impacts with the project areas.	To avoid environmental degradation and in-balance	Training	Trained environmental personnel	Project office	Number of trainings of the environmental personnel	Every two to three years	Project owners	Training Budget
Environmental and Social compliance audit	To ensure proper implementation of recommended measures.	Recommended mitigation plans.	Implemented proposed mitigation measures	Project command area and management	Environmental Audit tools	Every two to three years.	Regulatory body or consultant	1250USD
Total monitoring budget in a year for a project.								7350 USD

9.2 Final Review

A subsequent Final Review would have similar objectives in order to:

- a) Review experiences of contract implementation and formulate recommendations both for contents and specifications in future contracts; and
- b) Draw up recommendations for long-term monitoring activities.

9.3 Review of the organizational arrangements

Organizational arrangements review includes review of the project implementing sector. Responsibility for implementation of the above recommendations should be allocated to the individual identified within the project weredas for environmental monitoring and management as presented in Table 9.2 below.

Table 9. 2: Short-term Environmental Monitoring

Issue/Component Requiring Monitoring	Environmental Indicator
Control of noise, dust, vibrations during construction.	<ul style="list-style-type: none"> • Control of working hours • Record of complaints from the public • Record of properties affected
Health and safety of workforce and public.	<ul style="list-style-type: none"> • Record of accidents
Land covers protection during construction.	<ul style="list-style-type: none"> • Evidence of protected trees, • If there, Records of compensation planting
Severed communication due to raised water level	<ul style="list-style-type: none"> • Number of new bridges across the river
Compensation for land and crop losses.	<ul style="list-style-type: none"> • Record of compensation paid • Attitudes/and situation thereafter of the affected people
Restoration of camps, borrow areas and quarries and dumped spoil.	<ul style="list-style-type: none"> • Actual visits to the sites • Record of complaints from the public

10. ENVIRONMENTAL AND SOCIAL REPORTING AND DISCLOSURE

As in other activities, systems of reporting of the project environmental management and monitoring performances are essential in which the project environmental management body is expected to report performances of the planned environmental management in the planned timeframes. The report need to have all necessary records related to the proposed environmental management and monitoring plans of the water supply projects and water infrastructures in general.

Meetings, internal and/or external environmental audit are also recommended as they are necessary to strengthen the environmental Management and Monitoring plan performances of the project.

10.1 Monthly and Quarterly Base Site Inspection Report

Environmental management and monitoring activities and findings shall be reported Monthly and quarterly with financial and activities performance reports of the project. Any unaddressed environmental aspect must be considered and reported in the next reporting period until the aspect is solved as it allows in addressing environmental issues of the project so as to maintain environmental harmony and sustainability.

10.2 Site Environmental Management Plan Report

Site environmental management plan report provides information of how the planned environmental activities of the project were adapted and gives its performances. Development of these plans form basis for continued improvements of the aspects.

10.3 Record Keeping and Reporting

Environmental data and information records regarding the project activities shall be established. Recorded information shall be reviewed and evaluated to improve effectiveness of the implementations of the planned activities. Annual summary of the information shall be reported to appropriate regulatory body at different levels so that they can evaluate performances of the environmental management plan, monitoring plan and achievements. Generally, the environmental management and monitoring activities findings are expected to be reported with other development activities progress reports.

11. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING BUDGET

10.1 Environmental Management Body

The environmental management body is expected to implement or make others to implement what was recommended in the environmental management and monitoring plans of the project in order to ensure environmental sustainability of the area. The aim of the environmental management body is to ensure the environmental management and optimize the project area environmental resources.

10.2 Capacity Building and Institutional Strengthen

As part of the capacity building program, responsible institutions including that of local government, the woreda and kebele sectors need to be strengthened technically as well as financially. Besides, so long as the operation of these multi-purpose water infrastructure projects would be handed over to the local community, there should be awareness creation and training program for the local community. But in most cases, less attention is being given to the environmental management. This has resulted in very low or no budget allocation. Thus, financing is another prerequisite necessary for environmental management effectiveness, measures such as capacity building, preparation of workshops, seminar and training and purchase of equipment's are required. Therefore, from the proponent side adequate amount of

budget shall be allocated to those mitigation measures. The water management and sanitation require training for water user committee, woreda and kebele experts. Considering those facts, it is proposed that the project proponent need to provide adequate training to water user committee, concerned woreda and kebele experts.

The training program must include the following aspects of environmental protection: land use management, effective and efficient use of water, waste management, water management, natural resource management, and environmental education and monitoring. To strengthen capacity of the environmental expert and project implementer; environmental awareness, seminars and workshops are essential. The estimated yearly awareness creation budget for training workshops is presented in below.

- **Awareness creation and training for direct project beneficiaries:** - Awareness creation and training will be provided for direct project beneficiaries on: effective and efficient utilization of water, drainage waste management, and environmental education and communication (for 200 direct beneficiaries or local communities for two days by 9.52USD Per diem at two phases = $(200 \times 9.52 \times 2) \times 2 = 3808 \text{USD}$ which multiply with the number of water supply scheme.
- **Awareness creation for local Authority:** - To facilitate the development activity local administrative bodies should be aware of on how to sustain the development without social conflict on two phases. Therefore, from the program target 5 kebeles 2 local administrative bodies which are top in their level of management i.e. $(5 \times 2 \times 9.52 \text{USD}) \times 2 = 190.2 \text{ USD}$.
- **Training for trainers (woreda and kebele experts):-** Training for 3 kebele experts from 5 kebeles (1 natural resource expert, 1 kebele focal person and 1 Health extension) and for 7 Woredas experts (1 natural resource expert, 1 water engineer and 1 health office and from Woreda livestock and pastoral office, 1 ESIA expert from woreda environmental protection, 1 land administration and use office, 1 water sector, 1 Gender sector) for 2 days by 12USD Per diem the total price will be $12 \text{USD} \times (5 \times 3 + 7) \times 2 = 660 \text{USD}$.

10.3 Budget summary

- Budget for Capacity Building and Institutional Strengthen **4658.2USD**
- It is recommended that the different stakeholders at woreda and regional levels to management and follow up the implementation of mitigation measures. For this purpose, a total cost **7520.6USD**
- Environmental and social implementation Monitoring budget for a project **7350 USD**.

The total price of implementation environmental and social management plan for implementation of mitigation measure, capacity building and monitoring = **19,528.8USD**.

The above indicated budget is expected for project at a minimum. It will be multiplied by each planned projects and total gross budget will be based on the number of these projects.

12. CONCLUSION AND RECOMMENDATIONS

12.1 Conclusion

Currently Afar Region has a significant shortage of safe drinking water supply for household and livestock. The existing water supply systems are far from satisfactory particularly in terms of quantity and distribution. There is therefore a pressing need to address the water shortage and forage development problems in the five-program target Woredas of the region in order to improve the quality of life of the people, generate economic development, create employment and reduce poverty.

Implementation of the planned multi-purpose water infrastructure projects are expected to alleviate the scarcity of household and livestock water supply problems in the five-program target Woredas, improve public health and women's welfare, enhance investment and economic development, create employment, reduce poverty and ultimately improve the quality of life of the people.

On the contrary, implementation of the project will bring a number of adverse environmental and social impacts during the construction and operation phases. The important impacts during the construction phase include increased soil erosion, loss of bushy trees, air and noise pollution, disruption of wild animals, damages of physical infrastructures, obstruction of traffic mobility and safety hazards, increased risks of malaria and HIV/AIDS and other STDs. Nevertheless, most of these and other identified potential problems are temporary and localized impacts that can be minimized to acceptable levels through good construction methods and adoption of appropriate mitigation measures that are specified in this document.

The significant environmental or social issues during the operation phase are water pollution hazards associated with disposal of the liquid and solid wastes, increased risks of malaria transmission related to increased volume of water, and source water pollution potential from application of agricultural chemicals in the command areas. These potentials problems can be minimized by implementing corresponding mitigation measures including those specified in this ESIA Report.

Therefore, it can be concluded that there are no severe environmental or social impacts, or other grounds that will prevent the planned multi-purpose water infrastructure projects from not proceeding to its implementation provided that the mitigation measures proposed in this ESIA report are strictly implemented and monitored.

Thus, in order to have minimal and acceptable residual environmental and social impacts, and enhance the potential benefits, it is recommended that the proposed mitigation measures are properly implemented at the right time, and necessarily follow up of their effectiveness is made through well-planned monitoring program.

12.2 Recommendations

However, in addition to the above actions, the consultant also wants to forward the following recommendations.

- Public awareness campaigns should be carried out for the beneficiary communities to sensitize them on general environmental and social management practices;
- As much as possible the programme should encourage the use of environmentally friendly technologies and the government should provide incentive measures to promote the use of these technologies;
- Effective monitoring of environmental and social management plans has to be put in place;
- Deliberate efforts should be made to encourage maximum participation of the community in all stages of project planning and design, implementation and operation and;
- The project should strive to use existing local community structures in the management and administration in order to promote ownership and sustainability of the environmental management plans.
- Ownership of the project must be ensured and the water user committee must handle management and administrative issues. To bring genuine participation on the other hand, farmers have to be trained to master the principles and practices of the recommended.
- Training and capacity building must be objective, need based and practical. Empowerment of the user communities is therefore the prime element to ensure sustainability and ownership of the project.
- Issues such as land redistribution, relocation, cost recovery, and resettlement, if any, need at most attention and thorough monitoring and evaluation as well frequent discussion with the user community.
- The proposed mitigation measures are properly implemented at the right time, and necessarily follow up of their effectiveness is made through well-planned monitoring program.