UNICEF

GENDER-SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR DOLLOW TOWN, SOMALIA

LPRS-2024-9193250

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PROJECT REPORT FOR THE CONSTRUCTION OF TESTING WATER LABORATORY AND WATER COMPANY OFFICES IN DOLLOW TOWN, SOMALIA.

October 2025

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Report No. 32/2025

EXECUTIVE SUMMARY

Overview of the Project

Somalia, particularly regions in the Horn of Africa like Dollow, continues to experience recurring droughts, political instability, and displacement crises that have severely impacted access to water, sanitation, and hygiene (WASH) services. The growing number of internally displaced persons (IDPs) in urban centres such as Dollow has strained already inadequate water infrastructure and sanitation issues leading to high costs of living and increased health risks.

The Federal Government of Somalia has applied for funding from the African Water Facility (AWF) to help improve adaptability to climate change and create society resilience through the 'Building Resilience to Climate Change through WASH in Qardho, Dollow and South Galka'ayo, Project'. This initiative focuses on immediate interventions and the development of long-term, investment-ready plans for sustainable WASH infrastructure. In this context, Dollow town has been selected as one of the key towns to benefit from technical planning, feasibility assessments, and infrastructural development under the project.

The proposed works in Dollow form part of a broader climate-resilient WASH investment program targeting the town and its rapidly expanding peri-urban IDP settlements. The overall assignment encompasses preparation and/or review of a comprehensive WASH master plan, feasibility studies, and detailed designs for water supply, sanitation, solid waste, and stormwater management systems, including development of climate risk and vulnerability assessments and integrated water resources management strategies. The project scope further includes detailed groundwater and surface water resource assessments, identification and prioritization of capital improvement projects over a 20-year planning horizon, and design of associated infrastructure such as water abstraction works, transmission and distribution pipelines, storage facilities, treatment units, public water points, sanitation facilities, solid waste handling systems, and drainage structures. Environmental and social safeguards, stakeholder engagement, and capacity development for utilities and local authorities are embedded throughout the planning and design process to ensure long-term sustainability, gender inclusion, and resilience to climate impacts. Within this broader initiative, the construction of the Water Testing Laboratory and Water Company Offices in Dollow is a priority intervention, supported by a full ESIA to ensure compliance with AfDB safeguards and Federal Government of Somalia environmental requirements, and to enhance social and environmental performance of future WASH investments.

Description of Project Site

The proposed project site for the construction of Water Testing Laboratory and water company office is in Dollow town (also spelled Dolow) precisely at the coordinates X: 175374.14 and Y: 459636.48. The town is strategically located in south western Somalia, near the border with Ethiopia. It is situated in the Gedo Region and serves as the administrative capital of the Dollow District. The town lies on the banks of the Juba River, one of Somalia's most significant rivers and directly across the border is the Ethiopian town of Dolo Ado, making Dollow an important border trade and transit hub. The town is home to both host communities and internally displaced persons (IDPs) due to past conflicts and droughts.

Methodology

The ESIA study was conducted from March 2025 to September 2025 in accordance with the AfDB's ISS and Somalia's EIA Regulations (2016). This assessment was aimed in identifying the baseline bio-physical and socio-economic conditions in the project areas, possible interactions with the proposed project activities, and in addition proposes their mitigation and enhancement measures. To achieve that, the following methods were used: Kick-off Meeting, Desk Review, Reconnaissance Survey Report Structure, and Community Consultation.

Institutional and Legal Framework

The Table 3 in the report underlines the key institutions or agencies that are closely involved in water and sanitation services in Somalia. This is essential for joint planning, implementation and coordination of different activities related to the proposed project.

Among these, the Ministry of Energy and Water Resources and the water company will play a central role in ensuring that environmental and social considerations are effectively addressed throughout the project lifecycle. Coordination with other stakeholders will be essential, and implementation of environmental measures will be carried out through relevant government institutions at various levels. Both the Ministry and the water company will be responsible for quarterly reporting to ensure transparency and accountability**.**

To support effective implementation and achieve the intended outcomes of the project, operations will be guided by a robust legal and policy framework. This includes the laws and policies of the Federal Republic of Somalia (FRS), the African Development Bank's (AfDB's) Integrated Safeguards System (ISS), applicable international conventions, and environmental regulations. These frameworks are designed to enhance the project's positive impacts while mitigating potential adverse effects. A detailed review of the relevant policies and legal instruments is provided in Section Chapter 2 of the report.

Applicable African Development Bank's Operational Safeguard Standards (OSs)

The proposed construction and operation of the Water Testing Laboratory and Water Company Office in Dollow have been screened in accordance with the African Development Bank's Integrated Safeguards System (ISS) and found to trigger several Operational Safeguards (OSs). OS1 – Environmental and Social Assessment applies as the project involves civil works and operations with site-specific environmental and social impacts requiring structured mitigation through an ESIA and ESMP. OS2 – Labour and Working Conditions is triggered due to the engagement of skilled and unskilled labor during construction and operation, necessitating adherence to fair employment practices, occupational health and safety (OHS) standards, and prevention of sexual exploitation, abuse, and harassment (SEA/SH). OS3 – Resource Efficiency and Pollution Prevention applies because of the anticipated use of water, energy, and laboratory chemicals, requiring efficient resource utilization and proper waste management and pollution control measures. OS4 – Community Health, Safety, and Security is triggered since construction activities and laboratory operations may temporarily expose workers and nearby residents to safety risks, calling for traffic control, safety planning, and emergency preparedness. OS6 – Biodiversity Conservation and Sustainable Natural Resource Management applies as limited vegetation clearing and soil disturbance will occur, with re-vegetation and erosion-control measures integrated in the ESMP. OS7 – Vulnerable Groups is relevant due to the presence of internally displaced persons (IDPs), women, and youth who require targeted engagement and equitable access to project benefits. OS8 – Cultural Heritage is triggered to ensure that any chance finds discovered during excavation are managed in accordance with national and AfDB requirements. Finally, OS10 – Stakeholder Engagement and Information Disclosure applies to promote continuous, inclusive, and transparent consultation with affected communities and stakeholders throughout the project cycle. The details of the applicable OS to this project is provided in 2.4.

Impacts and Mitigation Measures

The study has shown that the project will have both positive and negative impacts on the physical, biological and human environment from the construction, operation and decommissioning of activities. Key positive impacts envisaged will include: reliable water supply, improved sanitation, improved health, improved livelihood, improved protection of women and girls; reduced communal disputes over water; and provision of employment opportunities. However, the development of the project will also bring negative impacts which are not adverse impacts because they can be avoided or minimized by adhering to the suggested mitigation measures. The identified possible negative impacts and proposed mitigation measures are given in the table below.

Aspect	Potential Impact (Lab & Office Project)	Mitigation Measures
Topography & Landscape	Visual disturbance and loss of natural aesthetics during site preparation	Limit vegetation clearance to only the required footprint; restore construction sites with backfilling and tree planting to return site to near-natural condition.

Soils & Geology	Soil erosion from excavation, trenching, and site grading	Confine works to marked areas; reuse excavated materials for backfilling; dispose excess soil at approved sites; stabilize exposed surfaces; implement soil and water conservation practices.
Air Quality	Dust from excavation and vehicle movement; exhaust emissions from machinery and standby generator	Spray water on dusty surfaces; provide dust masks to workers; maintain construction equipment; regularly service standby generator; use quality fuel and silencing devices.
Water Resources	Contamination of nearby wells and drainage from construction runoff or poor waste management	Properly manage wastewater; segregate and dispose of construction waste safely; prevent runoff of sediments, cement, and fuel; maintain effective drainage systems; conduct regular water quality testing.
E-Waste	Improper handling of electronic waste during installation of lab and office equipment	Prepare an e-waste management plan before equipment installation; train workers on safe handling; establish systems for safe disposal of e-waste from lab and solar systems.
Vegetation & Biodiversity	Loss of vegetation and small-scale habitat disturbance due to clearing	Restrict clearing to designated areas; replant with indigenous species (moringa, neem, acacia, etc.); implement a tree-planting program; sensitize workers to protect biodiversity.
Community Access & Utilities	Temporary disruption of access routes and services during construction	Provide alternative pedestrian/vehicle access routes; construct protective crossings for underground utilities; coordinate with local authorities and water company to minimize disruptions.
Public Health & Safety	Accidents from open trenches, construction equipment, and traffic around site	Install signage and barriers; promptly close open trenches; share traffic management plans with community; conduct community awareness on safety.
Occupational Health & Safety (OHS)	Worker injuries and exposure to construction hazards	Develop and implement a Health and Safety Management Plan; enforce PPE use (helmets, gloves, boots); provide safety training, toolbox talks, and emergency response measures.
Solid Waste Management	Accumulation of construction and office waste	Prohibit on-site burning; provide segregated waste bins; engage licensed waste collectors; ensure waste is sorted and safely managed during both construction and operation.
GBV/SEA/SH Risks	Risks of gender-based violence, sexual exploitation, or harassment linked to workforce presence	Enforce a translated workers' Code of Conduct; train all staff on GBV/SEA/SH prevention; collaborate with local service providers; establish confidential reporting systems.
Child Labor	Risk of employing underage workers during construction	Verify worker ages with IDs or birth certificates; strictly prohibit child labor; promote school enrollment campaigns in the community.
Communicable Diseases	Increased risk of STIs, COVID-19, or other diseases due to workforce-community interaction	Conduct hygiene and disease prevention awareness campaigns; provide handwashing facilities; collaborate with health authorities for regular health checks and awareness.

Labour Influx	Social tension from incoming workers competing with locals for jobs and services	Prioritize hiring of local residents (including IDPs and vulnerable groups); enhance local capacity through training and employment opportunities.
Chance Finds / Cultural Heritage	Possible disturbance of cultural artifacts during excavation	Develop and enforce chance-find procedures; train workers; immediately report discoveries to local authorities.

Consultation

Consultation meetings and discussions were held at administrative and local community levels. The ESIA team had meetings with local government authority, NGOs representatives, chiefs and local community. In summary, all stakeholders consulted were supportive of the project, and emphasized for speedy implementation of the project.

Analysis of Alternatives

A comprehensive analysis of alternatives was undertaken to identify the most technically and financially viable solution for improving water quality monitoring and administrative efficiency in Dollow District. The "no-project" scenario was deemed infeasible due to the persistent challenges in water governance and public health. Alternative options including mobile water testing kits, partnerships with external laboratories, and renting temporary facilities were evaluated but found inadequate due to limitations in reliability, responsiveness, and long-term sustainability. The preferred and selected option is the construction of a dedicated water testing laboratory and administrative office. This facility will be equipped with advanced digital monitoring systems, real-time telemetry, and secure data infrastructure to support comprehensive water quality assessments and informed decision-making. The administrative office will enhance coordination, public engagement, and service delivery. The proposed site is secure, accessible, and supported by stakeholders, with no land ownership disputes. Environmental and social assessments confirmed the project's viability, and mitigation measures are in place to address potential impacts. This investment is expected to deliver lasting benefits for water resource management and public health in Dollow and surrounding communities.

Environmental and Social Management Plan (ESMP)

The ESMP outlines a structured approach to managing environmental and social risks associated with the construction and operation of the proposed water testing laboratory and offices. It identifies key impacts, ranging from soil erosion, dust, noise, and vegetation loss to public health, safety, and socio-economic concerns such as GBV, child labour, and labour influx and proposes targeted mitigation measures to address them. A detailed monitoring framework ensures compliance through regular inspections and stakeholder engagement. To support implementation, the plan allocates approximately US$18,400 for mitigation activities and US$20,000 for capacity building, monitoring, and restoration efforts. The following table presents the specific impacts, mitigation measures, responsible institutions, and associated costs.

Potential Impacts	Proposed Mitigation/Enhancement Measures	Responsible Institution	Estimated Budget (US$)
CONSTRUCTION PHASE			
Physical Environment			
Visual impact on topography and landscape	• Limit vegetation clearance to only the required work area. • Restore construction site to pre-construction condition after completion.	Contractor	600
Soil erosion	• Minimize vegetation clearing and confine works to marked areas	Contractor	1,000

	Backfill excavated areas and stabilize soil with gravel or vegetation. • Dispose spoil earth/rock in approved sites. • Implement soil conservation practices.		
Air quality (dust emissions)	• Spray water on dusty surfaces and unpaved access roads. • Maintain construction equipment to reduce emissions. • Provide dust masks to workers.	Contractor	700
Water pollution	• Prevent runoff carrying sediments, cement, and fuel from reaching nearby wells or rivers. • Store chemicals and fuels in designated areas with containment.	Contractor	500
Noise pollution	• Limit construction to daytime hours (8:00 am–4:30 pm). • Provide ear protection (earmuffs) to workers near noisy machinery.	Contractor	500
Biological Environment			
Vegetation loss	• Minimize vegetation clearing. • Replant trees and grasses using indigenous species after construction. • Conduct awareness campaigns for workers to protect biodiversity.	Contractor	1,000
Socio-Economic Environment			
Disruption of local activities	• Provide clear pedestrian and vehicle access routes during construction. • Coordinate with local authorities to minimize disruptions.	Contractor	200
Public health and safety risks	• Install warning signage and safety barriers around the site. • Close open trenches promptly. • Disseminate traffic management plans to nearby communities.	Contractor	1,000

Occupational health and safety	• Enforce use of PPE (helmets, gloves, boots). • Provide safety training and emergency response plans. • Ensure safe scaffolding and working platforms.	Contractor	1,000
Solid waste generation	• Provide on-site bins and segregate waste (organic, recyclable, hazardous). • Prohibit open burning of waste Engage a licensed waste collector.	Contractor	600
GBV/SEA/SH risks	• Implement a workers' Code of Conduct in Somali and train all workers. • Collaborate with local GBV service providers. • Provide anonymous reporting mechanisms.	Contractor	800
Child labor	• Verify worker ages using ID or birth certificates. • Prohibit employment of minors.	Contractor	100
Spread of communicable diseases (e.g., STIs, COVID-19)	• Conduct awareness campaigns on hygiene and disease prevention. • Provide handwashing stations on-site.	Contractor	300
Labour influx	• Prioritize hiring from the local community, including IDPs and vulnerable groups.	Contractor	500
Interference with airstrip operations (dust, noise, glare, and equipment obstruction)	• Coordinate construction schedules with aviation authorities to avoid disruption of flight operations. • Regularly spray water on exposed surfaces to reduce dust that may impair visibility • Limit construction to agreed safe working hours. • Install aviation-compliant warning lights and reflective markings on cranes, scaffolding, or any tall	Contractor, Project Management Team (PMT), Local Aviation Authority	1,200

	structures. • Cover reflective materials to prevent glare.		
Traffic and safety risks near airstrip	• Develop and implement a Construction Traffic Management Plan to regulate movement of trucks and machinery near the airstrip • Provide clear signage and controlled access routes for construction vehicles. • Train workers on aviation safety and emergency procedures.	Contractor, PMT, Local Aviation Authority	800
• **OPERATION PHASE**			
Impacts on aesthetic value	• Landscape the compound with trees and shrubs. • Maintain cleanliness around the facility.	Contractor / Lab Operator	1,500
Soil erosion	• Construct proper drainage channels around the lab and office. • Regularly maintain stormwater systems.	Contractor / Lab Operator	700
Air pollution from standby generator	• Service and maintain generator regularly to reduce emissions. • Use quality fuel and install exhaust silencers.	Lab Operator	900
Water pollution	• Properly manage laboratory wastewater and ensure drainage systems prevent contamination Conduct regular water quality testing.	Lab Operator	1,500
Employee health and safety	• Provide PPE to staff handling chemicals. • Train personnel on lab safety, chemical handling, and emergency response.	Lab Operator	500
GBV/SEA/SH risks	• Establish a reporting mechanism and awareness programs for staff and surrounding communities. • Implement strict codes of conduct for all staff.	Lab Operator	1,000

Disease spread	• Conduct hygiene and sanitation awareness campaigns in nearby communities. • Fence off the facility to prevent unauthorized access, especially by children.	Lab Operator	600
Lighting and visual distraction to pilots	• Install down-shielded, low-glare external and security lighting that complies with aviation safety standards • Conduct periodic inspections with aviation authorities to ensure lights and structures remain within approved height and brightness limits.	Lab Operator, Local Aviation Authority	900
Aircraft noise and vibration affecting laboratory operations	Incorporate soundproofing and vibration-dampening materials in laboratory design • Calibrate sensitive laboratory equipment regularly to counter potential vibration effects.	Lab Operator	1,000
Total Estimated Budget			**19,400**

Conclusion

This ESIA has developed an ESMMP to guide the relevant institutions and other stakeholders for construction of Water Testing Laboratory and water company offices is in Dollow town for Dollow town and surrounding IDPS. The ESMMP was based on environmental and social baseline conditions and identification of potential impacts of the proposed project with consideration of minimizing adverse impacts before, during and implementation of interventions. With implementation of mitigation measures herein proposed, potential negative impacts of project activities will be minimized or eliminated and positive ones enhanced.

Recommendation

To support effective delivery of the proposed construction of the water testing lab and offices, federal and state ministries should establish Project Management Teams within the first three months, embed AfDB safeguard requirements in bidding documents, and provide continuous oversight through qualified environmental and social experts. Water operators should strengthen their institutional capacity through training, adopt robust water quality monitoring and waste management practices, and ensure gender-inclusive decision-making by establishing water user committees. Contractors are required to implement a Contractor ESMP along with key sub-plans on occupational health and safety, waste, traffic, labour, GBV/SEA, and emergency preparedness to ensure safe, socially responsible, and environmentally sustainable implementation.

Table of Contents

LIST OF TABLES

Table of Figures

LIST OF ANNEXES

ACRONYM AND ABBREVIATIONS

AfDB	African Development Bank
AWF	African Water Facility
CDI	Combined Drought Index
DRR	Disaster Risk Reduction
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
FGS	Federal Government of Somalia
FRS	Federal Republic of Somalia
FMSs	Federal Member States
GBV	Gender Based Violence
GDK	Government of Denmark
GRM	Grievance Redress Mechanism
HHs	Households
IDPs	Internally Displaced Persons
ISS	Integrated Safeguard System
MoEWR	Ministry of Energy and Water Resources
NDF	Nordic Development Fund
O&M	Operation and Maintenance
PAD	Project Appraisal Document
PIU	Project Implementation Unit
PMT	Project Management Unit
PSC	Project Steering Committee
SWALIM	Somali Water and Land Information Management
WASH	Water Sanitation and Hygiene

GLOSSARY OF TERMS

Term	Definition
Aquifer	Refers to a geological unit or a layer of permeable rock formations that can store and transmit pressurised water in significant quantities to wells, boreholes, or springs.
Baseline Study	An assessment of the existing environmental, social, and economic conditions prior to project implementation, serving as a reference point for measuring change and assessing impacts.
Biodiversity	The variety and variability of living species within an ecosystem, contributing to ecological balance and sustainability.
Borehole	A narrow, deep hole drilled into the ground to access groundwater from underground aquifers for domestic, agricultural, or industrial use.
Climate Resilience	The ability of a system, community, or project to anticipate, prepare for, and respond to climate-related hazards, minimizing damage and ensuring recovery.
Community Health and Safety (CHS)	Measures implemented to safeguard the health, safety, and well-being of communities potentially affected by project operations.
Contractor Environmental and Social Management Plan (C-ESMP)	A detailed, site-specific plan prepared by the contractor to guide implementation of environmental, social, health, and safety measures during construction and installation works.
Cumulative Impact Assessment (CIA)	A study evaluating the combined environmental and social impacts of a project in conjunction with other existing or planned activities.
Cumulative Impacts	The combined environmental and social effects of a project's activities together with other existing, planned, or foreseeable projects in the same area.
Drainage System	Infrastructure designed to collect, channel, and safely discharge stormwater or wastewater to prevent flooding and contamination.
Ecosystem	A dynamic system of living organisms interacting with each other and their physical environment.
Emergency Preparedness and Response Plan (EPRP)	A plan outlining procedure for preventing, responding to, and mitigating accidents, spills, or disasters during project implementation.
Environmental and Social Assessment (ESA)	The broader analytical process that examines potential environmental and social impacts associated with a proposed project, including the ESIA and other related management tools.
Environmental and Social Impact Assessment (ESIA)	A systematic process used to identify, predict, and evaluate potential environmental and social effects of a proposed project. It provides mitigation and enhancement measures to ensure that development is sustainable and socially responsible.
Environmental and Social Management and Monitoring Plan (ESMMP)	An integrated plan combining management and monitoring measures to ensure that mitigation actions are implemented effectively and that environmental and social performance is tracked and reported.
Environmental and Social Management Plan (ESMP)	A framework detailing mitigation, monitoring, and institutional measures required to manage identified

	environmental and social impacts during project implementation and operation.
Environmental and Social Monitoring Report (ESMR)	A periodic report summarizing the implementation status of environmental and social mitigation measures and their effectiveness.
Environmental and Social Safeguards (ESS)	Policies, principles, and procedures adopted by development partners such as the African Development Bank (AfDB) to prevent or minimise adverse environmental and social impacts during project design, implementation, and operation.
Environmental Audit	A systematic evaluation conducted to determine whether project activities comply with environmental regulations and standards.
Gender-Based Violence (GBV)	Any harmful act directed at an individual based on gender, including physical, sexual, or psychological abuse.
Generator (Standby)	A backup power unit installed to ensure continuous operation of water supply systems during power outages.
Grievance Redress Mechanism (GRM)	A structured process through which project-affected persons and other stakeholders can raise concerns, complaints, or grievances and receive timely, fair, and transparent resolutions.
Grievance Redress Mechanism (GRM)	A structured process through which project-affected persons and other stakeholders can raise concerns, complaints, or grievances and receive timely, fair, and transparent resolutions.
Groundwater	Water found beneath the earth's surface in soil pores and fractures of rock formations, used as a source for wells and boreholes.
Groundwater Recharge	The natural process through which water from rainfall or surface sources infiltrates the ground to replenish aquifers.
Impact	Any positive or negative change to the environment or society resulting wholly or partially from project activities.
Institutional Capacity	The ability of implementing agencies, local authorities, and partners to manage, monitor, and enforce environmental and social safeguards effectively.
Internally Displaced Persons (IDPs)	Individuals or groups forced to flee their homes due to conflict, disaster, or insecurity but who remain within their country's borders.
Labour Management Procedures (LMP)	Guidelines for managing labour issues, ensuring fair treatment, safe working conditions, and compliance with employment laws.
Livelihood Restoration	Actions taken to restore or improve the income and living standards of persons whose livelihoods are adversely affected by a project.
Mitigation Measures	Specific actions or interventions designed to prevent, minimise, or compensate for adverse environmental and social impacts.
Monitoring	The continuous or periodic collection and analysis of environmental and social data to ensure effective implementation of mitigation measures and compliance with relevant standards.
Occupational Health and Safety (OHS)	Standards and practices designed to protect the safety, health, and welfare of workers during project activities.
Operational Safeguards (OS)	The AfDB's specific environmental and social policy standards set out requirements for borrowers to identify,

	assess, and manage environmental and social risks throughout the project lifecycle.
Project Affected Persons (PAPs)	Individuals, households, or groups directly or indirectly affected by project activities through loss of assets, land, or access to resources.
Public Consultation and Participation	The process of engaging stakeholders, affected persons, and communities to obtain their input and feedback, ensuring participatory decision-making and ownership of project outcomes.
Pump House	A small structure housing mechanical pumps and control systems used to extract and distribute groundwater.
Resettlement Action Plan (RAP)	A document detailing the procedures and measures for compensating and resettling people displaced by a project, ensuring livelihood restoration and social inclusion.
Sanitation Facility	A structure designed for safe human waste disposal, improving hygiene and reducing disease transmission in communities.
Scoping	The initial stage of the ESIA process that identifies key environmental and social issues, potential impacts, and the extent of studies required for comprehensive assessment.
Septic Tank	An underground chamber used for the primary treatment of sewage through sedimentation and anaerobic digestion before disposal or infiltration.
Sexual Exploitation and Abuse (SEA)	Any actual or attempted abuse of a position of vulnerability, authority, or trust for sexual purposes, including transactional sex or coercion.
Shallow Well	A relatively shallow excavation, typically less than 30 meters deep, constructed to access groundwater close to the surface.
Solid Waste Management	The collection, transport, treatment, and disposal of solid waste materials in a manner that minimizes environmental and public health risks.
Stakeholder	Any individual, group, institution, or organisation that has an interest in, may affect, or may be affected by the project's activities or outcomes.
Stakeholder Engagement Plan (SEP)	A framework outlining how stakeholders will be identified and engaged throughout the project lifecycle to ensure transparency, inclusion, and accountability.
Sustainability	The principle of meeting present development needs without compromising the ability of future generations to meet their own, by balancing environmental, social, and economic goals.
Vulnerable Groups	Populations more likely to experience negative project impacts due to factors such as gender, age, disability, poverty, or displacement.
Wastewater	Water that has been used in households, industries, or agriculture and contains waste materials requiring treatment before discharge or reuse.
Water Point	A communal access point for water collection, often equipped with a hand pump, tap, or standpipe.
Water Quality Monitoring	The regular sampling and analysis of water to assess its physical, chemical, and biological characteristics and ensure it meets safety standards.

Water Supply Reliability	The ability of a water supply system to consistently meet user demand under varying operational and climatic conditions.
Wellfield	A designated area containing a group of wells managed collectively to extract groundwater for community or municipal water supply.

1 INTRODUCTION

1.1 Project Background

Since 1991, Somalia has endured conflict, political instability, power and governance vacuums, and climate-related disasters. The ongoing civil conflict has resulted in massive human displacement across Somalia. Internally Displaced Persons (IDPs) were estimated in 2021 to be 1,037,000 due to disasters and 293,000 as indicated in the ToR due to conflict and violence, respectively. The government's capacity to deliver WASH services is limited, and access to such services remains inadequate. Dollow town, with a population of 55,298 people as of May 2025 sourced from the CCCM report and also home to about 139,417 IDPs distributed in the surrounding 5 IDP camps (Kabasa, Kaharey, Ladan, Qansaxley and Qurdubey), is one town where this influx has necessitated the need to search for extra sources of water to counter the increased demand and also improve the dysfunctional WASH services. Inadequate water supply increases the cost of access and time spent collecting water. This takes a toll on women and girls; are they shoulder the burden of water collection.

The water and sanitation services for households, health, and educational facilities are significantly deficient in both quantity and quality. The high user ratio leads to quick filling-up of sanitation facilities, yet the town does not have a functional faecal sludge management system. There is a dire need to sustainably manage and protect the existing, rehabilitate WASH infrastructure, and expand the water supply network to alleviate the situation. Solid waste management is a key challenge in Dollow town and surrounding IDP Camps, as a lot of waste is generated with non-existent garbage collection and disposal systems. This has resulted in pollution of rivers and shallow wells, exacerbating the water security challenge in the area.

1.2 Project Objective

1.2.1 Overall Objective

The proposed project aims to enhance water, sanitation, and hygiene (WASH) services in Dollow town and the surrounding five IDP settlements (Kabasa, Kaharey, Ladan, Qansaxley and Qurdubey) through a combination of immediate interventions and long-term, investment-ready planning that is both climate-resilient and socially inclusive. It involves the development of disaster risk reduction (DRR)-informed, gender-sensitive WASH master plans, comprehensive water resource assessments, environmental and social impact assessments, and detailed engineering designs for water and sanitation infrastructure. In addition, the project will conduct targeted studies on solid waste, faecal sludge, wastewater, and stormwater management to address critical service gaps within Dollow town (host community) and IDP camps. By improving access to safe and sustainable WASH services, the project seeks to reduce the time and burden of water collection, especially for women and girls, improve public health, enhance community resilience to climate change, and support inclusive economic growth and livelihood opportunities.

To achieve this objective, the project will have three main components: (i) Investment planning comprising preparation of investment-ready projects for WASH, integrated water resource management with climate risk and vulnerability assessments; (ii) Immediate interventions through rehabilitation and/or expansion of existing WASH systems in Dollow town and surrounding IDP Camps; and (iii) Technical assistance, institutional capacity development, and Programme management.

1.2.2 Specific Objectives

The overall impact of the proposed project is reduced waterborne diseases and more climate-resilient WASH services among the communities of Dollow and the surrounding IDP camps. This impact will be realized through the following specific objectives:

- Improved access to water supply services through water supply infrastructure development and rehabilitation;
- Improved access to sanitation services and hygiene practices through the development of sanitation infrastructure (to include wastewater / faecal sludge management structures) and the promotion of good hygiene practices;
- Improved solid management through the provision of solid waste disposal and

management infrastructure (to include designed landfills and solid waste collection trucks);

- Improved storm water drainage through training of natural drainage channels, provision of cut-off drains, and construction of lined storm water channels in the camps;
- Improved governance and sustainability of water and sanitation services through strengthening of institutional capacity and improved management models; and
- Enhanced community resilience and adaptability to climate shocks through integration of environmental and social safeguards.

1.3 Project Components

The overall proposed project components encompass the development of new infrastructure, rehabilitation and augmentation of the existing infrastructure and implementation of activities geared toward attaining the project-specific objectives

1.3.1 Component 1: Enhanced Water Supply Infrastructure

On water supply, the population in the project area is projected to grow at 3% annually, reaching over 362,000 people by 2045. This will increase daily water demand from about 8,800 m^3 in 2025 to nearly 29,700 m^3 by 2045. The existing system relies on 19 boreholes and a few shallow wells, but these are vulnerable to seasonal fluctuations, low yields, and salinity risks. To close the demand gap, the project proposes drilling 21 new wells in phases, rehabilitating the existing wells, and integrating additional RWASH shallow wells. Improvements will also be made to water conveyance and distribution through new HDPE pipelines, reservoirs, and water points. Storage capacity will be expanded with new 3,000 m^3 tanks in each phase to meet peak demand. To ensure quality and sustainability, measures include a water testing laboratory, chlorine dosing systems, groundwater monitoring, and the construction of four recharge weirs along the Dawa River to boost groundwater levels.

1.3.2 Component 2: Improved Sanitation Services and Hygiene Practices

For sanitation and hygiene, the project addresses critical gaps such as the lack of faecal sludge treatment facilities and insufficient, flood-prone latrines in the camps. It proposes building gender-segregated, disability-inclusive, and flood-proof latrines, supported by decentralised and centralised sludge treatment facilities. Hygiene promotion campaigns will target handwashing, safe water storage, and menstrual hygiene, particularly for women and schoolgirls. Hygiene kits will also be distributed in schools, and trained hygiene promoters will support facility maintenance and community awareness.

Solid waste management is another major challenge in Dollow, where open dumping, inadequate bins, and poor transport systems pose environmental and health risks. The project proposes establishing an integrated waste management system, including waste collection bins, transport vehicles, and a properly located landfill site. Sorting, recycling, and treatment of plastics, organics, and e-waste will be introduced, with the Dollow Water Management Company (DWMC) taking overall responsibility for management and governance.

1.3.3 Component 3: Improved Storm Water Drainage

Flooding, particularly in IDP camps, exacerbates sanitation challenges by damaging latrines and promoting open defecation. To address this, stormwater drainage systems will be developed, including cut-off drains, drainage channels, and the training of natural waterways to safely evacuate floodwater. These interventions will help protect both infrastructure and public health.

1.3.4 Component 4: Strengthened Institutional Capacity and Sustainability

Institutional strengthening is a central component of the project, aimed at ensuring sustainability and efficient service delivery. The DWMC, Ministry of Energy and Water Resources, water operators, and local authorities will benefit from capacity building, improved financial management, and better project coordination. Measures will include training staff, holding steering committee meetings, improving revenue collection, and adopting stronger operational policies.

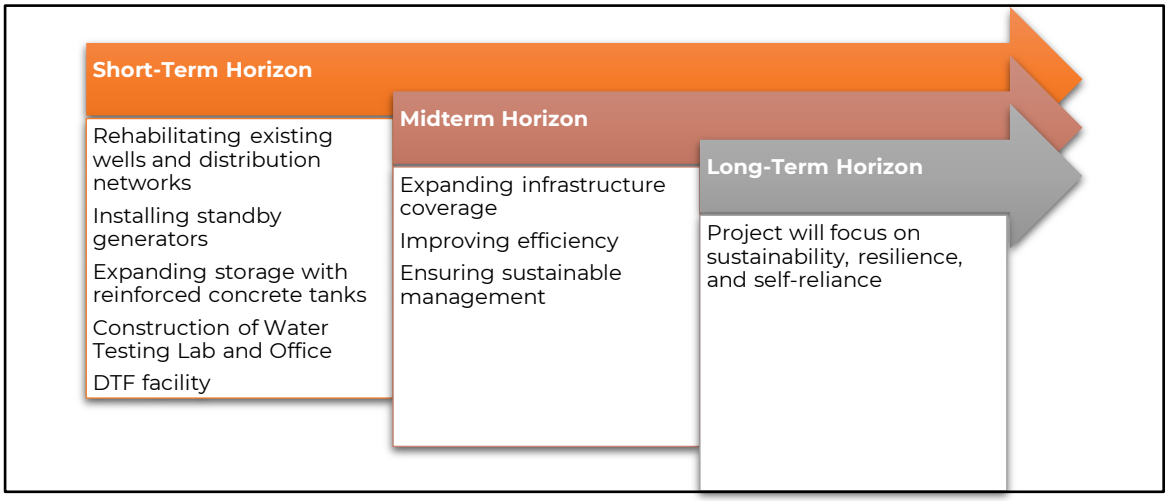
1.3.5 Component 5: Environmental and Social Safeguards Integrated

Finally, environmental and social safeguards are integrated throughout the project to mitigate risks and promote inclusivity. Environmental measures include vegetation restoration, erosion control, dust and noise reduction, water quality protection, and wildlife management. Operational safeguards cover groundwater sustainability, solar hybrid power systems, and automatic chlorination. Social safeguards ensure gender-sensitive facilities, women's participation in decision-making, grievance redress mechanisms, and protection against gender-based violence. The project also aims to create livelihood opportunities, for example through waste management cooperatives.

This ESIA report focuses on construction of Water Testing Lab and Water Company Office which fall on component 1 that seeks to enhance the water supply to Dollow host community and the five IDPs

1.4 Project Design and Status

The implementation of the project has been foreseen to occur in four phases across 20 years (short, medium, and long term).



1.4.1 Short-term Horizons

In the short term, the project in Dollow prioritises urgent investments in water and sanitation to close service gaps and build resilience. On the water side, interventions will focus on rehabilitating existing wells and distribution networks, installing standby generators to ensure reliable supply, and expanding storage with reinforced concrete tanks. Water quality will be safeguarded through a new testing laboratory, chlorine dosing units, and digital monitoring systems, while groundwater sustainability will be supported by constructing recharge weirs along the Dawa River.

For sanitation and hygiene, the plan includes establishing a decentralised wastewater treatment facility, procuring sewer-carrying lorries, and constructing improved shared latrines. Hygiene promotion campaigns will run in all IDP camps with special attention to women, girls, and schools through training and hygiene kit distribution. Solid waste management will be strengthened with the development of an engineered landfill equipped for safe treatment and disposal of waste. Oversight will be ensured by engineering consultancies and guided by an Environmental and Social Management Plan.

1.4.2 Midterm Horizons

In the midterm phase, the project shifts from immediate gap-filling to scaling up and consolidating WASH services. The emphasis is on expanding infrastructure coverage, improving efficiency, and ensuring that systems are managed sustainably. By this stage, communities are expected to have reliable access to safe water, improved sanitation, and structured waste management, supported by stronger institutional capacity and governance frameworks. Hygiene promotion and social inclusion efforts will continue to deepen, ensuring widespread behavioural change and equitable service delivery.

1.4.3 Long-term Horizons

In the long-term phase, the project will focus on sustainability, resilience, and self-reliance. Investments aim to secure lasting service continuity, strengthen climate resilience, and

embed effective management systems within local institutions. Communities will benefit from universal WASH access, reduced vulnerability to disease outbreaks, and integrated environmental safeguards. By the end of this phase, the WASH systems in Dollow are envisioned to be fully operational, climate-resilient, and institutionally anchored, providing equitable and sustainable services for both host and displaced populations.

The construction of Water Testing Lab and office described in this report, fall under the short-term horizon

1.5 Scope of the ESIA and ESIA process

1.5.1 ESIA scope

The study has been conducted to evaluate the potential and foreseeable impacts of the proposed construction of Water Testing Laboratory and water company offices in Dollow town. The geographical scope is limited to the proposed town and their surrounding environments as they may affect or be affected by the proposed interventions of the project. Any potential impacts have been evaluated as guided by the AfDB's Integrated Safeguards System (ISS) and the National Regulations of Somalia.

1.5.2 ESIA Process

The study has been conducted to evaluate the potential and foreseeable impacts of the proposed construction of Water Testing Laboratory and one water company's office for Dollow town and surrounding IDPs. The geographical scope is limited to the proposed town and their surrounding environments as they may affect or be affected by the proposed interventions of the project. Any potential impacts have been evaluated as guided by the AfDB's Integrated Safeguards System (ISS) and the National Regulations of Somalia. Based on the scope, the boundaries of this ESIA are thus defined in two ways:

- **Federal Government of Somalia:** The ESIA has been undertaken in accordance with the legislative requirements of the Federal Government of Somalia. This ensures compliance with national environmental laws, regulations, and institutional procedures relevant to the proposed project.
- **African Development Bank (AfDB)** and **Global Safeguard Practices**: The ESIA also adheres to the policy requirements of the African Development Bank, particularly its Integrated Safeguards System (ISS), along with other internationally recognized good practices on safeguard provisions.

Hence, the ESIA process has included the following steps:

Scoping: at this stage, the ESIA practitioner presented a description of the proposed project, the ESIA procedure, relevant policies and regulatory frameworks, bio-physical and socio-economic characteristics of the project areas, and perceived issues. Key stakeholders, including interested and affected parties were identified during this stage and provided with an opportunity to raise any comments, concerns and questions that they might have had on the proposed project.

Stakeholder Engagement: in this stage, the ESIA team ensured that all stakeholders should be engaged throughout the ESIA process. Key findings from the scoping process have been presented to government officials, local communities, and other interested groups.

Environmental, Social and Impact Assessment: this stage, the ESIA team analysed the potential environmental and social impacts through an in-depth objective study.

Environmental and Social Management Plan (ESMP): this provides a concise tabular framework of all the high-level mitigation measures, key performance indicators, responsibilities and related project plans aligned with the assessment of environment and social impacts.

1.6 Methodology

The ESIA study was conducted in accordance with the AfDB's ISS and Somalia's EIA Regulations (2016). This assessment was aimed in identifying the baseline bio-physical and socio-economic conditions in the project area, possible interactions with the proposed project activity, and in addition proposes their mitigation and enhancement measures. To achieve that, the following methods were used:

1.6.1 Kick-off Meeting

At the commencement of the ESIA study, a kick-off meeting was held on 26th May 2025 between the ESIA Consultant, UNCEF representative and Dollow administration.

The meeting was aimed at getting a detailed understanding of the scope of the study/work, timelines for the delivery of the assignment, and to confirm communication lines and secure available information for ESIA. The meeting participants also agreed on the dates of reconnaissance visits as well as availability different stakeholders for consultations

1.6.2 Desk Review

To gain a clear insight on baseline parameters and project characterization, various planning, policies and regulatory documents and reports commissioned by the federal and state level authorities were analysed. Also, AfDB's Environmental and Social Safeguard Standards were among the documents reviewed. The following documents have been extensively reviewed:

- National Water Resources Strategy 2021-2025;
- National WASH Sector Policy, 2019;
- National Environmental Policy (2020);
- National Climate Change Policy (2020);
- National Gender Policy, 2016;
- Somali Penal Code, 1962;
- Draft National EIA Regulation;
- Project Appraisal Document (PAD);
- National Labor Law;
- AfDB's Updated Integrated Safeguards System (ISS), 2023; and
- AfDB's Policy on Water, 2021;
- AfDB's Policy for Integrated Water Resources Management, 2000.

1.6.3 Reconnaissance Survey

A reconnaissance survey covering Dollow town and surrounding five IDPs Camps (Kabasa, Kaharey, Ladan, Qansaxley and Qurdubey) was performed from May 27 2025. This was a scoping visit to the sub-project. The survey was aimed at gaining an in-depth understanding of the type of land use, structures, nature and type of impacts that are likely to be happened in the project areas. The field visits helped in establishing boundaries of the study areas, evaluating extra data sets, and engaging key project stakeholders in consultations where applicable.

During the survey, the ESIA team with support from UNICEF staff in Dollow, Dollow Water Company and local authority led the field visits in the site for proposed construction of water testing lab and offices.

To get an understanding of various issues, the ESIA team held on-site discussions with the various stakeholders that were representing local leader's communities.

Primary data collection was conducted at designated site for the proposed construction of the Water Testing Laboratory and water company offices. Information on biophysical, socio-economic, and environmental conditions was gathered through engagement with key stakeholders, including local communities and also observation was made onsite to gather the same baseline information. The potential impacts of the construction activities were analyzed and categorized using a three-step method: (1) description of baseline conditions; (2) assessment of impact magnitude based on duration, likelihood, and extent; and (3) integration of impact magnitude with environmental and social values.

1.6.4 Community Consultation

Community consultations with various stakeholders were conducted to get their inputs on issues pertinent to the project. The consultations aimed at highlighting project activities and soliciting their feedback and concerns about the project. The stakeholders were

identified according to the level at which they were operating, their interest in the project, their influence, and how they could be impacted by project components.

2 POLICY, LEGAL, ADMINISTRATIVE AND INSTITUTIONAL FRAMEWORK

This includes an outline of the current policies, laws, regulatory structures, and institutional frameworks related to the environmental and social aspects of the proposed construction of water testing lab and office. It shall also identify the ministries, agencies, and institutions responsible for implementing, monitoring, and enforcing the specified legal requirements. Somalia's governance environment remains in a transitional phase, with much of its policy and legislative infrastructure still under development. The prolonged conflict since 1991 has left several national policies outdated or non-existent. Meaningful progress in state formation began in 2012, and many of the Federal Member States (FMS) remain in the early stages of institutional development with limited legislative and administrative capacity. Recognizing these gaps, the study includes a dedicated component for strengthening institutional capacity, including the development of water-related policies and regulatory frameworks. In cases where national policies and legislation are lacking, the project will be guided by the AfDB Environmental and Social Standards (ESS) and other relevant international conventions.

2.1 Federal Government Legal and Policy Frameworks

2.1.1 Provisional Constitution of the Federal Republic of Somalia (2012)

The Provisional Constitution (2012) is the supreme legal instrument guiding governance in Somalia. It establishes foundational rights and duties related to environmental protection, land use, and natural resource management (Federal Republic of Somalia, 2012). Several key articles are directly relevant include:

Table 1: Key Articles and Relevance to the Project

Article	Description	Relevance to Proposed Activities & Compliance During Implementation
Article 11 – Equality	Guarantees equal rights before the law for all citizens, regardless of gender, clan, or religion. Allows affirmative action to address past discrimination.	The project will ensure equal access to employment, training, and services for all community members, particularly women and marginalized groups, promoting inclusivity and compliance with equality standards.
Article 14 – Prohibition of Slavery and Forced Labour	Outlaws' slavery, servitude, human trafficking, and forced labour.	All labour in the project will be voluntary, fairly contracted, and in compliance with labour laws. Contractors and local workers will be vetted to ensure no forced or exploitative labour practices occur.
Article 15 – Liberty and Security	Prohibits female genital mutilation (FGM), classifying it as torture.	The project will adhere to safeguarding principles, ensuring that no harmful cultural practices are tolerated within community engagement or workforce management, aligning with protection and human rights standards.
Article 24 – Labour Rights	Affirms fair labour practices, freedom of association, collective bargaining, and protection against workplace discrimination and abuse, especially for women.	During construction and implementation, workers will be guaranteed safe conditions, freedom of association, and protection from discrimination or harassment. Training will emphasize gender sensitivity and workers' rights.
Article 25 – Environment	Grants the right to a clean and healthy environment, free from pollution and hazardous materials. Affirms rights	The project will adopt environmentally sound practices in constructing the water testing lab and offices, managing waste responsibly, and ensuring water

	to benefit from natural resources.	sources remain protected for community use.
Article 45 – Environmental Protection	Calls for conservation and sustainable use of natural resources and biodiversity. Prioritizes preventing environmental harm, desertification, and deforestation.	Environmental safeguards will be integrated into all project activities, including construction, water resource management, and long-term operations, to ensure sustainability and compliance with conservation priorities.
Article 26 – Property Rights	Recognizes the right to own and use property, with fair compensation for compulsory acquisition.	Any land acquisition for project activities will follow due process, with fair and transparent compensation where necessary, preventing disputes and ensuring compliance with property rights.
Article 27 – Economic and Social Rights	Affirms the right to clean and safe drinking water, with special support for vulnerable groups.	The project directly contributes to fulfilling this right by improving water supply infrastructure and prioritizing vulnerable populations, including IDPs, women, and people with disabilities.
Article 43 – Land Management	Calls for equitable and sustainable land use and development of a national land policy. Requires FGS and FMS consultation on land matters.	The project will coordinate with both federal and state authorities to ensure land use for the water facilities is equitable, transparent, and sustainable, avoiding disputes and promoting efficient use of land.
Article 44 – Natural Resources	Requires joint negotiation between FGS and FMS on allocation of natural resources.	The project will align resource use with agreements between federal and state authorities, ensuring compliance with legal frameworks governing natural resource allocation.
Article 115 – Civil Service	Outlines protections and values for civil servants.	The project will respect civil service structures by collaborating with government staff transparently, ensuring fair engagement and compliance with the protections afforded to civil servants.

2.1.2 National Water Resource Strategy (2021–2025)

The ESIA aligns with Somalia's National Water Resource Strategy, which sets out the following strategic goals:

- **Goal 1:** Establish a functional governance framework for the water sector.
- **Goal 2:** Operationalize Integrated Water Resources Management (IWRM) to promote sustainable use and access.
- **Goal 3:** Improve the delivery of priority water services across Somalia.

The strategy outlines 20 sub-strategies and identifies institutional fragmentation, limited technical capacity, and regulatory gaps as key constraints to sectoral development (Ministry of Energy and Water Resources [MoEW], 2021).

2.1.3 National Adaptation Programme of Action (NAPA), 2013

NAPA serves as Somalia's primary framework for addressing climate change. It identifies droughts and floods as the most significant climate hazards and highlights the water sector as one of the most vulnerable. The ESIA directly supports adaptation priorities outlined in NAPA by increasing community and system resilience to water-related climate risks (United Nations Environment Programme [UNEP], 2013).

2.1.4 Environmental Protection and Management Act (April 2024)

The Somalia Environmental Protection and Management Act (April 2024) establish a robust legal framework for the conservation, management, and sustainable use of the country's environment and natural resources. Rooted in principles such as the right to a clean and healthy environment, the polluter-pays principle, sustainable development, and the precautionary approach, the Act mandates environmental and social impact assessments (ESIAs) for all projects with potential ecological impacts. This Act has already been adopted for the study to identify all environmental and social impacts associated with the proposed activities. Based on the impact rating in accordance with the African Development Bank (AfDB) categorization, the project has been classified as Category B which is medium risk. It creates an institutional framework led by the Federal Ministry of Environment and Climate Change and supported by state ministries, local authorities, and a National Environmental Council, all tasked with policy coordination, enforcement, and oversight. The Act addresses key environmental issues including air, water, and soil pollution; waste and hazardous substance management; climate change adaptation and mitigation; protection of biodiversity, forests, wetlands, rangelands, rivers, and marine resources; and environmental restoration. It prescribes stringent environmental standards, licensing requirements, and penalties for violations. Provisions are also made for public participation, environmental education, access to information, and intergovernmental and international cooperation. Importantly, it includes environmental audits, monitoring mechanisms, emergency response protocols, and enforcement powers for environmental inspectors.

2.1.5 Labour Code of 1972

The Labour Code of 1972 provides the legal foundation for labour and employment in Somalia. Although outdated, it addresses key issues relevant to Environmental and Social Standard 2 (ESS2) on Labour and Working Conditions:

- Employment contracts must include job nature and duration, hours and place of work, wage information, and termination procedures. Contracts must be pre-approved by a competent labour inspector.
- Employers are required to ensure Occupational Health and Safety (OHS) by providing safe, clean, and well-equipped workplaces, including water and sanitary facilities.
- Workers have the right to lodge complaints, which employers are obliged to consider seriously. Discrimination in wages based on gender, age, or other work-related criteria is prohibited.
- Working hours are limited to 8 hours per day and 6 days per week. Hazardous work is prohibited for women and youth aged 15–18. Employment for children aged 12–15 is permitted under strict protections, but work is forbidden for those under 12.
- The Code guarantees freedom of association and the right to form or join trade unions. It also stipulates equal pay for equal work and provides women with 14 weeks of maternity leave at half pay (International Labour Organization [ILO], 2022).

Note: Although a revised version of the Labour Code has been drafted, it has not yet been enacted into law.

2.1.6 Somali Penal Code of 1962

The Penal Code criminalizes sexual violence and exploitation. Articles 398 and 399 provide penalties for rape and violent sexual acts, prescribing prison terms ranging from 1 to 15 years. Article 401 prohibits abduction for sexual purposes. The Family Code (1975) further reinforces social protections by setting the legal minimum age for marriage at 18 for both genders. Females aged 16–18 may marry only with guardian consent. Marriage is based on the principle of equal rights and responsibilities between spouses (Government of Somalia, 1962; 1975). Reviewing these laws is critical to ensure that the construction and operation of the water testing laboratory and office in Dollow town uphold legal standards of safety, dignity, and human rights. The Penal Code provisions serve as essential safeguards against potential abuse or misconduct in project environments involving diverse workers and community interactions.

2.1.7 Urban Land Distribution Law of 1973

The Urban Land Distribution Law of 1973 designates all urban land in Somalia as public property, emphasizing state ownership over individual title. The law introduces distinctions between the land rights of Somali nationals and foreign nationals. While Somali citizens are permitted to hold land on a permanent basis, foreign nationals may only lease land under renewable lease agreements ranging from 50 to 99 years. A notable amendment to this law was enacted in 1980, which delegated urban land administration responsibilities in Mogadishu to the municipal government. These responsibilities include the maintenance and oversight of land records, allocation procedures, and urban planning functions. The law remains relevant for land governance in urban and peri-urban areas, although enforcement varies across Federal Member States (FMS) due to ongoing institutional limitations and post-conflict challenges (Federal Republic of Somalia, 1973).

However, the Urban Land Distribution Law does not provide detailed guidelines on land acquisition or repossession in situations where the state seeks to reclaim land that is currently occupied. While it affirms the state's overarching authority over urban land and outlines conditions for landholding by Somali citizens and foreign nationals, it lacks explicit procedural safeguards or compensation mechanisms for repossession. In practice, land acquisition or reclamation is therefore handled through administrative directives and municipal-level decisions, which differ among the various FMS because of weak institutional capacity and inconsistent enforcement.

2.1.8 Family Code (1975)

The Family Code of 1975 sets the minimum legal age for marriage at 18 years for both males and females. However, females aged 16 to 18 are permitted to marry with the consent of a guardian. The law recognizes equality in rights and duties between spouses within marriage. In cases of divorce, men may initiate separation through talaq (repudiation), while post-divorce custody of children typically remains with the mother, unless she remarries, in which case custody may be forfeited (UNICEF, 2019).

The proposed construction of water testing lab and office will comply with the Family Code (1975) by ensuring that all labour recruitment, community engagement, and capacity-building initiatives respect the minimum legal age for marriage and uphold the protection of children's rights. Project implementation will also promote gender equality by guaranteeing equal participation of men and women in decision-making, employment opportunities, and community consultations.

2.1.9 Somalia National Gender Policy (2016)

The National Gender Policy, developed in 2016, aims to advance gender equity and eradicate harmful traditional practices, including female genital mutilation/cutting (FGM/C) and child marriage. The policy outlines strategies to improve institutional capacity and service delivery for the prevention, reporting, and management of gender-based violence (GBV) cases. It further supports the mainstreaming of gender considerations across all government ministries and programs (Ministry of Women and Human Rights Development, 2016).

The proposed construction of water testing lab and office will comply with the National Gender Policy (2016) by promoting equal participation of men and women in planning, implementation, and monitoring processes. All activities related to the lab and office construction will integrate gender considerations, prevent discrimination, and safeguard against harmful practices such as FGM/C and child marriage. In addition, the project will strengthen institutional accountability and ensure that service delivery is sensitive to the prevention and management of gender-based violence (GBV), thereby supporting inclusive and equitable outcomes.

2.1.10 National Climate Change Policy (2020)

Somalia's National Climate Change Policy, adopted in 2020, provides a strategic framework for addressing the country's acute vulnerability to climate change, aiming to build a climate-resilient and low-carbon economy. It acknowledges that Somalia, although contributing minimally to global greenhouse gas emissions, faces severe climate-related challenges such as rising temperatures, erratic rainfall, frequent droughts, floods, sea-level rise, and land degradation. The policy is anchored on two pillars: adaptation, including disaster risk reduction, and mitigation, with a primary focus on adaptation due to Somalia's

fragile environmental, social, and economic conditions. It promotes the integration of climate change across all sectors and levels of government, emphasizing inclusivity, community participation, and prioritization of vulnerable populations and ecosystems.

Key sectoral interventions include climate-resilient agriculture, sustainable water resource management, improved infrastructure planning, protection of biodiversity, and disaster preparedness. The policy also addresses social aspects such as health, gender equality, migration, and employment. Cross-cutting themes such as capacity building, research and technology, education, public awareness, and international cooperation are integrated to support implementation. Governance is strengthened through institutional arrangements, including a National Climate Change Committee and coordination mechanisms across federal and member state levels. Furthermore, the policy underscores the importance of mobilizing financial resources from both domestic and international sources to fund climate action. A monitoring and evaluation framework is outlined to track progress and adapt responses as needed. (Ministry of Environment and Climate Change, 2020a).

The National Climate Change Policy (2020) is highly relevant to the construction of a water testing laboratory and office in Dollow town, as it provides a strategic framework for climate-resilient infrastructure development in Somalia's vulnerable environmental context. Given the region's exposure to erratic rainfall, droughts, and land degradation, the policy's emphasis on sustainable water resource management and improved infrastructure planning directly supports the need for such a facility. The lab will play a critical role in monitoring water quality, informing adaptation strategies, and safeguarding public health, aligning with the policy's goals of disaster risk reduction, community participation, and prioritization of vulnerable populations. Integrating climate considerations into the project ensures long-term sustainability, compliance with national priorities, and contributes to building resilience against climate-induced water challenges.

2.1.11 National Environmental Policy (2020)

Approved by the Cabinet on February 13, 2020, the National Environmental Policy provides the overarching framework for environmental governance in Somalia. Its stated goal is to enhance environmental protection and improve the health and quality of life of Somali citizens. It promotes environmental stewardship, pollution control, ecosystem conservation, and sustainable natural resource management (Ministry of Environment and Climate Change, 2020b).

The proposed construction of the water testing laboratory and offices will be guided by the National Environmental Policy (2020), which provides the overarching framework for environmental governance in Somalia. In line with the policy's objectives, the project will adopt environmentally responsible construction practices to minimize adverse impacts and ensure compliance with pollution control and ecosystem conservation standards. The establishment of the laboratory will strengthen water quality monitoring systems, support pollution prevention, and enhance sustainable resource management. By integrating environmental safeguards into project design and implementation, this initiative will contribute not only to improved water governance but also to broader environmental protection and the promotion of public health in Dollow and beyond.

2.1.12 Other Draft Laws and Policies

To strengthen environmental governance and resource management, the Federal Government of Somalia (FGS) is in the process of developing several key legislative and policy instruments, including:

- Draft National Environmental Management Act
- Draft National Environmental and Social Impact Assessment (ESIA) Regulations
- Draft National Ozone Layer Protection Regulation
- Draft National Forest Management Policy
- Draft National Charcoal Policy

These draft instruments aim to close legislative gaps, strengthen Somalia's environmental governance, and align national frameworks with international standards including World Bank Environmental and Social Framework (ESF) requirements. These draft laws will be useful in guiding environmentally responsible planning, construction, and operation of the

future related infrastructure immediately they ready and implemented. This alignment enhances Somalia's national and institutional capacity for environmental management Furthermore, additional sector-specific laws and policies are under review or development in the areas of labour, water, agriculture, livestock, fisheries, petroleum, and marine resources (World Bank, 2023).

2.2 State Level Legal and Policy Frameworks

2.2.1 Jubbaland State Provisional Constitution, 2021

The area of study falls under the jurisdiction of Jubbaland State, which operates under its own Provisional Constitution. This foundational legal document shapes the governance structure, institutional mandates, and normative frameworks within which sectoral planning and stakeholder engagement must occur (Provisional Constitution of Jubbaland State, 2021).

Table 2: Jubaland State (2021) Provision Constitution

ARTICLE(S)	FOCUS / PROVISION	KEY POINTS / INSTITUTIONAL MANDATES
Articles 1–3	Establishment of Jubbaland as a federal member state	Defines Jubbaland's status, governance structure, legal supremacy, and foundational principles
Article 16	Women's rights	Affirms protection, participation, and equality of women
Article 22	Right to Representation	Guarantees citizen representation and supports inclusive stakeholder engagement
Article 25	Electoral rights	Ensures participatory governance through electoral processes
Articles 26–27	Structure of State Government	Establishes the three branches: Legislative, Executive, and Judiciary
Articles 44–48	Executive branch	Details Council of Ministers, their responsibilities, and key ministries such as MoEWR
Articles 62–64	Office of the Attorney General	Outlines powers, duties, legal oversight role, and institutional mandates

2.2.2 Somalia Water Act of Jubbaland State (2020)

The Water Act establishes a comprehensive legal framework for the ownership, regulation, and management of water resources in Jubbaland. The Act vests ownership of all natural water resources in the state, ensuring that access and utilisation are governed by a licensing system aimed at equitable and sustainable distribution. It outlines the responsibilities of key stakeholders, including the Ministry of Minerals, Energy and Water, local governments, water user groups, and private investors. The Act promotes integrated water resources management through provisions on water rights registration, dispute resolution mechanisms, and the issuance of water production and utilization licenses. It encourages public-private partnerships while ensuring that investments in water infrastructure align with state development goals. Special chapters are dedicated to urban and rural water provision, livestock and irrigation water, and the protection of underground and surface water resources. The law also sets water quality standards and enforces pollution control measures, supported by a tariff system and fines for violations. Institutional coordination is mandated through the establishment of a multi-stakeholder Water Committee and clearly delineated roles for different ministries and agencies.

This project will fully comply with the provisions of the Water Act by working within the state's established legal and regulatory framework for water resource management. All water production, distribution, and utilization activities will be licensed in line with the Act to ensure equitable and sustainable access. The project will coordinate closely with the Ministry of Minerals, Energy and Water, the Municipal Authority of Dollow, and the Dollow Water Management Company, while also encouraging community participation. In doing

so, it will uphold water quality standards, promote efficient use of resources, and align infrastructure investments with the broader development goals of Jubbaland.

2.2.3 Jubbaland Environmental Protection and Management Code (2018)

Endorsed by the State Parliament in 2019 and later amended on July 18, 2023. It includes provisions aimed at safeguarding environmental and natural resources for both current and future generations. However, environmental governance laws and policies in Galmudug and Jubbaland States are still in their early stages. While environmental impact assessment (EIA) capacity is emerging, the necessary legal frameworks have yet to be fully developed and enacted (Ministry of Energy and Water Resources, 2024a, 2024b, 2024c, 2024d).

2.3 Institutional Framework

The governance and implementation of water, sanitation, and hygiene (WASH) services in Somalia involve a multi-layered institutional framework that spans federal, state, municipal, and community levels, each with specific mandates and complementary roles in ensuring sustainable water service delivery.

At the federal level, the Ministry of Energy and Water Resources (MoEWR) is the lead agency for water governance. Its mandate includes ensuring universal access to safe water, developing and reviewing sectoral policies and legal frameworks, coordinating cross-sectoral planning, evaluating water programs, and mobilizing resources to support project implementation. For this project, the ministry provides government oversight, policy guidance, and coordination to ensure alignment with national WASH and climate-resilient water strategies. Other federal institutions with cross-cutting responsibilities include:

- Ministry of Environment and Climate Change, which oversees environmental safeguards, ESIA compliance, and climate adaptation measures for groundwater protection.
- Ministry of Labour and Social Affairs, which enforces labour standards, occupational health and safety (OHS) requirements, and safeguards against child labour and gender-based violence during construction.
- Ministry of Finance, which coordinates budgetary oversight, resource mobilization, and engagement with the project financier, the African Development Bank (AfDB), to ensure adherence to national financial procedures.
- Ministry of Public Works and Reconstruction, which provides technical support on construction standards and infrastructure quality control.

Within Jubbaland State, the Ministry of Energy and Water Resources manages and protects surface and groundwater resources, including the Juba River. It develops localized water conservation strategies and ensures that groundwater extraction remains sustainable. The State Ministry of Environment enforces environmental regulations and monitors potential impacts of well rehabilitation and generator operations. The State Ministry of Security provides security coordination for field teams, equipment, and construction sites.

At the local level, the Municipal Authority of Dollow, under the leadership of the mayor, provides political and administrative oversight, mediates land and water-related disputes, and drives public awareness campaigns around WASH initiatives. The municipality's proximity to residents is critical for community engagement, ownership, and the sustainability of interventions.

The Dollow Water Management Company serves as the local water operator, responsible for delivering safe water to host communities and internally displaced persons (IDPs) and for operating and maintaining the rehabilitated wells and installed generators to ensure long-term functionality.

Community and religious institutions also play key roles. Religious leaders, elders, and community-based committees facilitate social acceptance, mobilize local participation, and help disseminate health and hygiene messages in culturally appropriate ways. Their involvement strengthens trust and supports equitable access to water resources.

Development partners and civil society actors complement government efforts. UNICEF and other local and international NGOs provide technical assistance, independent quality

assurance, and community sensitization to ensure adherence to technical specifications and safeguard standards throughout implementation.

Finally, the African Development Bank (AfDB) serves as the primary financier of the project, providing funding and ensuring compliance with its environmental and social safeguards while working closely with the Government of Somalia, Jubbaland authorities, and municipal stakeholders to achieve timely and accountable project delivery.

Table 3: Summary of Key Institutions and their Mandates

INSTITUTION	MANDATE
Ministry of Energy andWater Resources (MoEWR), Federal Government of Somalia	MoEWR is responsible for water at federal and state levels. Its main functions focus on ensuring that all citizens have access to adequate water services. Also, determines and develop sub-policies, laws and from time-to-time review policies and legislations. The Ministry is responsible for sector coordination and integration, cross-sectoral planning, evaluation of programs for water supply and sourcing adequate funds for water project.
Ministry of Energy and Water Resources, Jubbaland State	The Ministry is in charge of the protection and preservation of surface and ground water resources, including rivers.
Municipal Authorities of Dollow	Municipal authorities across the three target districts are headed by Mayors who are the political wings. The leaders at these levels of local administration are closer to residents and therefore important in effective community engagement, sensitization and dispute resolution given that the water supply and sanitation project will serve communities.
Water Operators in Dollow	Water operators across the towns are responsible to provide clean and safe water to all residents, including the IDPs. These entities are responsible for operation and maintenances for water supply systems.

2.4 AfDB Operational Safeguards (OSs)

The AfDB's Integrated Safeguards System (ISS) supports this categorization by providing a structured approach for risk identification, mitigation, and capacity development. The objectives of the ISS are to

i. Avoid adverse environmental and social impacts,
ii. Minimize, mitigate, or compensate for unavoidable impacts, and
iii. Assist borrowers in strengthening their safeguard systems (AfDB, 2013).

As part of the ISS, ten Operational Safeguards (OSs) are applied. For the Dollow WASH project, the following safeguards were considered:

Table 4: Relevant AfDB Operational Safeguards (OSs)

Operational Safeguards (OSs)	APPLICABILITY OF THE OPERATIONAL STANDARDS
OS 1: Environmental and social assessment	This overarching safeguard governs the process of determining a project's environmental and social category and the resulting environmental and social assessment requirements. Based on AfDB's ISS, this project has been classified as Category 2 due to its limited, site-specific, and reversible environmental and social impacts. No irreversible biodiversity loss or significant displacement is anticipated.
OS2: Labour and Working Conditions	This safeguard establishes the AfDB's requirements for its borrowers or clients concerning workers' conditions, rights and protection from abuse or exploitation. It also ensures a greater harmonization with most other multilateral development banks. The project will implement a Labour Management Plan (LMP) aligned with AfDB OS 2, ensuring fair recruitment, health & safety protocols, freedom of association, and prevention of SEA/SH. Contractors will be held accountable through contractual obligations."

OS3: Resource Efficiency and Pollution Prevention and Management	This safeguard covers a wide-range of key impacts of pollution, waste, and hazardous materials for which there are agreed international conventions, as well as comprehensive industry-specific and regional standards, including greenhouse gas accounting, that multilateral development banks follow. To comply with this safeguard, the project ensured that that the design promotes efficient resources utilization and pollution prevention techniques. To prevent pollution, the project ensures that the sanitation and hygiene facilities will be provided across all sub- projects. To enhance compliance to the OS, the project also developed subordinate waste management plan, and pollution control and prevention plan to enhance that the developed project ESMP to meet the safeguard standard.
OS4: Community Health, Safety and Security	This safeguard reorganizes that projects, activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to a project or activities. To fulfil this safeguard, the project confirmed that the existing and project related-activities risks and impact to community health, safety and security have been evaluated and are reported as part of the ESIA/ESMP.
OS6: Habitat and Biodiversity Conservation and Sustainable Management of Living Natural Resources.	This safeguard aims to conserve biological diversity and promote the sustainable use of natural resources. It also translates the commitments in the Bank's policy on integrated water resources management into operational requirements. To comply with this safeguard, the project conducted a detailed ESIA for project which among other things assessed impact on project biodiversity and ecosystems. The ESMP outlined mitigation measures to be implemented to ensure that the project activities do not have severe impact on biodiversity and ecosystems.
CommOS7: Vulnerable Groups	This safeguard recognizes that the situation of vulnerability groups varies from region to region and from country to country. The particular national and regional contexts and the different historical and cultural backgrounds will be considered as part of the environmental and social assessment of the project. "Vulnerable groups identified include IDPs, female-headed households, and elderly persons. Specific measures such as targeted outreach, accessible facility design, and participatory consultations will be employed to ensure their effective inclusion."
OS8: Cultural Heritage	This safeguard recognizes that cultural heritage is an inherent and essential part of self-identification, and it provides continuity in tangible and intangible forms between the past, present and future. People identify with cultural heritage as a reflection and expression of their constantly evolving values, beliefs, knowledge and tradition. To observe this safeguard, the project guaranteed that there will be no cultural sites that will be adversely affected by the works of the project.
OS9: Financial Intermediaries	This is not triggered by the project.
OS10: Stakeholder Engagementand Information Disclosure	A Stakeholder Engagement Plan (SEP) will be implemented to ensure continuous, inclusive, and gender-sensitive dialogue. Meeting records, attendance, and grievance logs will be documented and made publicly accessible through municipal notice boards and radio broadcasts

2.5 International Conventions and Agreements

International conventions and agreements aim to reduce and/or eradicate environmental degradation while enhancing the sustainable use of natural resources through climate change adaptation and mitigation measures. The Federal Republic of Somalia (FRS) has

signed or ratified several such agreements that are relevant to the implementation of the study. These include:

Table 5: Applicable International Conventions and Agreements

Typeof Convention	Name of Convention	Year Ratified/ adopted	Relevance to the Project
Biodiversity	United Nations Convention on Biological Diversity, 1992	2009	The project will involve clearing of vegetation covers, mainly grass and shrubs. Mitigation measures must be implemented to minimize cutting of grasses and shrubs around the sub-project sites.
	United Nations Convention to Combat Desertification, 2002	2002	
	African Convention on the Conservation of Nature and Natural Resources, 2003	2016	The project proponent will take effective measures to prevent land degradation and adopt measures fortheconservation, management, and development underground and surface water resources to sustain both human health and natural resources.
	Convention on International Trade against Endangered Species (CITES), 1986	1986	The project will abide by the fundamental principles of this convention and relevant national regulations that do not allow trade in specimens of species in project locations. Any endangered species in the project areas must be protected from collection and hunting for trading purposes.
Climate Change	United Nations Framework Convention on Climate Change (UNFCCC), 1992	2009	Improving the water supply situation for the people in Dollow may increase their resilience to the adverse effects of climate change.
Hazardous Waste Chemicals and Ozone Layer Protection	Vienna Convention on the Protection of the Ozone Layer, 1985	2001	All hazardous wastes generated during construction of water supply system project will have to be handled, and disposed of within the target areas.
	Basel Protocol on Liability and Compensation on	2010	All imports of chemicals and other additives must comply with
	Damage Resulting from Trans boundary Movement of Hazardous Waste and their Disposal, 2000		National legislation and the applicable international conventions and agreements.
	Stockholm Convention on Protection of Ozone Layer,	2010	The project will take measures to avoid to use chemicals or harmful substances to the environment, particularly air.
Social	The Freedom of Association and Protection of the Right to Organize	2014	The project will uphold the rights of the project workers to organize their own association or

	Convention (1948) No. 87		representatives to present their complaints in work place.
	Convention concerning Forced or Compulsory Labour (ILO No. 29)	1960	The project will comply and execute the international labour laws as well as nation labour code to protect the rights and dignity of all workers. For instance, this will include provision of contracts for all hired workers, timely salary/wages payment, provision of personal protective equipment, and setting up grievance handling mechanisms in order to enable workers channel their concerns, complaints, etc.
	Convention on the Rights of the Child, 1989.	2015	The project will safeguard and protect the rights of children during project implementation ensuring that they are not involved in labour provision during construction are

3 PROJECT DESCRIPTION

The project has been designed to provide sustainable human waste management and improved sanitation to the communities, in Dollow town and surrounding IDP camps. The project focuses on enhancing water supply infrastructure, strengthening institutional capacity, and building community resilience to climate change. Specifically, the intervention focused in this ESIA report will support the construction of a water testing laboratory and a water company office in Dollow town to improve water quality monitoring and service coordination. This ESIA has been prepared to assess the potential environmental and social impacts and risks associated with the construction activities and to propose appropriate mitigation and management measures.

3.1 Project Location

Somalia, located in the Horn of Africa, spans latitudes 2°S to 12°N and longitudes 41° to 52°E, with a land area of 637,655 km². Dollow town, the administrative centre of Dollow district in the Gedo region of Jubbaland State, lies approximately 470 km northwest of Mogadishu and sits along the banks of the Dawa River. The proposed site for the construction of the water testing laboratory and the water company office is situated within Dollow town at UTM coordinates X-175374.14 and Y-459636.48. as shown in Figure 2. Both facilities will be constructed at this shared location to support improved water quality monitoring and service delivery.

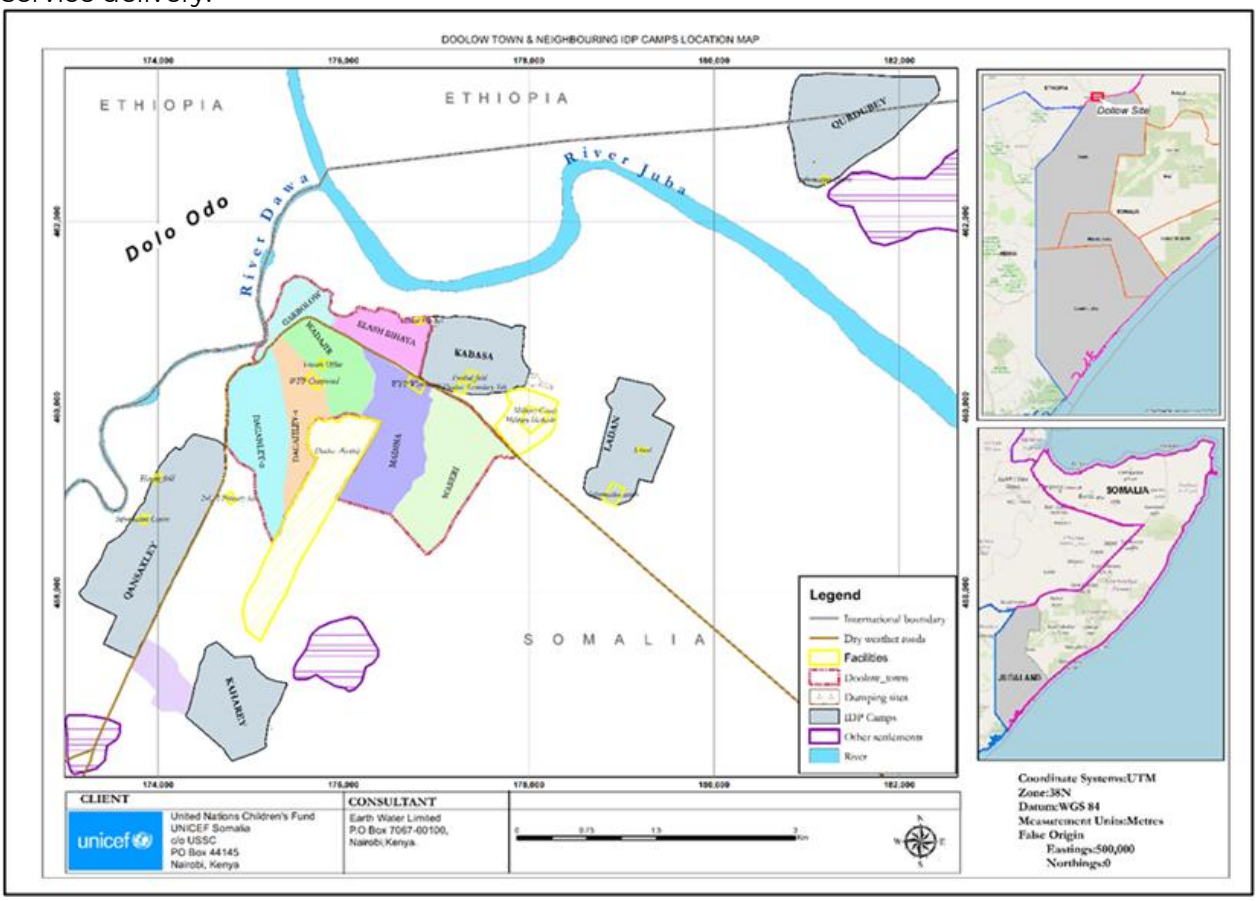


Figure 1: Location Map

3.2 ESIA for Short Term Activities

The current ESIA report specifically focuses on the proposed construction of a Water Testing Laboratory and administrative office at UTM coordinates X-175374.14, Y-459636.48. This construction represents a critical component of the water supply system and aims to strengthen water quality monitoring, operational efficiency, and service delivery. Key activities under this component include:

- Construction and establishment of a fully functional Water Testing Laboratory
- Building and equipping an Office Block for the Dollow Water Management Company

- Provision of digital data loggers and multiparameter sondes with telemetry capabilities for real-time monitoring of pH, electrical conductivity (EC), temperature, dissolved oxygen (DO), and turbidity
- Installation of a central server and licensed software for data integration, dashboard visualization, and analytical reporting
- Setup of a secure database system integrated with the telemetry network, including cloud configuration, user account management, and security protocols

These investments are intended to ensure reliable water quality surveillance, promote data-driven decision-making, and support climate-resilient water resource management in Dollow town.

3.3 Project Phases

The proposed project will be implemented in four main phases: pre-construction, construction, operation and maintenance and decommissioning phases. Each phase involves specific activities, resource requirements, and environmental and social management measures that will guide the successful execution of the project. The ESIA identifies and outlines the key actions, safeguards, and responsibilities applicable to each stage to ensure compliance with regulatory standards and sustainable project delivery.

3.3.1 Pre-construction Phase

The pre-construction stage will focus on administrative, logistical, and preparatory activities necessary for smooth project implementation. This stage ensures that all land, resources, and institutional arrangements are in place before the commencement of actual construction works. Key activities will include land acquisition and site preparation, mobilization of personnel and equipment, and initial stakeholder coordination to ensure that social and environmental safeguards are fully integrated into the implementation process.

3.3.1.1 Land acquisition

The proposed sub-project will support the construction of a Water Testing Laboratory and a Water Company Office within Dollow town. During field reconnaissance, it was confirmed that the identified site lies within the operational jurisdiction of the Dollow Water Management Company (DWMC) and has been allocated by the local government authority for public utility development. Therefore, no involuntary land acquisition or physical displacement is anticipated.

However, it was noted that portions of the surrounding land may be under individual or communal ownership, necessitating prior verification and documentation to avoid any potential disputes. Where private or community interests are identified, amicable negotiations and written consent will be undertaken in line with national land management procedures and AfDB Operational Safeguard 5 principles.

The local authority has expressed formal support for the project and will oversee coordination with affected stakeholders. In addition, women and youth groups expected to benefit from project-related employment and capacity-building opportunities will be identified through a transparent and participatory consultation process, using agreed selection criteria to ensure equity and inclusivity.

3.3.1.2 Site Assessment and Approval

Prior to the commencement of construction for the Water Testing Laboratory and Water Company Office, a comprehensive site assessment and approval process will be undertaken to ensure that the selected locations are technically, environmentally, and socially suitable for development. The process will include detailed topographic and geotechnical surveys to assess soil bearing capacity, drainage characteristics, and groundwater levels to inform foundation design and construction methods. Environmental and social screening will also be carried out to identify any potential sensitivities related to surrounding land uses, community proximity, or ecological features. Informed by these assessments, the design phase will incorporate flood-resilient features such as elevated floor slabs and sealed storage tanks, alongside gender-sensitive and disability-friendly provisions to enhance accessibility and inclusivity.

Furthermore, the pre-construction stage will involve community engagement and consultations with local leaders, internally displaced persons (IDP) representatives, and

other stakeholders to ensure community acceptance and alignment with local development needs. The contractor will proceed with procurement of construction materials, equipment, and skilled and unskilled Labor. Implementation of pre-construction environmental and social management measures including worker induction on occupational health and safety, site organization, and waste handling protocols will also be undertaken to ensure compliance with environmental and social safeguards. All necessary permits, approvals, and clearances will be secured from relevant municipal, environmental, and regulatory authorities before construction works commence.

3.3.1.3 Material Testing and Approval

Prior to commencement of full construction works, all key construction materials such as cement, aggregates, sand, steel reinforcement, and water will be tested to verify compliance with required engineering and quality standards. Testing will be carried out in accredited laboratories to assess parameters such as compressive strength, particle size distribution, moisture content, and chemical composition. The objective is to ensure that only materials meeting the approved specifications are used for the construction of the Water Testing Laboratory and Water Company Office, thereby guaranteeing structural integrity, durability, and safety of the completed facilities.

3.3.1.4 Mobilization

Once administrative clearances and site verification are completed, the contractor, in collaboration with the DWMC, will mobilize all necessary resources for project commencement. Mobilization will include the deployment of qualified technical personnel, construction machinery, tools, and materials to the designated site. Temporary facilities such as a contractor's camp, storage yard, site office, sanitary facilities, and waste collection points will be established in compliance with occupational health, safety, and environmental standards.

During this phase, the contractor will also install perimeter fencing, warning signage, and access controls to secure the site and protect nearby community members. Preliminary surveys, site layout marking, and utility connection planning (for power, water, and communication lines) will be undertaken prior to excavation works. All preparatory activities will adhere to the Environmental and Social Management Plan (ESMP), ensuring that the site is safely organized, socially sensitive, and environmentally compliant before the onset of construction.

3.3.2 Construction Phase

The construction phase will involve structured and sequential civil, structural, mechanical, and electrical works, executed entirely within the approved project boundaries to prevent disturbance to adjacent land users and infrastructure. All activities will be guided by approved designs, environmental and social safeguards, and occupational health and safety standards. Construction will be managed by a qualified contractor under the supervision of the implementing agency and relevant authorities. The overall construction of the project's fall in short-term implementation horizon (2027–2032). Below is the detailed sequence of activities under each proposed facility.

a) Water Testing Laboratory Construction Activities

The Water Testing Laboratory will be constructed to provide a modern facility for physical, chemical, and microbiological analysis of water quality. The construction activities will include:

1. **Site Preparation and Setting Out** – Clearing and grading of the plot, pegging of building boundaries, establishment of temporary site offices, material storage areas, and site access routes.
2. **Excavation and Foundation Works** – Excavation for footing trenches and utility ducts, pouring of reinforced concrete foundations, and installation of underground service conduits and drainage lines.
3. **Structural Works** – Erection of reinforced concrete columns, beams, and slabs; walling with durable masonry blocks; and provision for reinforced lintels and openings.
4. **Roofing Works** – Installation of trussed roof framing, insulation, waterproofing layers, and rainwater guttering systems.

5. **Internal Partitioning and Finishes** – Formation of laboratories, chemical stores, reagent preparation rooms, and offices; application of non-porous, chemical-resistant wall and floor finishes to meet laboratory safety standards.
6. **Mechanical, Electrical, and Plumbing (MEP) Installations** – Provision of internal electrical wiring, lighting, emergency power backup, ventilation and fume extraction systems, and complete water supply and waste drainage networks.
7. **Laboratory Equipment and Fittings** – Installation of workbenches, sinks, fume hoods, reagent shelves, calibration stations, and specialized instruments such as conductivity meters and spectrophotometers.
8. **External Works** – Development of access pavements, perimeter fencing, landscaping, and stormwater drainage to ensure controlled runoff and safe site circulation.

b) Water Company Office Construction Activities

The Water Company Office will serve as an administrative and operational centre for the Dollow Water Management Company, supporting water supply supervision and customer services. The construction will comprise:

1. **Site Preparation and Excavation** – Clearing of vegetation, leveling of the site, and excavation for foundations, soak pits, and service ducts.
2. **Foundation and Structural Works** – Reinforced concrete foundations and framing; wall construction using stabilized blocks or masonry; and provision for floor slabs and lintels.
3. **Roofing and Wall Finishing** – Installation of a lightweight or trussed roof system with waterproof sheeting; external plastering, painting, and damp-proofing of walls.
4. **Internal Works and Finishes** – Partitioning into offices, boardrooms, reception, and sanitation areas; floor and ceiling finishing; internal painting; and installation of doors, windows, and fittings.
5. **Electrical and ICT Systems** – Electrical wiring, power sockets, lighting, structured cabling for LAN/WAN, and installation of communication and data systems integrated with the Dollow water monitoring network.
6. **Plumbing and Sanitation** – Installation of water supply lines, washrooms, and wastewater disposal systems, including connection to septic tanks or sewer networks.
7. **Furnishing and Fixtures** – Installation of office furniture, cabinetry, counters, and signage for operational use.
8. **External and Ancillary Works** – Construction of access roads, parking areas, boundary walls, landscaping, and security lighting.

3.3.3 Operation and Maintenance Phase

Following successful completion, testing, and commissioning of the facilities, the contractor will demobilize from the site, including removal of temporary structures, storage sheds, and construction signage, followed by full restoration of disturbed areas. The project will then transition into its operational phase under the management of the Dollow Water Management Company (DWMC) in coordination with the Dollow Municipal Authority. This phase will focus on sustaining functionality, ensuring efficient service delivery, and maintaining environmental compliance in line with national and AfDB standards.

a) Water Testing Laboratory Operation and Maintenance

The Water Testing Laboratory will serve as the central hub for routine and advanced water quality analysis to safeguard public health and ensure compliance with national and World Health Organization (WHO) drinking water standards. The operational activities will include:

1. **Laboratory Commissioning and Calibration** – Verification of laboratory systems, calibration of analytical instruments, and validation of testing protocols before commencement of routine operations.
2. **Routine Water Quality Monitoring** – Collection and analysis of water samples from boreholes, storage tanks, distribution systems, and consumer points to test

parameters such as pH, turbidity, conductivity, total dissolved solids, and microbial contaminants.

3. **Specialized Analytical Testing** – Periodic testing for heavy metals, fluoride, nitrates, and other chemical constituents as part of quality assurance and groundwater resource evaluation.
4. **Data Management and Reporting** – Use of a centralized data management system with telemetry integration for real-time monitoring, data logging, and automated reporting to regulatory and management authorities.
5. **Chemical and Waste Management** – Safe storage, labelling, and handling of laboratory reagents and chemicals; segregation, neutralization, and proper disposal of hazardous laboratory waste in accordance with environmental regulations.
6. **Facility Maintenance** – Routine servicing of laboratory benches, ventilation systems, water and power supply networks, and safety installations such as fume hoods, eyewash stations, and fire suppression systems.
7. **Occupational Health and Safety Compliance** – Implementation of laboratory safety protocols, personal protective equipment (PPE) use, chemical hazard communication, emergency response procedures, and periodic safety audits.
8. **Capacity Building and Quality Assurance** – Continuous training of laboratory technicians on standard operating procedures, instrument calibration, and international laboratory accreditation standards (ISO/IEC 17025).

b) Water Company Office Operation and Maintenance

The Water Company Office will function as the administrative and technical operations centre for DWMC, ensuring coordinated management of water supply services across Dollow town and surrounding IDP settlements. The operational activities will include:

1. **Administrative Management** – Coordination of day-to-day operations including staff supervision, financial administration, record-keeping, and customer service management.
2. **Water System Monitoring and Control** – Oversight of borehole performance, pumping schedules, water storage levels, and network distribution efficiency through digital dashboards and telemetry systems.
3. **Maintenance of Utilities and Infrastructure** – Regular inspection and servicing of electrical systems, ICT infrastructure, plumbing, and mechanical equipment to ensure reliable operation.
4. **Customer Relations and Billing** – Management of client databases, billing systems, and grievance redress mechanisms to promote accountability and consumer satisfaction.
5. **Asset Management and Record Keeping** – Maintenance of inventory for spare parts, laboratory consumables, and operational tools, supported by digital tracking for maintenance schedules.
6. **Safety, Security, and Housekeeping** – Implementation of building safety checks, fire prevention measures, and general upkeep of offices and surroundings to maintain a clean, safe, and professional work environment.
7. **Environmental and Social Compliance** – Periodic monitoring of energy and water consumption, adherence to waste management procedures, and reporting of environmental and social performance indicators to regulatory bodies.

3.3.4 Decommissioning phase

In the event that the Water Testing Laboratory or Water Company Office reaches the end of its functional life or requires relocation, a structured decommissioning process will be undertaken to ensure environmental protection and public safety. The process will involve dismantling of buildings, removal of equipment, disconnection of utilities, and safe handling and disposal of laboratory chemicals and hazardous materials in accordance with national and AfDB environmental standards. Recyclable materials such as metals, glass, and wiring will be salvaged where feasible, while non-recyclable waste will be disposed of at approved sites. The site will then be rehabilitated and restored through backfilling, re-vegetation, and landscaping to prevent erosion and maintain aesthetic value. A

Decommissioning Management Plan (DMP) will guide all activities to ensure that health, safety, and environmental safeguards are upheld throughout the process.

3.4 Equipment and materials

The construction of the Water Testing Laboratory and Water Company Office will require a combination of heavy machinery, specialized tools, and high-quality construction materials. All equipment and materials will be sourced from reputable local or regional suppliers, ensuring compliance with approved technical specifications and environmental standards. The contractor will ensure proper handling, storage, and use of materials to minimize waste, pollution, and occupational risks throughout the construction phase.

a) Equipment and Materials for the Water Testing Laboratory

Construction Equipment

The following machinery and equipment will be utilized during the construction of the laboratory facility:

1. Excavators and backhoes – for site clearance, trenching, and foundation excavation.
2. Bulldozer and front-end loader – for grading, leveling, and earthmoving operations.
3. Dump trucks – for transportation of excavated soil, sand, and aggregates.
4. Concrete mixers and vibrators – for preparation and compaction of concrete works.
5. Mobile cranes – for lifting and positioning heavy structural components and roof trusses.
6. Scaffolding and hoisting systems – for elevated construction, plastering, and finishing works.
7. Water trucks and pumps – for dust suppression, concrete curing, and water supply on-site.
8. Welding machines and cutting tools – for fabrication and assembly of reinforcement steel and metallic frames.
9. Compactors and rollers – for soil stabilization and foundation backfilling.
10. Portable generators and lighting sets – to provide power for tools and night-time activities.

Construction Materials

The materials for the laboratory will include:

1. Sand, cement, aggregates, and concrete blocks for structural works.
2. Reinforcement steel bars and mesh for foundations, slabs, and columns.
3. Timber and formwork boards for shuttering and temporary supports.
4. Roofing sheets, waterproof membranes, and insulation materials.
5. Floor and wall finishes using chemical-resistant tiles and epoxy coatings.
6. PVC and galvanized steel pipes for internal and external plumbing.
7. Electrical cabling, conduits, lighting fixtures, and control panels.
8. Ventilation ducts, fume extraction systems, and air-conditioning units.
9. Laboratory benches, fume hoods, sinks, reagent storage cabinets, and safety eyewash stations.
10. Paints, sealants, protective coatings, and signage materials.
11. Water, fuel, and lubricants for machinery and construction activities.

b) Equipment and Materials for the Water Company Office

Construction Equipment

The following equipment will be required for the construction of the office building:

1. Excavators and trenchers – for foundation and service line excavation.
2. Rollers and compactors – for compaction of sub-base and ground preparation.
3. Concrete mixers and power trowels – for reinforced concrete works and floor finishing.
4. Dump trucks – for transportation of materials and site debris.
5. Mobile crane and forklifts – for handling heavy structural and roofing materials.
6. Scaffolding and ladders – for walling, roofing, and painting works.

7. Drilling machines and grinders – for fixing and installation of metallic components.
8. Water pumps and hose pipes – for curing and site cleaning.
9. Generators and portable lighting systems – for power supply and illumination.
10. Hand tools and safety gear – including wheelbarrows, shovels, and PPE.

Construction Materials

The principal materials to be used for the office block include:

1. Sand, cement, crushed stone aggregates, and concrete blocks.
2. Reinforcement steel, binding wire, and nails for structural assembly.
3. Roofing sheets, fascia boards, and insulation materials.
4. Plaster, tiles, ceiling boards, and paint for interior finishing.
5. Timber for doors, window frames, and partitioning.
6. PVC and steel pipes, fittings, and sanitary fixtures for plumbing.
7. Electrical cables, conduits, lighting fixtures, switches, sockets, and backup power systems.
8. Communication and ICT cabling for data and voice networks.
9. Glazing materials, aluminium frames, and metallic fittings.
10. Water, fuel, lubricants, and protective coatings for site use.

3.5 Waste streams

3.5.1 Construction Phase

The construction phase of the project will generate a variety of waste streams arising from site preparation, excavation, material handling, and civil works. Proper identification and management of these wastes will be essential to minimize environmental pollution, ensure worker safety, and maintain site hygiene. The anticipated waste streams include:

- **Spoil from Land Clearing and Excavation Works:** Comprising topsoil, vegetation (grass, shrubs, and small trees), and inert earth materials excavated during site preparation and foundation works.
- **Construction and Demolition Debris:** Including offcuts and remnants of concrete, bricks, timber, steel reinforcement, nails, plastic packaging, insulation material, and formwork waste generated during structural and finishing activities.
- **Hazardous and Chemical Wastes:** Consisting of residual cement slurry, spent oils and lubricants from machinery, used paint containers, solvents, and empty chemical drums, which require safe handling, containment, and disposal in compliance with environmental regulations.

3.5.2 Operation and Maintenance Phase

During the maintenance phase, smaller quantities of operational waste will arise from laboratory and office activities, including used reagents and sample containers, packaging materials, worn-out electrical fittings, spent filters, and general office waste such as paper and plastics.

3.5.3 Decommissioning Phase

At the decommissioning phase, waste will primarily result from the dismantling of structures and removal of equipment. This will include demolition debris such as concrete, metals, timber, glass, and electrical cables, as well as hazardous wastes from laboratory residues, fuel storage systems, and old paints. Recyclable materials will be recovered where feasible, while non-recyclable and hazardous waste will be handled and disposed of through approved channels in accordance with environmental standards. All waste across the project lifecycle will be managed in line with the Environmental and Social Management Plan (ESMP) through segregation at source, reuse or recycling where feasible, and safe disposal at designated facilities to minimize environmental and social impacts.

4 BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

4.1 Physical Environment

4.1.1 Location

Dollow town, the administrative center of Dollow district in the Gedo region of Jubbaland State, lies approximately 470 km northwest of Mogadishu and sits along the banks of the Dawa River. The proposed site for the construction of the water testing laboratory and the water company office is situated within Dollow town at UTM coordinates X-175374.14 and Y-459636.48. Both facilities will be constructed at this shared location to support improved water quality monitoring and service delivery both to the Dollow host community and the five IDP setlements (Kabasa, Qansaxley, Ladan, Gurdubey and Kaharey).

Figure 2: Location of the Proposed Construction Site (Red Icon) Source: Google Earth Pro 2025

4.1.2 Climate and Hydrology

Dollow town experiences a predominantly arid to semi-arid climate, similar to that of Somaliland, characterized by low and highly variable rainfall. The region follows a distinct seasonal rainfall pattern, with most precipitation occurring during the spring and autumn months. Based on data from the nearby Dolo Oda station in Ethiopia, peak rainfall typically occurs in April, averaging around 72.1 mm over 12 days, followed by a decline in May to approximately 32.8 mm over 7 days, signalling the end of the main rainy season. This variability underscores the importance of climate-resilient infrastructure and water resource management in Dollow. Rainfall data from the nearby Dolo Oda station (Ethiopia) was obtained from the National Meteorological Agency, and the mean monthly rainfall is given below:

Table 6: Mean Monthly Rainfall Data at DOLO ODA (LAHMEYER, 2007)

Station	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total

Dolo Oda	6.8	1.5	16.3	72.1	32.8	1.8	1.1	0.3	0.9	28.2	19.0	12.1	192.9

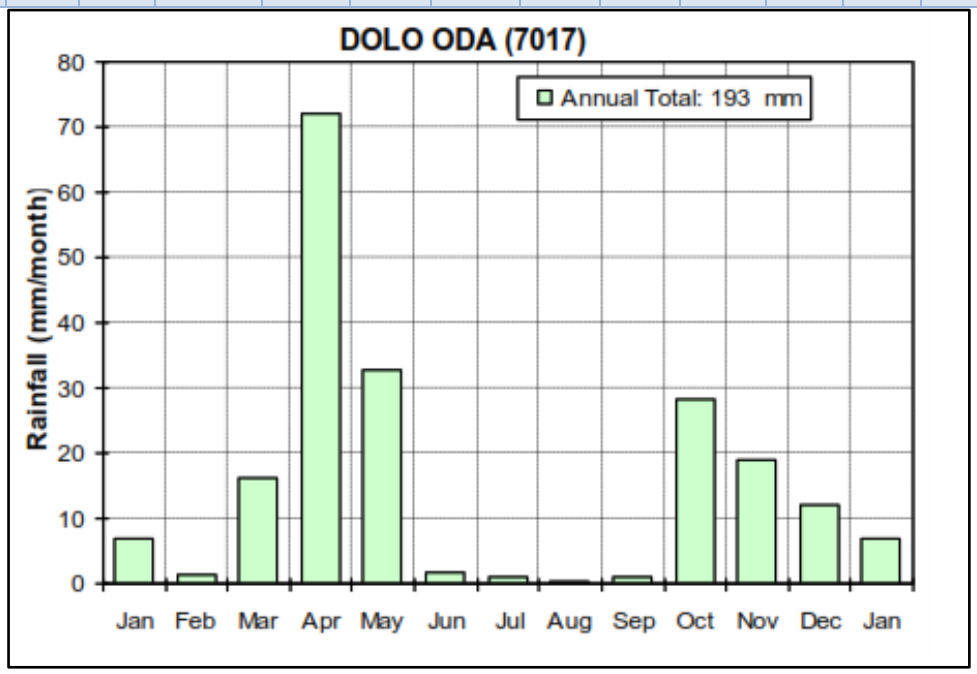


Figure 3: Mean Monthly Rainfall of Stations in the Region (LAHMEYER, 2007)

The bar graph illustrates a bimodal rainfall pattern, characterised by two distinct wet seasons interspersed with drier periods. June to September are the driest months, while October and April typically receive the highest precipitation of the year. The region is highly drought-prone, with erratic and unpredictable rainfall distribution. Precipitation events are often short-lived but intense, contributing to rapid runoff and limited groundwater recharge. Dollow experiences two primary rainy seasons:

- The Gu rains (major wet season) occur from March to June, historically starting in March. However, local communities (Acacia Water, 2020) report that climate change has delayed the onset of the Gu rains to April in recent years, shortening the growing window.
- The Deyr rains (minor wet season) fall between October and December, providing supplementary moisture but with lower reliability.

The Gu rains are critical for local livelihoods, marking the end of the prolonged dry season. Their arrival triggers river recharge, agricultural planting, and the regeneration of grasslands, sustaining pastoralism and crop production. The observed shift in rainfall timing underscores growing climate variability, posing challenges for water resource management and food security in the region.

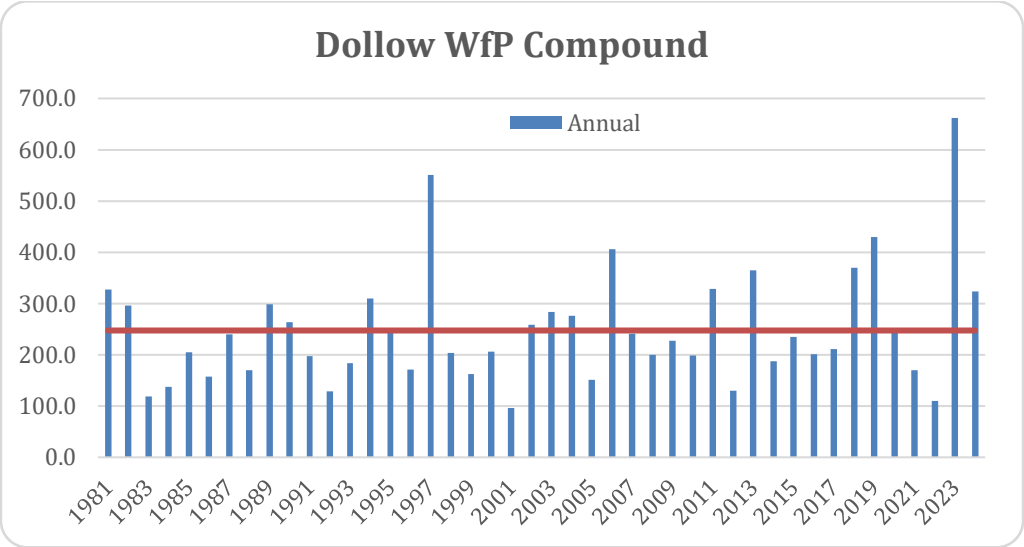


Figure 4: Annual Rainfall at WFP Compound at Dollow (1981-2024) (SOURCE: CHIRPS Rainfall for a Point at WFP Compound at Dollow)

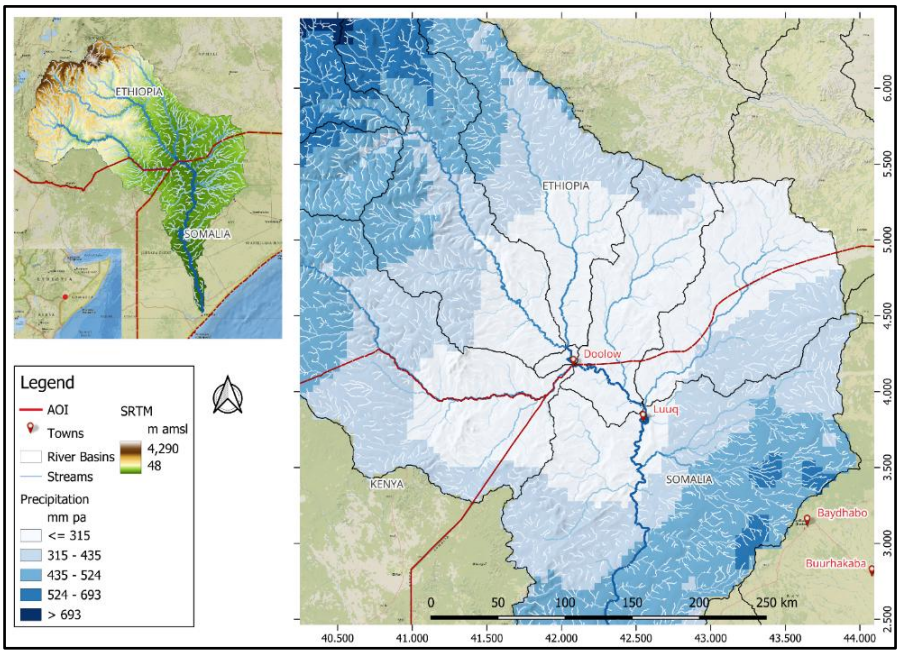


Figure 5: Precipitation of the Study Area

The country has an average annual rainfall of about 250 mm. However, there are variations in spatial distributions of rainfall, with about 500 mm recorded annually in the northern highlands and between 300 and 500 mm in the southern regions. The coastal plains register only between 50-150 mm. A few small areas along the coastal strip of Somalia are classified as sub-humid

Rainfall in Somalia has great spatial and temporal variability. Seasonal rainfall is dominated by the north and south movement of the Inter-Tropical Convergence Zone (ITCZ), delineated into four seasons:

- *Jiilaal*: dry season from December to Marh. The north-east monsoon is in dominance and conditions are generally dry and warm/hot. The northern parts of the country experience some cool and dry air during this season, while the central and southern parts experience very hot conditions.
- *Gu'*: rainy season starts from April to June. Relatively wet and hot conditions prevail, with Gu' considered as the major rainy season in the country. The southern regions receive more rains than the north. Occasionally, the Gu' season extends into June or

July because of the *Xagaa* rains, which are produced by the onset of the moist onshore winds.

- *Xagaa:* dry season is from July to September. The south-west monsoon dominates, bringing relatively cool conditions, with showers along the coast, but dry inland.
- *Deyr*: rainy season is from October to November. The rainfall received in this season is less than that of the Gu' rainy season

The dry seasons lasts for seven (7) months, from Dec to March and from July to September, with an average daily high temperature above 40°C and the hottest month of the year is March, with an average high of 44°C and July, the lowest with an average low of 36°C. The wet seasons lasts for about five (5) months, from April to June, and from October to November, with an average daily high temperature below 28°C, whereas the coldest month of the year is January. The climate of Somalia is classified as "arid and semi-arid". Hence, the climate is generally harsh. Specifically, the climate of Dollow is mostly hot and semi-arid conditions.

4.1.3 Geology and Soils

The geological formations in Somalia include alluvium from the Pleistocene to Holocene period whose general characteristics show Older Pleistocene alluvial sediments and recent alluvium including sandy clay with lenses of sand and fine gravel to coarse gravels and boulders. Such geological formations have also been observed at the local scale, specifically in proposed site (see Figure 2), where the proposed activities described in this ESIA report will be implemented

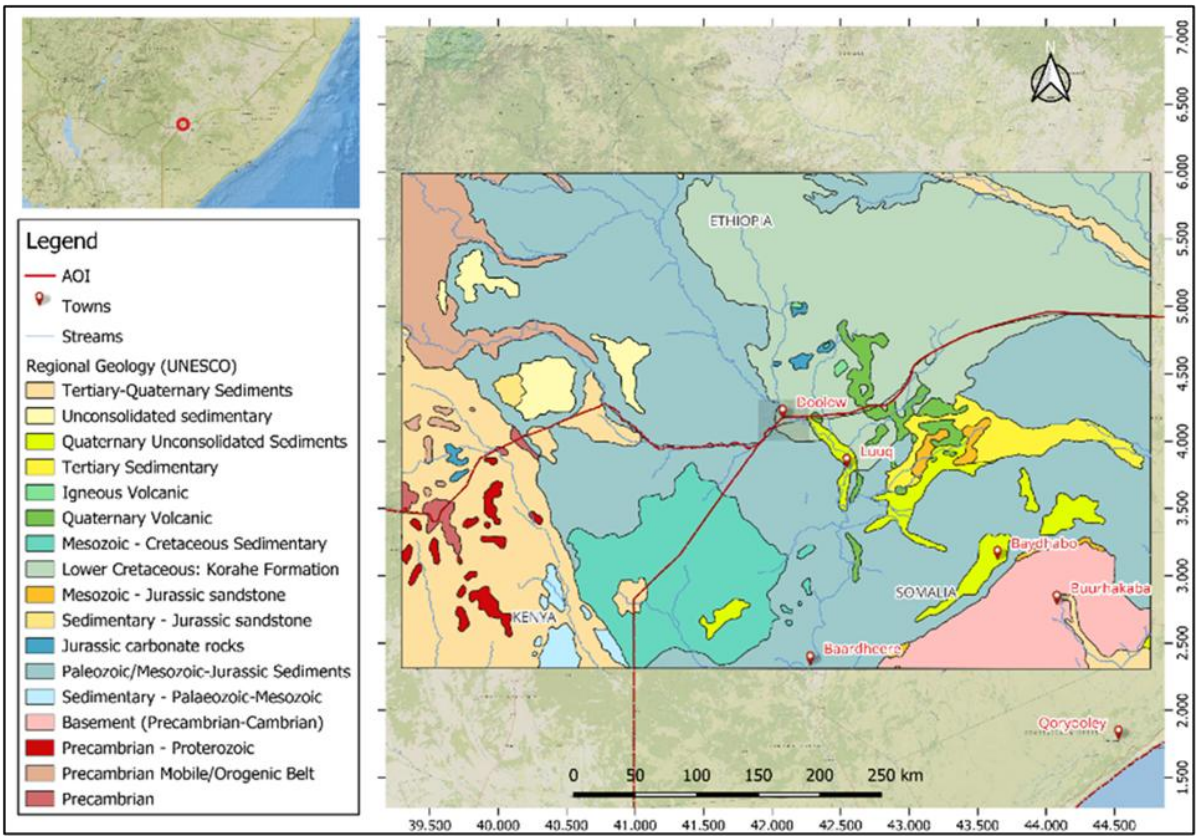


Figure 6: Geology Map of Dollow

The soils are predominantly shaped by the region's riverine environment and geological history, reflecting the influence of the Dawa and Juba rivers' alluvial processes. Along the floodplains, which extend 0.5 to 1 km wide along the right banks of these rivers, the soils are primarily alluvial, consisting of fine to medium-textured sand, silt, and clay with occasional gravel lenses. These soils are highly fertile due to seasonal flooding that deposits nutrient-rich sediments, supporting agricultural activities. The alluvial soils exhibit good drainage and high permeability, facilitating groundwater recharge into the underlying shallow aquifers, but their fine texture also makes them prone to erosion during heavy floods. Beyond the floodplains, on the gently undulating plains and minor elevated areas of

sedimentary origin, the soils transition to more residual types derived from the weathering of Cretaceous sedimentary rocks of the Korahe Formation. These soils are typically sandy to silty, with a higher clay content in areas dominated by evaporite deposits, and are less fertile, supporting sparse vegetation like acacia shrubs and grasses used for pastoral grazing

4.1.4 Topography, Geomorphology and Drainage

The project site (Figure 2) is situated near Dollow town within the Gedo Region of south-western Somalia, close to the Ethiopian border. Dollow town occupies a strategic position at the confluence of the Dawa and Genale rivers, which merge to form the Juba River, creating a dynamic riverine environment.

The terrain is characterised by gently undulating plains interspersed with minor sedimentary uplands, with elevations ranging from 172 to 200 meters above mean sea level (amsl). Dollow town itself lies at an average of about 170 meters amsl, with much of the settlement located on the right-bank floodplain of the Dawa River. This floodplain, typically 0.5–1 km wide, makes the town highly susceptible to seasonal inundation. However, the proposed site for the construction of the water testing laboratory and office is located approximately 1 km from the Dawa River, as measured using Google Earth Pro, indicating that the site is not within the flood-prone zone. Although the location appears safe, appropriate design considerations and resilient construction materials have been incorporated to ensure the sustainability of the infrastructure under potential climate-related stresses. The broader landscape includes river valleys, extensive floodplains that function as natural buffers during high flows, and occasional low hills which are remnants of eroded Cretaceous sandstones and limestones, particularly in the eastern sector where bedrock is exposed.

Geomorphologically, the area is shaped by active fluvial processes. The Dawa and Juba rivers drive sediment deposition, erosion, and channel migration, giving rise to oxbow lakes, abandoned channels, and seasonal wetlands that sustain local biodiversity, including riparian vegetation, birdlife, and small aquatic ecosystems. Floodplains enriched with Quaternary alluvial deposits of sand, silt, and gravel are critical for agriculture and groundwater recharge but are highly vulnerable to flooding during the Gu (April–June) and Deyr (October–December) rains, when water levels can rise by 2–3 meters. The region's proximity to the Ethiopian highlands, 150–200 km to the northwest, further shapes its geomorphology, as sediment-laden runoff continuously feeds the rivers and modifies downstream landscapes.

The Dawa River plays a central role in local livelihoods by recharging groundwater, enriching soils, and enabling small-scale irrigated and rainfed agriculture along its banks. However, outside the riverine zones, the environment becomes increasingly arid, fragile, and prone to erosion and desertification, reducing its agricultural potential. At the same time, Dollow serves as an important cross-border trade and humanitarian hub, hosting a large IDP population that places additional strain on limited natural resources and services. Water scarcity, land degradation, and weak infrastructure heighten the vulnerability of both displaced and host communities. Understanding the area's topography, hydrology, soil composition, and landform dynamics is therefore essential for designing sustainable interventions in water management, agriculture, shelter development, and disaster risk reduction.

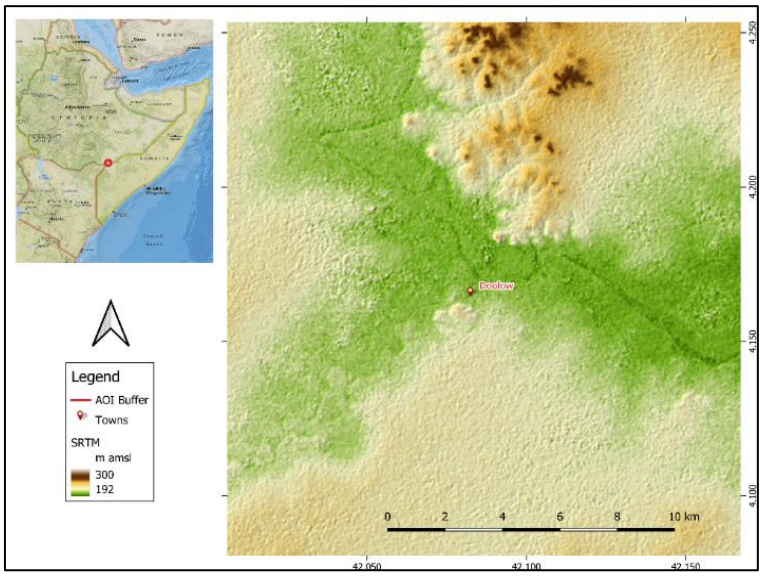


Figure 7: Physiographic Map of Dollow Town and its Periphery

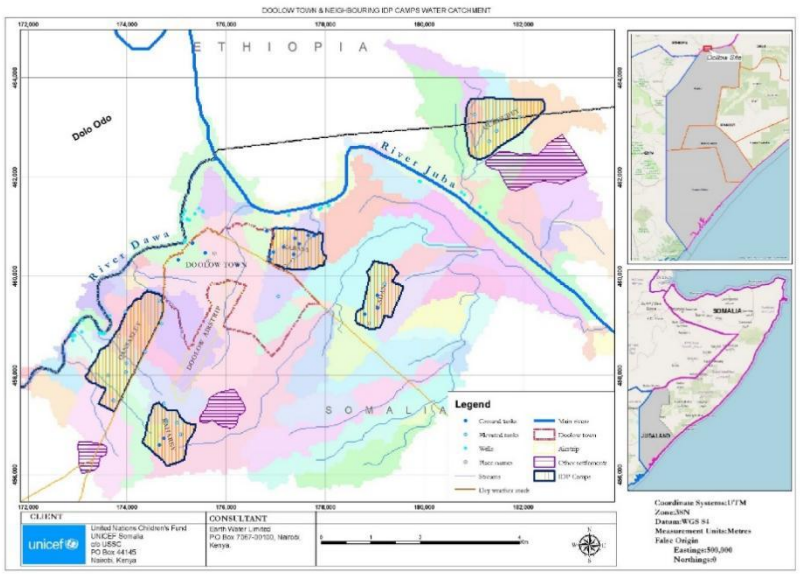


Figure 8: Natural Drainage Map of the Project Area

4.1.5 Water Resources and Hydrology

The Dawa and Juba Rivers are the primary surface water sources in the Dollow study area, sustaining both human and ecological needs while also recharging shallow aquifers. Their flows are highly seasonal, with the Gu rains (March–May) causing sharp increases that often result in flooding, aquifer recharge, and erosion, while the Deyr rains (October–December) have declined in recent years, contributing to reduced river discharge and seasonal droughts. Low-flow periods between January–February and June–September further constrain water availability.

Surface water systems in the Dollow study area respond rapidly to rainfall due to limited vegetation cover, degraded catchments, and high runoff, which reduces infiltration opportunities and limits groundwater recharge despite heavy rainfall events. This highlights the importance of integrated water resource management, with an emphasis on stormwater retention and aquifer replenishment strategies.

Geologically, the region is underlain by Quaternary alluvial deposits and Cretaceous sedimentary formations. The alluvial deposits, consisting of sand, silt, gravel, and clay, are shallow (up to 10 m), highly permeable, and serve as the main source for shallow wells and infiltration galleries. Beneath them lies the Korahe Formation, whose sandstones, marls, and evaporites are less suitable for potable supply due to poor permeability and high salinity. Deeper aquifers in the Jurassic Gebredare and Hamanlei Formations provide better

yields and quality, with the Hamanlei benefiting from recharge from the Ethiopian highlands.

Water quality is variable, with peak river flows increasing turbidity and microbial contamination, while dry periods elevate salinity through evaporation and reduced dilution. Shallow aquifers, on which local communities and IDPs heavily rely, face risks of depletion, contamination, and salinisation. Over-abstraction, poor sanitation, and saline intrusion pose growing threats, and without careful monitoring, surface water interventions could undermine the sustainability of groundwater resources and increase competition over limited supplies.

4.1.6 Climate Change

The current climate variability of Somalia is that the amount of rainfall received across the country varies dramatically in time and space, from drought periods to erratic periods of intense downpours and flooding. The prominent observation from analysis of the weather station rainfall data, across all regions and seasons in Somalia, demonstrates a high inter-annual and inter- seasonal variation in rainfall is shown to vary between the range of 57 mm and 660 mm at one weather station in central Somalia during a 20-year observation period (UNDP/ICPAC, 2013).

Since 1960s, Somalia has experienced at least one major climate extreme event in each decade (Balint et al 2011). Major floods that have been experienced since 1960 include 1961, 1977, 1981, 1997-98, 2005, 2006 and 2009. Major drought events were experienced in 1969, 1976, 1984,1987, 1999, 2001, 2004 and 2010. In the past decade (2001 to 2010), the country has been alternating from drought to floods within the years (FAO SWALIM, 2012). The observed pattern (IPCC 2007, 2012) shows increasing variability in rainfall for Somalia suggesting an increase in the frequency and severity of future droughts and flash flood events.

Somalia is vulnerable to several natural hazards, including drought and floods, and is projected to be at even greater risk in the future due to climate change. The climate is mainly arid to semi- arid, and Somalia has one of the highest inter-annual variations of rainfall in Africa.

4.2 Biological Environment

4.2.1 Flora

The proposed project site for proposed construction of water testing lab and office is characterized by fast spreading Invasive Species called *Prosopis Julifalora (Cali-garoob or garanwaa)*; because of its adaptive and suppressive traits, it's also a threat to livestock pasture and therefore to pastoral livelihoods. *Prosopis* in particular starves other plants of water as it has high ground water utilization rates (Adam-Bradford, 2013). *Prosopis spp.* Is also a threat in urban areas where its root system can interfere with underground infrastructure such as pit latrines and drainage pipelines (Adam- Bradford, 2013 a).

In Dollow town, the sites of the sub-project will experience small or limited bush clearance and cutting of few shrubs and/or grasses that cover the areas demarcated for the construction proposed Water Testing Laboratory and water company offices. All these planned construction works will be executed in a no sensitive environments and their adverse impacts are manageable.

4.2.2 Fauna

Somalis are mostly pastoralists and the country is home to several livestock species, including goats, sheep, cows, and camels. Commonly found in the project area of influence are goats, sheep, cows and camels. The country has lost many of its wild mammals such as elephants to poaching. Rangelands.

Rangelands (mainly grass and herbs, but also including wood and bush-lands) are the most important ecosystem type in Somalia, as they are the natural resources for the pastoralists. In the lower nine rainfall areas (below 400mm) these rangelands are dominated by annual grasses and herbs. Such rangeland grass and herbs "bloom" after rain and constitute very important wet season grazing for pastoralist livestock herds. As rainfall is unevenly distributed spatially and temporally, pastoralists move to make optimal use of such rangelands, which can be very productive until the set seed and die. Then the pastoralists more their herd to their usual dry season grazing areas.

Perennial grasses are found in areas where the rainfall was above 400mm, though many such grasslands are degraded and replaced by annuals. Critical to the sustainability of such ecosystems is allowing the grasses and herbs to set seed for the next season and not to over graze them beyond their ability to regenerate. Perennial grassland areas are often associated with open wood and bush lands, and constitute important dry season and reserved grazing areas that are so critical to the success of pastoralism.

4.3 Socio-Economic Conditions

4.3.1 Governance and Administration

Dollow District is one of six districts in the Gedo Region of Jubbaland State, a federal member state of Somalia. Administratively, it falls under the authority of the Jubbaland government, which oversees Garbaharey, Bardera, Luuq, Dollow, Ceel Waaq, and Beled Hawo districts. Classified as a B-level administrative unit, Dollow District does not yet have a formal elected district council, a governance structure already established in some neighbouring districts.

Local administration is led by a District Commissioner (DC), who is also the mayor, elected by the community. The DC is responsible for enforcing Somalia's National Constitution, implementing federal and state policies, and coordinating development initiatives aimed at improving public welfare. Although Jubbaland's state law has not yet fully defined the legal framework for local governance, the district remains responsible for key public services, including urban infrastructure (water, electricity, and transport), road and public space maintenance, public health and sanitation (primary clinics and maternal hospitals), education (Koranic, pre-primary, and primary schools), market regulation, environmental protection, disaster management, town planning, land administration, and local revenue collection.

Administratively, Dollow town is informally subdivided into six urban villages: Halgan, Dhagaxley, Wadajir, Celasha, Medina, and Gorboolow. However, these subdivisions lack formal roles, representation, or structured administrative systems, underscoring the institutional gaps that continue to challenge local governance. The urban villages are headed by chiefs and subchiefs. In addition, the MAR weirs are located along the River Dawa, and managed under the mandate of the Federal Government.

Also, the local authority has a governance structure notably the social affairs department which is responsible for development and protection of the community living in the town, including the IDPs. The IDP camps are governed by camp leaders.

4.3.2 Access to Education and Health Services

Historically, Somalis benefited from free public education prior to the civil war. However, following the collapse of state institutions, access to formal education has significantly declined, with only 30% of children currently enrolled in school and fewer than 50% of girls attending primary education. Recent reductions in donor funding particularly, the suspension of USAID support, have further strained the education sector, resulting in a reported 60% drop in school attendance. In response, Madrasas have become a vital source of early childhood education, offering literacy opportunities across both urban and rural communities.

Healthcare services in Somalia are largely dominated by the private sector, with limited public provision outside of donor-supported maternal and child health centres. In Dollow and surrounding settlements, access to healthcare remains a challenge, especially for remote populations who must travel to urban centres for treatment. During the ESIA field assessment, it was observed that Dollow town, home to both host community members and a significant population of internally displaced persons (IDPs), has only two operational health centres (Truecare and Cida) and one primary school, with no secondary school facilities available. This underscores the need for expanded and inclusive service delivery that addresses the needs of both the host population and displaced communities.

4.3.3 Water and Sanitation Conditions

The access to water, in Dollow relied on water from existing shallow wells. Dollow Water Company is the main supply of the water in the town but the IDPs have their own water supply systems. Most parts of the town have water infrastructure but rationed water

supply. 70% of the interviewed resident had piped water but availability of water was limited.

On the other hand, the sanitation in the town and its environs was poor and there was no proper waste management. The most common sanitation facilities were pit latrines. During the field assessment, the ESIA team observed the area has no existing facility to manage human waste.

Sanitation services for households, health, and education facilities are significantly deficient in both quantity and quality. None of the households had a functional faecal sludge management system, indicating that existing sanitation facilities such as household latrines are inadequate and unable to provide safe and reliable services. This highlights a critical gap in sanitation infrastructure that may pose health and environmental risks if not addressed.

4.3.4 Gender

Somalia has one of the highest gender inequalities in the world and at 0.776 it is ranked 4th in the world's inequality status. The country has an extremely high maternal mortality (723 deaths per 100, 000) live births while the adolescent birth rate for teenagers, aged between 15 and 19, is 100.1 per 1,000 births. Rape, female genital mutilation and child marriage rates, and violence against women and girls is common. Women make up 56.6% of the workforce in agriculture/pastoralism, which constitutes 60% of the local economy. The number of women working in government had significant numbers at 1,912 (19%). Much is to be desired in the education sector, where only 36.1% of pupils in the upper primary education are composed of girls. This gender disparity is higher in upper grades due to the economic constraints on families and early marriages or girls. Culturally the role of women has been limited to domestic affairs, however because of legislative changes their participation in the country's governance and politics continues to grow. Currently there is a 30% quota declared for women representatives in both the lower and upper houses of the parliament. According to recent data from the UNDP711, the 2017 share of women seats in parliament was 24.3%. Traditionally the Somali women have been the "engineers" building the traditional homes, aqal Somali, and "food processors" making preserved meat referred to as oodkac/muqmad. They are also the fetchers of water for domestic use, while it is the men who work at the wells to provide water for the animal herds (Camel, goats, donkeys, among others). Alternatively, Somali women are actively involved in business, mainly trading in household goods, gold, and khat.

Similarly, these gender inequalities are also evident in Dollow, where women continue to face the same challenges in health, education, and social participation, despite their critical roles in household livelihoods, water collection, and small-scale trade.

4.3.5 Grievances Redress Mechanism

During the study, the ESIA team observed that there was no formally composed Grievances Redress Mechanism (GRM) Committee apart from community elders. However, the officials of local government authorities indicated that they have Disputes Resolution Committees (DRC) at the municipal levels, which collaborates with local communities in resolving disputes whenever they arise.

4.3.6 Labor

The labour force participation rate is estimated at 65.9% and 37.6% among males and females, respectively. In overall terms, Somalia suffers from high unemployment and under-employment. The country has relatively highly vulnerable unemployment estimated at 59%, and a considerable unemployment rates for persons with upper primary level of education at 20.9% and those with secondary level of education an unemployment rate of 34.6%. Also, 41% of the employed in Somalia are in occupations that require elementary education. The largest proportion of employed persons are elementary occupations (41%) followed by professional (15%), skilled agricultural, forestry and fishery workers (10%) and craft and related trades workers (9%).

Similarly, in Dollow, unemployment and under-employment remain pressing challenges, particularly for women and youth. Most of the employed are engaged in low-skilled or informal occupations, with limited access to stable or professional jobs.

4.3.7 Land ownership

Land conflicts in Somalia have risen to be one of the key issues of instability at the community and inter-community level. This is partly due to a complex situation of land tenure. While the Agricultural Land Law of 1975 abolished private ownership, the current situation is very unclear. Only few locals registered their land at the time, and the civil war further impacted the situation negatively. Customary land tenure has therefore taken the centre stage in ordering land ownership and usage. It is focused on clan relations and on pastoral land use rather than norms of individual ownership.

Although the Provisional Constitution defines land as public property, however, the land administration and management are virtually non-existent in Somalia. The country currently does not have a national land acquisition law and effective land tenure systems and again the central government does not have the ability to enforce this ownership and land remains community property owned by the different clans living in a particular area.

Throughout the assessment, the ESIA team noted that the majority of the land tenure systems in the project target districts are based on customary land ownership. In Dollow, the authorized district stated that the IDPs own the land that they current reside on. The proposed project site, as shown in Figure 2, is owned by the Dollow Water Management Company, as confirmed by company representatives and stakeholders during consultations

4.3.8 Land Use

In Somalia, rangelands are estimated to constitute about 80 per cent of the nation's land area. In Dollow land is used for grazing and for farming around the river.

Within a 200m radius of the proposed sites, there isn't much land use activities such as farming. However, there is notable farming activities outside the 200m radius of the proposed sites especially closer to Dollow town near the site proposed by Earth Water Limited.

4.3.9 Transport System

The primary transport system serving Dollow is the Luuq–Dollow–Beled Hawo highway. This is a critical segment of the 580 km Mogadishu–Nairobi corridor that links Somalia's Gedo region directly with Mandera in Kenya. Currently, this gravel road is in poor condition, but it is slated for an upgrade to bitumen standard under African Development Bank funded projects according to a feasibility study (African Development Bank, 2022). The road upgrade project aims to reduce travel times, boost cross-border trade, and enhance regional connectivity along this IGAD economic corridor. Beyond the main thoroughfare, movement within and around Dollow relies on a network of unpaved roads and pedestrian tracks.

In addition to the highway, local mobility within Dollow depends on a network of unpaved roads and pedestrian tracks. River crossings are facilitated by a bridge over the Dawa River and boat services on the larger Jubba River. Traffic congestion is minimal due to the limited number of vehicles in the area. The automotive landscape is characterized by second-hand vehicles, primarily, Toyota Land Cruisers, Hilux pickups, and minibuses adapted for rugged terrain and humanitarian operations. Motorcycles are widely used for personal transport and delivery services, while vehicle maintenance is provided by local mechanics operating with constrained access to spare parts and diagnostic equipment.

Notably, Dollow also hosts a functional airstrip located approximately 600 meters from the proposed laboratory and office construction site. The airstrip serves as a strategic asset for humanitarian logistics, emergency response, and limited passenger transport. Though modest in infrastructure, it enhances regional accessibility and complements the town's multimodal transport network, particularly in times of seasonal road inaccessibility or urgent medical evacuations.

4.3.10 Telecommunication

Dollow's telecommunications landscape is dominated by mobile networks operated by firms like Hormuud Telecom, Somtel, and Golis, reflecting Somalia's rapid shift to wireless connectivity. Nationwide there are roughly 10.1 million active cellular connections, about 54.8 percent of the population with 4G LTE covering 50–60 percent of inhabitants, though true fixed broadband remains rare outside coastal hubs such as Dollow

4.3.11 Religious Structure

Dollow's residents practice Islam almost universally, with Sunni traditions often infused with Sufi rituals shaping daily life, social norms, and community governance. Mosques and attached madrasas serve as the focal points for religious education, dispute resolution, and social welfare, with Friday prayers and Ramadhan observances influencing local schedules. Islam plays a central role in both public and cultural spheres.

Within Dollow, key worship centres include Kabasa Mosque and Kabasa TSFP Mosque within Kabasa IDP camp, other smaller mosques in Qansaxley, Ladan, Kaharey and Qurdubey camps, and the central mosque in Dollow town, located 1.7–4.0 km from the IDP camps. These mosques are critical cultural assets, and the siting and construction of the recharge weirs will take their proximity and importance into account to safeguard accessibility, avoid disruptions to religious practices, and respect community cohesion and traditions.

4.3.12 Cultural Heritage

Beyond the dominant Islamic faith, Dollow town and its periphery, hosts diverse Somali clans whose cultural traditions influence community governance, social cohesion, and conflict resolution mechanisms. Informal leadership structures, customary practices, and oral heritage are integral to camp life. While there are no registered or tangible cultural heritage sites within Kabasa, intangible cultural practices, such as clan-based decision-making and community elders' mediation, play an important role in social organization and should be recognized in the project context.

4.3.13 Electricity and Fuel Sources

Dollow relies on decentralized electricity generation primarily powered by privately owned diesel generators operating through informal microgrids since there is no national power grid. Renewable energy sources such as solar are increasingly being adopted, especially for household lighting and small-scale commercial use. The Federal Government of Somalia has introduced electricity regulations to improve safety and service delivery, though implementation is still in early stages.

Fuel in Dollow is primarily imported from Ethiopia and Kenya, with diesel and petrol transported overland via Beled Hawo and Mandera. Distribution is managed by small-scale vendors and fuel stations. These distribution points often lack standardized safety infrastructure, which poses risks during handling and storage. Prices fluctuate due to border dynamics, road conditions, and regional security, making fuel relatively expensive and supply inconsistent

4.3.14 Security Systems and Arrangements

Security arrangements in Dollow, Somalia, are influenced by a fragile context marked by conflict, displacement, and environmental stressors, necessitating a multi-layered protection strategy (UNHCR, 2024). Federal government forces, local authorities, and ATMIS personnel collaborate to safeguard IDP settlements, humanitarian supply routes, and critical public infrastructure. Despite these efforts, inter-clan tensions continue to pose challenges to stability (UNHCR, 2024).

In response, infrastructure initiatives such as the SURDHT project have prioritised safety measures, including the construction of transitional shelters, gender-sensitive sanitation facilities, and public spaces equipped with solar lighting and perimeter fencing. These interventions are designed to enhance protection, particularly for women and children (ESIA Report, 2024). Protection monitoring teams deployed by UNHCR, alongside community-based protection networks, play a vital role in identifying risks, reporting incidents, and facilitating access to essential services for vulnerable groups (UNHCR, 2024).

During ESIA-ESMMP processes, security arrangements were facilitated administratively through the Dollow District Commissioner, with support from UNICEF staff based in Dollow. This included the hiring of security vehicles and the allocation of daily allowances for personnel and vehicle fuel to ensure smooth fieldwork operations without interference from external actors.

At the local level, security in Dollow town and IDP camps is managed through a combination of community-led initiatives, formal government structures, and external support. Community cohesion is notably strong, extending into IDP sites where leadership

structures are well established and functional, facilitating site planning and the reception of new arrivals. Security forces, drawing on years of experience, are adept at distinguishing between locals and outsiders. New arrivals are routinely screened and asked to present identification. The security is typically managed locally in the Dollow study area through:

4.3.14.1 Local Police and Government Administration

Somali Police Force: The primary responsibility for day-to-day law enforcement lies with the local police, who maintain public order, patrol neighbourhoods, and handle criminal cases.

District Administration: The Dollow District Commissioner and local security committees coordinate closely with police and community elders to address threats, mediate disputes, and enforce local regulations.

4.3.14.2 Community Policing and Clan Elders' Role

Traditional Leadership: Clan elders and respected community leaders play a major role in conflict resolution, mediation, and maintaining peace at the grassroots level. Their influence helps prevent small disputes from escalating into violence.

Community Security Committees: Informal local committees often monitor suspicious activity, report incidents, and collaborate with police to improve safety, especially in IDP camps and rural outskirts.

4.3.14.3 Support from Federal and Regional Forces

Federal Government Troops / Jubaland Forces: The Somali National Army (SNA) and regional security forces from Jubaland State support local security by responding to higher-level threats, including insurgent activities.

Joint Security Operations: They sometimes conduct joint patrols or checkpoints with local police and Ethiopian police at the border line, especially around key infrastructure and border crossings.

4.3.14.4 International and Peacekeeping Support

African Union Transition Mission in Somalia (ATMIS): It has periodically supported stability efforts in and around Dollow town and IDP camps, providing training to local forces and reinforcing security during heightened threats.

Humanitarian Coordination: NGOs and UN agencies working in the area often coordinate with security actors to ensure safe access for aid operations, especially in IDP settlements.

4.3.14.5 Community-Based Early Warning Systems

Residents, IDP leaders, and local authorities collaborate to share intelligence on potential threats, such as militant movements or inter-clan tensions.

This grassroots reporting helps authorities respond quickly to security incidents before they escalate.

In summary, the security in Dollow town and the surrounding IDP camps is not handled by a single actor; it is a hybrid system involving local police, traditional elders, district authorities, regional and federal forces, and sometimes international partners. The emphasis is on community collaboration, early conflict resolution, and joint coordination to maintain relative stability in a sensitive and complex environment.

4.3.15 Security Arrangements During Implementation

The successful implementation of the Qansaxley Project, which covers the rehabilitation of three shallow wells and fourteen water points, provision of generators and construction of 140 flood proof latrines, relies on both technical expertise and strong security arrangements. Given sensitive border location, complex clan dynamics, and insurgent threats, a comprehensive framework is required to mitigate risks such as insecurity, mistrust, and tensions between host and displaced populations. Proactive measures, including coordinated risk assessments, engagement of trusted local facilitators, transparent communication, and functional grievance redress committees, will safeguard staff, assets, and communities. Clearly defined roles for MoEWR, UNICEF, local leaders, and contractors will reinforce accountability and trust, ensuring smooth, inclusive, and secure project delivery.

4.3.15.1 Security Risk Assessment

Before project activities commence, a detailed security risk assessment should be conducted before the commencement of the implementation process to map threats,

vulnerabilities, and risks in the proposed intervention sites. This assessment helps identify potential challenges such as clan-related tensions, militant activity, theft, or sabotage. The findings will guide the development of a Security Management Plan tailored to the local environment, ensuring preparedness and context-specific measures.

4.3.15.2 Site Access Control and Perimeter Security

Construction and operational sites should be secured with proper fencing, controlled entry and exit points, and visible identification systems. A visitor log should be maintained, and identification badges issued to staff, contractors, and authorised visitors. Trained guards should monitor all access points continuously, preventing unauthorised entry and safeguarding valuable equipment and materials.

4.3.15.3 Coordination with Local Authorities and Elders

Sustained continuous engagement with district authorities, Jubaland security forces, and community elders is essential for smooth project implementation. Security committees involving these stakeholders can help mediate disputes, reduce tensions, and ensure acceptance of project activities. Maintaining open communication channels allows for early resolution of grievances and quick responses to emerging threats.

4.3.15.4 Deployment of Professional Security Personnel

Trained and vetted security guards should be deployed to protect project sites, staff, and assets. Wherever possible, local guards should be recruited, as they know local dynamics and foster community trust. Security staff must be equipped with radios, uniforms, and flashlights, and should receive training on human rights, rules of engagement, and professional conduct.

4.3.15.5 Movement and Transport Security

All project-related movements should follow structured journey management protocols. Vehicles should be clearly marked, routes pre-planned, and check-in/check-out systems enforced. High-value equipment transport should be coordinated with local police or Jubaland forces to ensure safe passage. By standardising movement procedures, risks such as ambushes or theft can be minimised.

4.3.15.6 Construction Site Security Protocols

Construction sites should have robust security systems in place, including temporary lighting and, where feasible, surveillance equipment such as CCTV. Equipment and construction materials should be stored in lockable, guarded compounds to prevent theft. Regular security briefings with workers and contractors will also ensure awareness and compliance with safety rules.

4.3.15.7 Community Engagement and Conflict Sensitivity

Local communities must be engaged throughout project implementation to build trust and reduce the risk of sabotage. Transparent recruitment of local labour will promote inclusivity and minimise clan-based grievances. Establishing a grievance redress mechanism provides communities with a structured way to express concerns, ensuring disputes are resolved constructively rather than escalating into conflict.

4.3.15.8 Emergency Preparedness and Evacuation Planning

A comprehensive Emergency Response Plan should be developed to address potential risks, including armed clashes, protests, or natural disasters. Staff and contractors should be trained in first aid, evacuation drills, and safe assembly procedures. Identifying evacuation routes and safe havens in advance ensures that the project can respond swiftly to crises, protecting both personnel and assets.

4.3.15.9 Information and Communication Security

Proper management of project information is crucial to avoid misinformation or the spread of rumours. Sensitive details regarding security or project operations should be restricted to authorised personnel only. Secure communication channels, including radios or mobile-based alert systems, should be used to share timely updates with staff, contractors, and community leaders during emergencies.

4.3.15.10 Integration with Humanitarian Security Standards

Security arrangements should align with international humanitarian security frameworks. The focus should be on “not harm” principles, ensuring that project activities do not unintentionally increase tensions. Regular updates and reviews of security protocols, based

on ongoing threat monitoring, will help maintain safety and resilience throughout the project's implementation.

1.1.1 Vulnerable Groups:

Kabasa accommodates a high proportion of vulnerable groups, including children, who constitute the majority of the camp's population, as well as the elderly and persons with disabilities (PWDs). These groups are particularly exposed to risks related to limited access to water, sanitation, health, and protection services. For instance, children and women often shoulder the responsibility of water collection, increasing their exposure to protection risks. The elderly and PWDs face mobility constraints and require targeted support to ensure equitable access to services and participation in community decision-making.

5 IMPACT IDENTIFICATION AND ANALYSIS

The chapter describes potential positive and negative environmental and social impacts of the proposed project. The prediction of positive and negative impacts of the project is based on the field observations and baseline environmental and social conditions of the project sites under the direct and indirect possible influence areas. In order to identify the environmental and social impact of the project and predict which component of the environment will be subjected to possible positive and/or negative impacts of the project, a description and analysis of the baseline environment have been carried out.

5.1 Impact Identification

Characteristics of the predicable impacts generated from the construction and operation of the activities of the proposed project activities have been identified by considering the following:

- Activities that may produce impact were evaluated in describing the project;
- Basic environmental data obtained from direct field observations; and
- Information gathered from available scientific publications and reports derived by the study of similar projects.

For each phase (i.e. pre-construction/design, construction, operation, and decommissioning) as studies show on other related cases, the ESIA study team's observation of field level and the anticipated impacts were defined considering the following main activities of the project, which may have some effect on the bio-physical and socio-economic aspects of the project during its design and operation phases.

The potential environmental and social impact varies in magnitude. The project activities such as clearing of vegetation, soil cutting, levelling, felling of trees during construction of shallow well, excavation of trenches, and other related operational activities, which are bound to cause environmental and socials impacts, either positive or negative. The proposed project has limited adverse environmental and social risks and the magnitude of its impact and significance were assessed based on the factors shown below

Table 7: Impacts magnitude and significance factors

Criteria	Description
Location or extent	The area/volume covered
Timing	Whether immediate or delayed
Duration	Short term, medium term, long term
Likelihood	Probability of the impact taking place
Significance	Whether it is local, regional, or global

5.2 Impact Analysis

This sub-section assesses the level of potential impacts based on various criteria, including the duration of impacts, location, likelihood, and magnitude. The impact assessment also considers the impacts and risks identified by the stakeholders who were consulted. The method for impacts analysis was as follows:

Table 8: Impact Severity Analysis

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

The matrix shown in Table above, links the project activities to the anticipated environmental and social impacts (both positive and negative), generated due to the implementation of the project activities during all the phases of the project. The Table 8, below, demonstrates the environmental and social safeguard aspects that will be treated in this report and the respective different weights of each aspect in terms of impact. Weights for each aspect of the different phases result from comparisons between the specialists that had part in the ESIA study. Each cell of the matrix will contain the anticipated relevant impact significance value, according to the legend as determined during the study. The environmental and social management plan with respective mitigation measures is indicated in this report

Table 9: Environmental Impact Matrix

Project Activity					
Component affected	Construction Phase				**Operation Phase**
Physical Environment					
	Construction and equipping of Water Testing Lab and Office	Establishment of communal water company office	Construction of water testing laboratory		
Soil	5	5	5		
Land Use	5	5	5		
Surface Water	4	1	1		
Dust/Air quality	5	1	1		
Noise	2	1	1		
Biological Environment					
Flora	4	1	1		
Fauna	1	1	1		
Socio-economic Environment					
Residential houses and community centers	0	0	0		
Farmland	5	0	0		
Cultural/ archeological sites	**0**	**0**	**0**		

5.3 Impact Significance Rating

The significance of the matrix's impacts has been determined by combining the perceived frequency of occurrence of the source of the impact, the duration, severity, and spatial extent of the impact, and the sensitivity of the area being impacted upon. The significance rating was aided by using the intensity of impacts and sensitivity of the receptors.

Table 10: Rating of Impact Significance

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

In light of the above impact significance rating, the possible environmental and social impacts of the project are evaluated and summarized as shown in Table 11 below

Table 11: Impacts Rating Summary

	Environmental Components	Impact Rating Result		
		Baseline	Magnitude	**Overall Impact**
CONSTRUCTION PHASE				
Physical Environment				
1	Visual impact on topography and landscape	Low	Low Negative	**Small Negative**
2	Soil erosion	Medium	Low Negative	**Small Negative**
3	Land pollution	Medium	Medium Negative	**Small Negative**
4	Air pollution	Low	Low Negative	**Small Negative**
5	Water pollution	Medium	Medium Negative	**Medium Negative**
6	Noise pollution	Medium	Medium Negative	**Medium Negative**
Biological Environment				
7	Vegetation clearance	Medium-High	Low Negative	**Small Negative**
8	Disturbance of the wild animal	Low	Low Negative	**Small Negative**
Socio-economic Environment				
9	Physical displacement	Zero	Zero	**No**
10	Land use	Low	Low Negative	**Small Negative**
11	Water and Sanitation	Low	Low Negative	**Small Negative**
12	Education and Health	Low	Low Negative	**Small Negative**
13	GBV/SEA/SH	Medium-High	Medium Negative	**Medium Negative**
14	Child Labor	Medium-High	Medium Negative	**Medium Negative**
15	Cultural heritage	Low	Low Negative	**Small Negative**
OPERATION PHASE				
Physical Environment				
1	Visual impact on topography and landscape	Low	Low Negative	**Small Negative**
2	Soil erosion	Low	Low Negative	**Small Negative**
3	Land pollution	Low	Low Negative	**Small Negative**
4	Air pollution	Low	Low Negative	**Small Negative**
5	Water pollution from construction works	Low	Low Negative	**Small Negative**
6	Noise pollution from construction works	Low	Low Negative	**Small Negative**
7	Solid and liquid water generation	Low	Low Negative	**Small Negative**
Biological Environment				
7	Establishment of invasiveplant species around project site	Low	Low Negative	**Small Negative**
Socio-economic Environment				
8	Physical displacement	N/A	Zero	**No**
9	Land use	N/A	Zero	**No**

10	Water and Sanitation	N/A	Large Positive	**Large Positive**
11	**Education and Health**	**N/A**	**Large Positive**	**Large Positive**

5.4 Positive Environmental and Social Impacts at all Phases

The key potential beneficial impacts associated with the implementation of the project mainly relate to the construction and operation phase and these are summarized below.

5.4.1 Improved quantity and quality of drinking water

The project area has water shortages for human. The communities in target area have been depending on water from the wells that are not enough or safe. Therefore, the implementation of the proposed construction of water testing lab and office construction is expected to have a positive impact to provide and/or increase safe water supply and improve sanitation services.

5.4.2 Improved health and sanitation services

The availability of adequate and safe drinking water as result of proper water quality analysis and treatment in the water testing lab to be constructed and equipped with proper equipments for water quality testing in case some parameters exceed recommended standards by WHO standards, will obviously reduce water related diseases such as diarrhoea, cholera, etc. In addition, at family and communal levels, personal hygiene such as handwashing, bathing, and overall sanitation will be improved. Therefore, the execution of the project will have enormous contribution in improving public health conditions, good hygiene, and improved standards of living for the communities in the project target areas.

5.4.3 Improved protection of women and girls

construction of a water testing laboratory plays a vital role in safeguarding the health of women and girls, particularly due to their unique biological needs and vulnerability during pregnancy. Contaminants such as lead, nitrates, arsenic, and bacteria like E. coli in untreated water can pose serious health risks—ranging from reproductive complications to increased chances of miscarriage, birth defects, and chronic infections. Pregnant women are especially susceptible to waterborne diseases and chemical exposure, which can affect both maternal health and foetal development. By ensuring regular monitoring and certification of water quality, the lab helps prevent these risks enabling women and girls to access safe water for drinking, cooking, and hygiene. This not only promotes healthier pregnancies and menstrual hygiene but also reduces the long-term burden of water-related illnesses in female populations.

5.4.4 Improved disputes over water competition

Disputes over safe water fetching often arise due to limited access and competition for preferred sources. However, the construction of a water testing laboratory and a water company office helps address these challenges by improving access to safe and reliable water. Regular testing builds community confidence in the quality of available sources, reducing the urge to compete over specific water points. Additionally, the water company office ensures fair distribution and offers a formal system for resolving complaints, minimizing misunderstandings and conflicts. As water supply, increases and management improves, pressure on resources decreases, leading to a significant reduction in water-related disputes.

5.4.5 Mitigation of greenhouse gas emissions

The project will consider the adoption and installation of solar power as an alternative source of energy for construction operations, which will contribute to the reduction of greenhouse gases emitted by the generators

5.4.6 Employment opportunity

The construction of the proposed water testing laboratory and water company office will create short-term employment opportunities for both skilled and unskilled workers. A diverse workforce will be required during different phases of the project, including site preparation, structural works, and finishing. The table below provides an estimate of the number of people likely to be engaged in various categories, reflecting typical staffing needs for projects of this scale

Table 12: Summary Estimates of the Number of People to be Employed During Construction

Category	Type of Workers	Estimated Number (Lab)	Estimated Number (Office)	Remarks
Management & Supervision	Project Manager	1	1	Oversees entire project
	Site Engineer	1	1	Supervises works and ensures quality
	Clerk of Works / Foreman	1	1	Coordinates site activities
Skilled Labor	Masons/ Bricklayers	6	8	Walling and finishing works
	Carpenters/ Formwork Technicians	4	6	Formwork, doors, windows, fittings
	Steel Fixers	3	4	Reinforcement works
	Plumbers	2	2	Water & sanitation installations
	Electricians	2	3	Wiring, lighting, ICT installations
	Welders/ Fabricators	2	2	Steel works and fittings
	Painters/Finishers	2	3	Final finishes
Unskilled Labor	General Workers/ Laborers	10	12	Excavation, site clearance, support
Support Staff	Security Guards	2	2	Site security
	Drivers/Operators (e.g., machinery)	2	2	Transport and machinery operation
	Casual Support (cook/cleaners)	1	1	On-site welfare support
Total Estimated Workforce		**37**	**48**	Varies depending on project stage

5.5 Negative Impacts and Mitigation Measures

Key outcome of the ESIA is to identify the potential Social and environment negative impacts and propose mitigation measures that will either reduce the adverse impacts or eliminate them.

5.5.1 Impacts on Physical Environment during Construction Phase

The environmental management activities would be carried out during the construction phase. Most of the impacts are expected to occur at this stage and the negative impacts can be avoided or reduced through the application of comprehensive construction plans. . These impacts include water extraction and use for construction purposes, consumption of natural materials such as sand, timber, and gravel, and potential disruption of local ecosystems. Additional environmental concerns may involve vegetation clearance, soil erosion, dust generation, noise pollution from machinery, and improper disposal of construction waste. There is also a risk of surface and groundwater contamination from fuel, lubricants, and chemicals used on-site. If not carefully managed, these activities can lead to habitat loss and reduced biodiversity. It is therefore crucial that the environmental protection measures outlined in the construction contract document are properly implemented and strictly complied with to ensure sustainable development and minimize harm to the surrounding environment.

5.5.2 Impacts on Aesthetic Value

In the case of the construction works, there will be minimum disturbance to the land and its natural formation, especially related to the excavation works for proposed facilities.

5.5.2.1 Soil erosion

Soils will be excavated due to the activities, like: soil removal, backfilling, compacting, excavation and disposal of surplus soil, etc. This applies to all project works, especially for the construction of water testing lab and office, where surface soil will be disrupted and excavations will generate excess material (i.e rocks and soils) to be disposed in spoil tips. However, the majority of the excavation materials, particularly for the office and water testing lab will be used for refilling.

5.5.2.2 Water Pollution Impacts

Soil erosion from earthworks and runoff of ground rock materials from digging might be drained into receiving water bodies causing increased turbidity possibility in the rivers (i.e Dawa). Special attention should be paid to protect water bodies and thus construction activities shall be made within some distance away from water body (i.e Dawa rivers) and project construction activities. The project site, especially the position designated for the shallow well is close to the river with an approximate distance of 40 meters.

5.5.2.3 Air Quality

The construction of the water testing laboratory and office building will involve activities such as site clearing, excavation, and transportation of materials, which may generate dust and minor emissions. These activities could temporarily affect air quality in the immediate project area. Sensitive receptors include nearby residential homes and construction staff working onsite, who may experience short-term discomfort from airborne particles. Although the impact is expected to be localized and of short duration, it may still pose a nuisance, especially to individuals with respiratory sensitivities. To minimize these effects, mitigation measures such as regular water spraying to suppress dust, covering of loose materials, and maintaining equipment to reduce emissions should be implemented throughout the construction phase.

5.5.2.4 Noise Pollution

There were no cases of noise pollution at the proposed project site. However, due to the expected construction works noise levels are likely to increase temporarily and might not be a major problem to the residents

5.6 Negative Impacts on Biological Environment during the Construction Phase

5.6.1 Vegetation Clearing Impact

Vegetation clearing during construction to leave space for proposed construction of Water Testing Laboratory and water company offices in Dollow town is unavoidable. However, the overall loss of vegetation by land clearing is limited i.e. approximately 40 trees. Hence, the magnitude of the impact on the vegetation is basically at low negative.

5.6.2 Negative Impact on Socio-economic Environment during the Construction Phase

5.6.2.1.1 *Disruption of Activities*

The construction of the office building and water testing laboratory will require frequent deliveries of construction materials such as cement, sand, timber, and steel, involving the movement of heavy-duty lorries and other machinery. Currently, the project area experiences low traffic. volumes, with minimal vehicular movement and uninterrupted pedestrian flow. However, during the construction phase, the influx of transport vehicles may lead to temporary congestion, obstructing access routes and slowing down the movement of people and goods. For example, residents who typically walk or cycle through the area may face delays or safety concerns due to increased vehicle activity and reduced visibility. Construction staff may also experience logistical challenges in coordinating deliveries and site access. Although this disruption is expected to be short-term, it is important to implement traffic management measures such as designated delivery times, clear signage, and safe pedestrian pathways to minimize inconvenience and ensure safety for both workers and nearby residents.

5.6.2.2 Impact on public health

The potential impact on health and safety will be linked to the risk that people might fall into trenches or excavations. Additionally, the project will employ causal workers with limited knowledge and skills on health and safety guidelines, which can be considered as

an added risk. Therefore, the impact is certain but medium, especially during construction of shallow wells and transmission pipes.

5.6.2.3 Impact on Occupational Health and Safety

Construction workers are prone to accidents resulting from construction activities. These accidents may have acute impacts depending on their severity and nature. With regards to this, mobilization and construction activities of the proposed water extraction can result in accidental injuries or death, which could negatively impact the workforce. The impact is certain and medium.

5.6.2.4 Solid waste generation impacts

Solid wastes including construction materials such as cement bags, timber, pipe cuttings, metals, food remains, broken equipment, and debris usually found near building sites and campsites during the construction. If these are left on the sites or nearby surroundings without being cleaned and being properly disposed of, the environment impact can be serious.

5.6.2.5 Gender Based Violence, Sexual Exploitation and Abuse/Sexual Harassment

During this phase could be increased social interaction between community members, casual, skilled workers who are coming from different places, therefore, this may result in occurrence of GBV, sexual exploitation and abuse (SEA) and sexual harassment (SH) as well attitude changes among the local community. This impact is medium term and of high significance.

5.6.2.6 Child Labor

According to the consultation during the stakeholder engagement, most of the community members were not aware of children's rights. Also, it was observed that children in the IDP camp perform causal works to support the livelihoods of their families. Thus, the significance of this impact is assessed to be medium.

5.6.2.7 Disease Spread (Communicable Diseases)

The project will be implemented in Dollow town camp where the community has inadequate health facilities. Therefore, due to the interaction with hired workers and community, there could be an increased public health risks, including an increase in prevalence of sexually transmitted disease (STD) such as HIV/AIDS, Tuberculous, among others.

5.6.2.8 Labor Influx

The labour influx of job opportunity seekers is associated with social crimes which can disturb the social order and even lay ground for occurrence of conflict cases in the area However, the impact intensity is low due to the low number of workers expected on the project.

5.6.3 Impacts on Socio-economic Environment during Operation Phase

6.1.2 Health and Safety

During the operational phase, operation and maintenance committee will conduct facilities maintenance activities; including checking the cracks, improving the yield by deepening or removing infiltrated sand practices and the maintenance of the lifting device. Thus, skilled workers are required to accomplish these tasks. Consequently, performing these activities may result in accidents, injuries and other occupational hazards.

5.7 Decommissioning Phase

It is anticipated that the lifespan of the project will be at least over 100 years and probably considerably longer if the facilities is built with high quality materials and well maintained. However, it will be necessary to decommission the facilities when the operation phase comes to an end or when they pose a threat to the lives. Other reasons for decommissioning may be that the water supply sources in the target areas become inadequate due to changes in climate and/or water quality issues that cannot be managed. A decommissioning plan will be prepared before the start of the decommission operations, taking into account the applicable legislation and environmental/social conditions.

5.7.1 Decommissioning Process

The decommissioning of the facilities may include the demolition of all or parts of the structures including the walls, roofing and floor. Digging up the transmission will probably

entail environmental impacts and temporary loss; therefore, there is a need to be considered. The wastes resulting from the decommissioning need to be disposed of at approved locations.

5.7.2 Potential Impacts

Decommissioning may involve excavation and other activities which will lead to temporary increase in noise and dust emission. The decommissioning activities may also result in the creation of both hazardous and non-hazardous waste which needs to be handled according to the waste management policies. The decommissioning works will involve occupational health and safety risks similar to those of the construction phase

6 PROPOSED MITIGATION MEASURES

6.1 Introduction

This chapter presents mitigation measures to avoid, prevent or reduce for adverse impacts of the proposed construction of water testing Lab and office for Dollow town and surrounding IDPs. It also describes opportunities for enhancement of positive impacts. The mitigation measures described in this chapter include both the construction and operation phases. The details of how the mitigation measures will be implemented and monitored are further described in the Environmental and Social Management and Monitoring Plan

6.2 Physical Environment

6.2.1 Topography and Landscape

6.2.1.1 Construction phase

Impacts on aesthetic value

Limitation of vegetation clearance for the proposed construction water testing lab and office to the required work strip; and

Restoration of construction sites to near original natural state (pre-construction condition) through compensatory tree planting and the reuse of excavation material to backfill small pits, ensuring that no residual soil heaps are left behind.

6.2.1.2 Operation phase

Impacts on aesthetic value

- Sensitize the local communities to plant trees around the project site and other suitable areas in order to control soil erosion.

6.2.2 Geology and Soils

6.2.2.1 Construction phase

Soil erosion

- Limit vegetation clearing strictly to designated construction areas.
- Reuse excavated materials for backfilling around foundations and utility trenches.
- Dispose of excess soil or rock in approved locations.
- Rehabilitate completed areas by re-vegetating or stabilizing exposed surfaces.
- Sensitize construction workers on the importance of protecting remaining vegetation.
- Apply water and soil conservation practices to reduce erosion risks.

6.2.2.2 Operation phase

Soil erosion

- Implement soil conservation measures within and around the construction site.
- Ensure the project site is protected from activities that could cause surface runoff or destabilize the soil.

6.3 Climate and Air Quality

6.3.1 Construction phase

Air pollution:

- Provide construction workers with protective clothing such as dust masks.
- Regularly spray water on the construction site to minimize dust.
- Use cleaner energy sources, such as solar power, to reduce emissions from construction activities.
- Regularly spray water on exposed surfaces and access roads to reduce dust emissions that could impair airstrip visibility.
- Schedule excavation and material transportation during periods of low airstrip activity (e.g., when flights are not scheduled).

6.3.2 Operation phase

Air pollution:

- Regularly service generators used at the laboratory and offices to maintain efficiency and reduce emissions.
- Apply effective measures to minimize the release of sulfur oxides and nitrogen oxides during operations.

6.4 Water Resources

6.4.1 Construction phase

Water pollution

- Collect and segregate waste materials at the source according to type (organic and inorganic).
- Prevent soil erosion around the project site to protect nearby water sources.
- Provide initial and ongoing training for construction workers on waste handling, segregation, and proper disposal methods.

6.4.2 Operation phase

Water pollution

- Conduct frequent testing of water quality at the laboratory.
- Apply appropriate treatment methods to maintain safe water standards.
- Maintain proper drainage systems around the facility to prevent flooding and contamination during rainy seasons.

6.4.3 E-Waste

Construction phase

E-Waste

- Develop an e-waste management plan before installation of electronic equipment.
- Train and sensitize workers on safe handling and disposal of e-waste.

Operation phase

E-Waste

- Implement the approved e-waste management plan during facility operations.
- Establish proper mechanisms to safely manage and dispose of e-waste generated from solar power systems and other electronic equipment.

6.5 Biological Environment

6.6 Vegetation Clearing Impact

Construction phase

Vegetation clearing

- Minimize vegetation clearing and restrict it only to designated construction areas.
- Use indigenous plant species for re-vegetation after construction Some indigenous and resilient species include moringa, neem, acacia, senna occidentalis and calotropis procera.
- Implement a tree-planting program around the project site in collaboration with local stakeholders.
- Conduct awareness campaigns and enforce a workers' code of conduct to protect biodiversity.

Operation phase

Vegetation clearing

- Prohibit bush burning within and around the project site.
- Prevent workers from cutting vegetation for firewood or charcoal.
- Restrict livestock access near the project site to protect vegetation and water sources.

6.7 Socio-economic Environment

Disruption of activities

Construction phase

Disruption of activities

- Construct culverts or protective crossings for underground utilities to prevent future damage.
- Collaborate with the local government and the Dollow Water Management Company to minimize disruptions.
- Provide alternative access routes to reduce inconvenience for the community during construction.
- Coordinate closely with local aviation authorities to obtain No-Objection Certificates (NOCs) and agree on safe working hours to avoid interference with flight operations.
- Provide clear signage and controlled access routes for construction vehicles near the airstrip.

Operation phase

Disruption of activities

- Apply proper town planning approaches that account for existing utility facilities to avoid service disruptions.
- Maintain regular communication with airstrip management to manage traffic around the facility and minimize interference with airstrip operations.

6.8 Impact on public health

Construction phase

Impact on public health

- Close open trenches promptly to minimize safety risks.
- Place clear and visible signage at all active construction sites.
- Share traffic management plans with the host community and IDP camps through public campaigns.
- Install aviation-compliant warning lights and reflective markings on cranes, scaffolding, or any temporary tall structures.
- Train workers on aviation safety protocols and emergency procedures related to airstrip operations.

Operation phase

- Organize periodic public health promotion and awareness campaigns in collaboration with local stakeholders.
- Ensure outdoor security lights are down-shielded and low-glare to avoid affecting pilots during night landings.
- Conduct periodic safety inspections to ensure that trees, antennas, or new structures do not exceed height restrictions or intrude into flight paths.

6.9 Impact on occupational health and safety (OHS)

Construction phase

Impact on OHS

- Develop and implement a Health and Safety Management Plan (HSMP).
- Ensure strict compliance with occupational health and safety requirements.
- Provide workers with training, instructions, and information to minimize risks.
- Conduct awareness campaigns on safety and ensure proper provision and use of PPE.
- Maintain safe and conducive working conditions for all workers.

- Implement a Construction Traffic Management Plan with specific guidelines for heavy vehicle movements around the airstrip.
- Provide aviation hazard awareness training to all contractors and workers.

Operation phase

OHS

- The local government authority and the Dollow Water Management Company will conduct toolbox meetings on OHS before operation and maintenance works.
- Provide workers with appropriate PPE and enforce its consistent and effective use during O&M activities.
- Incorporate soundproofing and vibration dampening in laboratory design to protect sensitive testing equipment from aircraft noise and vibrations.

6.10 Solid waste generation impacts

Construction phase

Solid waste generation impacts

- Prohibit on-site burning of waste.
- Provide waste collection bins at designated points for temporary storage.
- Collaborate with the local waste collection company for proper disposal.

Operation phase

- Ensure waste bins are properly placed within the facility.
- Sort solid waste before disposal to promote safe and efficient waste management.

6.11 GBV/SEA/SH

Construction phase

GBV/SEA/SH impacts

- Translate the contractor's Code of Conduct into Somali, sensitize all workers, and ensure they sign it before starting work.
- Train workers on national laws and policies related to GBV and other sexual offenses.
- Collaborate with local GBV service providers to support prevention and response measures.

Operation phase

GBV/SEA/SH impacts

- Provide all workers with a Code of Conduct and sensitize them on GBV/SEA/SH.
- Work closely with local authorities to enforce zero-tolerance policies on GBV/SEA/SH.

6.12 Child Labor

Construction phase

Child Labor

- The Contractor will ensure to register all workers by checking their birth certificates and/or identity cards; and
- Confirming that children and minors are not employed directly or indirectly in the project.

Operation phase

Child Labour

- Encourage back to schools' campaigns and enrolment of new students.
- Employment only for people above 18 years

6.13 Disease Spread (Communicable Diseases)

Construction phase

Disease Spread

- Conduct awareness campaigns on hygiene and sanitation and how diseases spread; and
- Information dissemination about the danger of STDs to the community will be done throughout the period of the project.

Operation phase

Disease Spread

- Conduct regular awareness sessions for staff on hygiene, sanitation, and disease prevention, including STDs.
- Provide adequate handwashing facilities and promote proper hygiene practices in the workplace.
- Collaborate with local health authorities to support periodic health check-ups and awareness campaigns.

6.14 Labour Influx

Construction phase

Labour Influx

- For both skilled and unskilled labour available locally should be given the first priority.

Operation phase

Labour Influx

- Ensure that locals are given priority and where improve their capacity by offering them more trainings

6.15 Chance Finds/cultural heritage

Construction phase

Chance finds

- Develop chance find procedures;
- While no cultural heritage structures were observed or known to exist at the proposed project sites, the contractor shall make sure to inform all workers should any cultural features may be found should be reported by the project team to the local authority.

Operation phase

Chance finds/cultural heritage

- Implement chance find procedures

7 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLANS

7.1 Introduction

An Environmental and Social Management and Monitoring Plan (ESMMP) provide the framework for management and mitigation of impacts anticipated from the proposed project. This ESMMP has been prepared in accordance with national and international requirements.

7.2 Purposes

The purpose of the ESMMP is to bring the project into compliance with applicable national environmental and social legal requirement and AfDB's safeguard policies and standards. Also, the plan outlines mitigation and monitoring actions required to avoid, minimize, mitigate adverse environmental, and social impacts, or to enhance the project beneficial impacts.

7.3 Roles and Responsibilities of Institutions

The roles and responsibilities for ESMMP will be split between several organizations, depending on their respective activities, which are being executed at various stages (i.e Federal, State and Local Government). However, the Federal MoEWR as the proponent has the overall responsibility for the implementation of this ESMMP.

Table 13: Institutions involved in environmental management of the project

Institution	Roles and responsibilities
Ministry of Energy and Water Resources of Federal Government of Somalia	• Overall mandate to monitor, assess and regulate water resources. • Approval of the water abstraction permits. • Lead the management and coordination of water projects • Overall oversight and policy guidance
African Development Bank	• Ensure that the African Development Banks Safeguard OS have been observed and implemented appropriately. • Support the project with funding and implementation support
Ministry of Environment and Climate Change	• Regulate environmental aspects related to the project. • Legally mandated to handle certain critical environmental issues. • Monitor and supervise the ESIAs compliance.
Ministry of Energy and Water Resources of Jubbaland	• Identify key stakeholders • Prioritize water resources investments • Planning and Implementation of the project • Identification of mitigation measures of the environmental and social issues. • Monitor the progress of the project activities. • Identification of water and sanitation facilities.
Dollow Local Government and Dollow water company	• Mobilize various stakeholders, including the local communities/beneficiaries. • Monitoring and supervision support for the implementation of the project.
Contractors	• Ensuring compliance with all relevant national and AfDB's ISS including adhering to all environmental and socio-economic mitigation measures specified in this ESIA. • Manage potential environmental, socio-economic, health and safety impacts of all contract activities.

7.4 Environmental and Social Management Plan

To minimize adverse impacts of the project, the ESIA team developed an ESMP that demonstrates various potential impacts, appropriate mitigation measures, period of

impact management, responsibilities, resources required and estimated costs are proposed in Table below.

Table 14: Environmental and Social Impact Management Plan

Potential Impacts	Proposed Mitigation/Enhancement Measures	Responsible Institution	Estimated Budget (US$)
CONSTRUCTION PHASE			
Visual impact on topography and landscape	Limit vegetation clearance to only the required work area. Restore construction site to pre-construction condition after completion.	Contractor	600
Soil erosion	Minimize vegetation clearing and confine works to marked areas. Backfill excavated areas and stabilize soil with gravel or vegetation. Dispose spoil earth/rock in approved sites. Implement soil conservation practices.	Contractor	1,000
Air quality (dust emissions)	Spray water on dusty surfaces and unpaved access roads. Maintain construction equipment to reduce emissions. Provide dust masks to workers.	Contractor	700
Water pollution	Prevent runoff carrying sediments, cement, and fuel from reaching nearby wells or rivers. Store chemicals and fuels in designated areas with containment.	Contractor	500
Noise pollution	Limit construction to daytime hours (8:00 am–4:30 pm). Provide ear protection (earmuffs) to workers near noisy machinery.	Contractor	500
Vegetation loss	Minimize vegetation clearing. Replant trees and grasses using indigenous species after construction. Conduct awareness campaigns for workers to protect biodiversity.	Contractor	1,000
Disruption of local activities	Provide clear pedestrian and vehicle access routes during construction. Coordinate with local authorities to minimize disruptions.	Contractor	200
Public health and safety risks	Install warning signage and safety barriers around the site. Close open trenches promptly. Disseminate traffic management plans to nearby communities.	Contractor	1,000
Occupational health and safety	Enforce use of PPE (helmets, gloves, boots). Provide safety training and emergency response plans. Ensure	Contractor	1,000

	safe scaffolding and working platforms.		
Solid waste generation	Provide on-site bins and segregate waste (organic, recyclable, hazardous). Prohibit open burning of waste. Engage a licensed waste collector.	Contractor	600
GBV/SEA/SH risks	Implement a workers' Code of Conduct in Somali and train all workers. Collaborate with local GBV service providers. Provide anonymous reporting mechanisms.	Contractor	800
Child labour	Verify worker ages using ID or birth certificates. Prohibit employment of minors.	Contractor	100
Spread of communicable diseases (e.g., STIs, COVID-19)	Conduct awareness campaigns on hygiene and disease prevention. Provide handwashing stations on-site.	Contractor	300
Labour influx	Prioritize hiring from the local community, including IDPs and vulnerable groups.	Contractor	500
Interference with airstrip operations (dust, noise, glare, and equipment obstruction)	Coordinate construction schedules with aviation authorities to avoid disruption of flight operations. Regularly spray water on exposed surfaces to reduce dust that may impair visibility. Limit construction to agreed safe working hours. Install aviation-compliant warning lights and reflective markings on cranes, scaffolding, or any tall structures. Cover reflective materials to prevent glare.	Contractor, Project Management Team (PMT), Local Aviation Authority	1,200
Traffic and safety risks near airstrip	Develop and implement a Construction Traffic Management Plan to regulate movement of trucks and machinery near the airstrip. Provide clear signage and controlled access routes for construction vehicles. Train workers on aviation safety and emergency procedures.	Contractor, PMT, Local Aviation Authority	800
OPERATION PHASE			
Impacts on aesthetic value	Landscape the compound with trees and shrubs. Maintain cleanliness around the facility.	Contractor / Lab Operator	1,500
Soil erosion	Construct proper drainage channels around the lab and office. Regularly maintain stormwater systems.	Contractor / Lab Operator	700

Air pollution from standby generator	Service and maintain generator regularly to reduce emissions. Use quality fuel and install exhaust silencers.	Lab Operator	900
Water pollution	Properly manage laboratory wastewater and ensure drainage systems prevent contamination. Conduct regular water quality testing.	Lab Operator	1,500
Employee health and safety	Provide PPE to staff handling chemicals. Train personnel on lab safety, chemical handling, and emergency response.	Lab Operator	500
GBV/SEA/SH risks	Establish a reporting mechanism and awareness programs for staff and surrounding communities. Implement strict codes of conduct for all staff.	Lab Operator	1,000
Disease spread	Conduct hygiene and sanitation awareness campaigns in nearby communities. Fence off the facility to prevent unauthorized access, especially by children.	Lab Operator	600
Lighting and visual distraction to pilots	Install down-shielded, low-glare external and security lighting that complies with aviation safety standards. Conduct periodic inspections with aviation authorities to ensure lights and structures remain within approved height and brightness limits.	Lab Operator, Local Aviation Authority	900
Aircraft noise and vibration affecting laboratory operations	Incorporate soundproofing and vibration-dampening materials in laboratory design. Calibrate sensitive laboratory equipment regularly to counter potential vibration effects.	Lab Operator	1,000
Total			**19,400**

7.5 Environmental and Social Monitoring Plan

The environmental and social monitoring plan is an important tool and process in relation to environmental and social management as it provides the basis for rational management decisions regarding impact control. The monitoring plan will help in assessing the effectiveness of the proposed mitigation measures and protection of the environment based on standards used at national and international levels. It will also help redress emerging issues that were not predicted during the ESIA study. The monitoring plan will be undertaken to meet the following objectives:

- To check whether mitigation/enhancement measures have been adopted and effectively in practice;
- To provide information on the actual nature and extent of key impacts and appropriateness of proposed mitigation measures.

The monitoring activities of the ESMP can be undertaken into three categories: internal, external monitoring, and audits. The internal monitoring process should be led by

contractors, and line ministries. The findings of the internal monitoring will be regularly reported on monthly, quarterly and annual basis. Whereas, the external monitoring shall be done by the AfDB. Table 15 below presents the environmental and social management monitoring plan for the project.

Table 15: Environmental and Social Impact Monitoring Plan

Parameters to be Monitored	Performance Indicator	Means of Verification	Monitoring Frequency	Responsibility
CONSTRUCTION PHASE				
Physical Environment				
Minimize vegetation clearance by demarcating and restricting work areas	% of vegetation conserved/restored	Site inspection, field verification, photo records	Daily, Weekly, Monthly	Contractor, PMT
Backfill excavated areas with appropriate materials	Area (m^2 or m^3) of excavated land backfilled	Field verification, observation, progress reports	Daily, Weekly	Contractor, PMT
Dispose spoil earth/rock in designated disposal sites	% of spoil properly disposed in approved sites	Field verification, weighbridge records, disposal receipts	Daily, Weekly, Monthly	Contractor, PMT, Local Authority
Implement soil erosion control measures (e.g., slope stabilization, planting)	Number of erosion control structures installed	Field verification, photographic evidence	Daily, Weekly, Monthly	Contractor, PMT
Spray water to control dust emissions	Number of times dust suppression carried out per day	Field observation, log sheets	Daily	Contractor, PMT
Maintain construction machinery to reduce emissions	% of machinery serviced on schedule	Service records, maintenance log	Monthly	Contractor
Proper storage of fuels/chemicals to prevent runoff	% of storage areas with secondary containment	Field observation, storage checklist	Weekly, Monthly	Contractor, PMT
Limit noise from machinery and equipment	Noise level within allowable limits (dB)	Noise meter readings, field observation	Weekly, Monthly	Contractor, PMT
Biological Environment				
Replant cleared areas using indigenous species after construction	% of cleared area revegetated	Field verification, photo records	Monthly, quarterly	Contractor, PMT
Conduct worker awareness sessions on biodiversity protection	Number of sessions conducted	Attendance sheets, training reports	Monthly	Contractor, PMT

Socio-Economic Environment				
Prioritize employment of local residents (including IDPs and host communities)	% of workers employed from local community	Employment records, site verification	Daily, Weekly, Monthly	Contractor, PMT
Disseminate job opportunities through public gatherings	Number of community meetings or notices issued	Field verification, attendance sheets	Monthly	Contractor, PMT
Provide GBV/SEA/SH prevention training for all workers	Number of workers trained	Training reports, attendance sheets	Monthly	Contractor, PMT
Conduct awareness campaigns on child labor and labor influx	Number of awareness forums held	Reports, IEC materials	Monthly	Contractor, PMT
Allocate a quota for female employment	% of female workers employed	Employment records	Daily, Weekly, Monthly	Contractor, PMT
Provide safe drinking water and sanitation facilities for workers	No of water and sanitation facilities installed and functional	Field verification, observation	Daily, Weekly	Contractor, PMT
Establish a grievance redress mechanism (GRM) for workers	Number of grievances reported and resolved	Grievance log, field verification	Daily, Weekly, Monthly	Contractor, PMT
Sensitize workers on occupational health and safety (OHS)	Number of sensitization sessions held	Attendance sheets, OHS records	Weekly, Monthly	Contractor, PMT
Provide and enforce use of PPE (helmets, gloves, masks, earmuffs)	% of workers using PPE	Field verification, observation	Daily, Weekly, Monthly	Contractor, PMT
Collect and dispose of solid waste from the site	% of waste collected and disposed properly	Field visits, waste logs, collection receipts	Daily, Weekly, Monthly	Contractor, PMT
Coordination with aviation authorities for safe working hours	Approved construction schedule aligned with airstrip operations	Meeting minutes, aviation clearance letters	Before and during construction	Contractor, PMT, Local Aviation Authority
Dust control near airstrip	Air quality levels within safe visibility thresholds	Field inspection, dust meter readings	Daily	Contractor, PMT
Installation of warning lights/reflective markings on tall equipment	% of tall structures fitted with aviation-compliant lighting/markings	Field verification, photo records	Weekly	Contractor, PMT

OPERATION PHASE				
Maintain soil conservation and drainage systems around lab and office	% of drainage structures maintained and functional	Field verification, inspection reports	Quarterly	Lab Operator, Local Authority
Service and maintain standby generator to control emissions	Generator service records updated	Service log, maintenance reports	Quarterly	Lab Operator
Ensure laboratory wastewater is managed to avoid contamination	Number of wastewater treatment/disposal checks conducted	Water quality test reports, inspection logs	Monthly, quarterly	Lab Operator
Conduct periodic water quality testing in wells and lab	Number of water quality tests conducted per quarter	Lab test results, reports	Quarterly	Lab Operator, Local Authority
Provide and enforce use of PPE for laboratory staff	% of staff using PPE during operations	Field verification, observation	Daily, Monthly	Lab Operator
Establish mechanisms for safeguarding women and girls in the community	Women safeguarding mechanism documented and functional	Observations, reports	Quarterly, annually	Lab Operator, Local Authority
Conduct sanitation and hygiene awareness campaigns in surrounding community	Number of awareness campaigns conducted	Reports, photos, attendance sheets	Quarterly	Lab Operator, Local Authority
Maintain GRM for staff and nearby community	No of grievances recorded and addressed	Grievance log, meeting records	Monthly, quarterly	Lab Operator, PMT
Compliance of external/security lighting with aviation standards	% of lights meeting brightness and shielding requirements	Field inspection, aviation authority reports	Quarterly	Lab Operator, Local Aviation Authority
Noise and vibration levels inside laboratory	Noise/vibration levels within acceptable laboratory operating thresholds	Equipment calibration logs, noise/vibration meter readings	Quarterly	Lab Operator

7.6 Estimated Costs for Implementing the ESMMP

This is an estimated cost from the Consultant, but could be revised by the stakeholders prior to project implementation phase. In order to effectively implement the environmental and social management measures indicated by the ESMP, the project stakeholders should allocate and provide reasonable costs. An indicative cost has been provided in Table 8.6 that will cover the costs related to capacity building, GRM, and stakeholder coordination and consultation meetings, and cost for annual environmental and social audits. Furthermore, the costs for mitigation and enhancement measures will be integrated into the construction cost.

Table 16: Estimated Budget to Implement ESMP

No	ESMMP Requirements	Budget Basis and Assumptions	Total Cost (US$)
1	Capacity building for PIU/PMTs	Training sessions will be held in the Dollow town	2,000
2	Stakeholder engagement workshops and meetings in subproject	Continues stakeholderengagement throughout the implementation of activities	2,000
3	Grievance redress mechanism and its functionality	Effective grievance mechanisms for both public and workers in subproject	5,000
4	Environmental and social impact monitoring	Allocated amounts for E&S plans are prioritized and executed by all stakeholders	5,000
5	Environmental and social audits	An independent environmental and social audit	3,000
6	Environmental restoration and tree planting (approximately 40 trees will be cleared considering land area of approximately 600 to 800m2)	Based on environmental destruction	3000

8 PUBLIC CONSULTATIONS AND STAKEHOLDER ENGAGEMENT

8.1 Introduction

Stakeholder consultations were carried out to get their views and inputs on various aspects that were relevant to the project. The consultations focused on the scope of the project and expected roles from the stakeholders. The consultations were held with the relevant ministries and agencies. District level stakeholders as well as the project's beneficiary local communities were also consulted. Consultations involved highlighting project activities and soliciting their opinions through open discussion forums, interview and open dialogues with key informants with relevant expertise and IDP camp meetings with community members.

8.2 Objectives

The purpose of the stakeholders' consultations was to provide an overview of the project to the relevant ministries, agencies, and all the communities residing in areas where the project activities will be implemented and therefore will have impact on them. It also helps them to understand how the project will operate to the highest possible environmental, social and health standards prior, during and after the construction and/or rehabilitation of the water supply and sanitation related interventions.

The specific objectives of the consultations were:

- To obtain an understanding of the number and types of stakeholders in target areas;
- To provide an information about the project and to tap stakeholders' knowledge on key environmental and social baseline information in the project area;
- To get views of the stakeholders regarding the environmental and social concerns and opinions about the project.
- To discuss potential impacts and verify significant or major environmental, social and health impacts identified;
- To inform the process of developing appropriate mitigation and management measures as well as institutional arrangements for effective implementation; and
- To inform stakeholders about the engagement process and grievance management.

Stakeholder consultations and publication participation during the ESIA process were conducted in line with the requirements of the AfDB. According to the AfDB ISS, OS10, Section III consultation and participation during the preparation of ESIA study, meaningful stakeholder consultation is crucial and an integral part of the assessment.

8.3 Stakeholder Identification and Analysis

8.3.1 Stakeholder Identification

In regards to the AfDB's updated ISS OS referred a "stakeholder" to individuals or groups who are affected or are at risk of being affected by operations, directly or indirectly and/or may have an interest in the operation. To develop an effective stakeholder involvement project, it is necessary to determine exactly who are the stakeholders and their roles, interest, objectives and priorities specific to the project. The ESIA consultant formulated a stakeholder matrix and identified key stakeholders who were engaged during the study. A stakeholder engagement plan was drafted and included in the Environmental and Social Management Plan (ESMP). The study targeted individuals, groups, institutions and communities that have a stake in the proposed water supply and sanitation improvement project. Thus, only such entities as identified in the stakeholder analysis were selected to participate in the consultation process.

The following aspects were considered when identifying and engaging stakeholders for the ESIA:

- Who are the most vulnerable among the potentially impacted, and are special engagement efforts necessary?
- Which stakeholders can be best assistant with the early scoping of concerns and impacts?

- Who could be adversely affected by environmental and social impacts?
- Which stakeholders will strongly support or oppose the changes that the project will bring and why?

8.3.2 Stakeholder Analysis

The stakeholder categories and sub-categories identified are presented in the table below.

Table 17: Stakeholder Matrix

Entities	Stakeholder	Key roles and responsibilities
Federal Level	Ministry of Energy and Water Resources	• Overall mandate to monitor, assess and regulate water resources. • Approval of the water abstraction permits. • Lead the management and coordination of water projects • Overall oversight and policy guidance
	Ministry of Environment and Climate Change	• Regulation of the environmental aspects of the project. • Legally mandated to handle certain critical environmental issues. • Monitor and supervise the ESIAs compliance.
State Level	Ministry of Energy and Water Resources of Jubbaland	• Identify key stakeholders • Prioritize water resources investments • Planning and Implementation of the project • Identification of mitigation measures of the environmental and social issues. • Monitor the progress of the project activities. • Identification of water and sanitation facilities.
Local Government	Dollow Local Government	• Mobilize various stakeholders, including the local communities/beneficiaries. • Monitoring and supervision support for the implementation of the project.
Community Groups	Women Associations, Representatives of IDPs,	• Participate in consultation meetings • Present inputs and concerns form their communities • Raise their needs and prioritize during consultations
Funder	African Development Bank and UNICEF	• Ensure that the African Development Banks Safeguard OS have been observed and implemented as appropriate. • Support the project with funding and implementing support • UNICEF to Monitor the implementation process

8.3.3 Stakeholder Engagements

Different methods were adopted to engage the stakeholders during the preparation of this ESIA. These were taken up depending on two major premises: the type of information required, and the number of participants involved in the data collection process. These methods were used to inform the development of an appropriate water supply and sanitation within the proposed project areas. Here-under are the methods that guided the stakeholder engagement process.

Table 18: Stakeholder Engagement Methods

Target Groups	Engagement Method
Ministries of Energy and Water Resources at Federal and State levels	• Face to face consultative meetings • Key Informant Interviews (KIIs)
Dollow Local Government	• Face to face meetings

	• Key Informant Interviews (KIIs)
Communities/Project Beneficiaries	• Face to face meetings • Focus group discussions
NGOs and other humanitarian organization in the area	• Face to face meetings

Table 19: Number of Participants

Date	Mode of Consultation		Stakeholders	Venue	No. of Participants (F/M)	Total
20/05/2025	Key Informant Interview	Dollow Water Company	Dollow Water Office		2F / 4M	6
25/05/2025	Institutional Meeting		Ministry of Energy & Water Resources & Dollow Water Management Co.	Dollow Water Company Hall	2F / 3M	5
26/05/2025	Meeting with Local Authorities		Chiefs & Elders, District Commissioner		8M	8
26/05/2025	Consultative Session		IOM, UNICEF, FAO, NRC, SHRA, UNHCR, NCA		3F / 13M	16

8.3.4 Consultation Meetings with the Government Stakeholders

The ESIA team had a first consultation meeting with the local government at Dollow town to inform the Government about the project, its objectives, the intended activities, and the related studies to be undertaken, including the ESIA and ESMP. Among this stakeholder is the Dollow District commissioner who oversees administrative functions and provides security oversight The main objective was to solicit, potential impacts and risks and possible mitigation measures and also to solicit initial community responses. The stakeholders were able to express comments and queries during the consultation meetings.

Furthermore, the ESIA team had several Key Informant Interviews (KIIs) with different stakeholders, administration chiefs and the deputy mayor of Dollow. The purpose of engaging these officials was that they had detailed information related to the project that could be used improving the implementation of the project

8.3.5 Consultation with Local Government

The project will be implemented in Dollow district, specifically Dollow town. Due to this the deputy mayor and other key officials of Dollow local government authority (District commissioner, representative from Dollow water management company (e.g. water engineer Mr. Mohamed Adan) were consulted about the project to get input, feedback, concerns and their expectations.

8.3.6 Consultation with Communities

The ESIA team also consulted with communities residing in the target districts and project sites. The participants were identified by community elders, based on individuals who had been assigned specific responsibilities within the community and ensuring gender representation. As direct beneficiaries of the project, it was essential to capture their reactions, concerns, and expectations, as well as gather feedback to inform and enrich the preparation of the ESIA study. The attendance register is provided in the annex and tabulated below, indicating women-men ratio, and photos provided in the Figure below.


Dollow community engagement meeting


Qansaxley IDP camp community engagement | Ladan community engagement


Kaharey Community engagement


Kabasa community engagement


Dollow town engagement meeting with stakeholders

Figure 9: Photos for Community Engagement

8.3.7 Consultation with Water Operators

In Dollow district water is supplied by Dollow water Management company (DWMC) public-private-partnership (PPP) agreements. The company faces many problems from water quality, technical and operational challenges that make it difficult to provide water to people, including people living in IDP camps.

The list of stakeholders consulted from the DWMC is given in the table below and the attendance register and photos are provided in the Annex.

Table 20: Key Stakeholders Engaged (DWMC)

No.	Key stakeholder	Organization	Designation
1	Ahmed Ismail	DWMC	F. Manager
2	Mohamed Swali Adan	DWMC	Water Engineer
3	Mohamed Adani	DWMC	Groundwater Manager
4	Yahya Shire Osman	DWMC	Operations

8.4 Consultation Outcomes from Stakeholders

During stakeholder consultations on the proposed construction of the water testing laboratory and administrative offices in Dollow, key issues, recommendations, and expectations were identified to guide project planning and implementation. The

discussions involved local authorities, Dollow Water Management Company, community representatives, and key development partners. The table below summarizes the main concerns raised and the agreed measures to ensure that the project enhances water quality monitoring and service delivery while minimizing environmental, social, and health risks.

Table 21: Stakeholder Engagement Outcomes

Topic / Area of Concern	Key Issues Raised	Stakeholder Recommendations & Expectations
General Project Issues	• Need to fast-track the construction of the water testing laboratory and offices to improve water quality monitoring and service delivery. • Strong coordination required among UNICEF, Dollow Water Management Company (DWMC), local authorities, and contractors during construction and commissioning. • Ensure all activities comply with environmental protection and occupational safety standards. • Prioritize local residents for skilled and unskilled jobs during construction.	• Accelerate procurement and implementation to meet urgent water quality testing and administrative needs. • Establish regular coordination meetings among key stakeholders. • Apply strict environmental safeguards and health & safety protocols. • Create clear guidelines for recruiting local labour and ensuring fair employment practices.
Water, Sanitation & Hygiene (WASH)	• Current lack of a dedicated laboratory hampers timely and reliable water quality testing. • Concerns over potential wastewater discharge, chemical handling, and sanitation during construction and operation of the laboratory. • Need for proper office facilities to enhance customer service and operational efficiency.	• Design the lab with appropriate wastewater treatment systems and safe chemical storage.Ensure the office includes adequate sanitation and clean water facilities. • Conduct regular water quality testing once the lab is operational to improve service delivery.
Conflict Management	• Potential disputes over recruitment of local workers or use of construction materials. • Concerns over noise and disruptions during construction near residential areas.	• Develop transparent recruitment procedures with community oversight. • Provide timely construction schedules and grievance redress mechanisms to manage complaints.
Employment Opportunities	• Expectations for job creation for local youth and vulnerable groups during construction (e.g., masonry, plumbing, electrical works, security).	• Ensure fair recruitment of local workers and provide basic safety and skills training.

		• Encourage inclusion of women and youth in both construction and future lab operations.
Health and Safety	• Risks of accidents from construction activities such as excavation, concrete works, and chemical storage. • Dust and noise may affect nearby households and businesses during construction.	• Enforce strict occupational health and safety (OHS) measures, including provision of PPE. • Use warning signs, barriers, and safe pathways around construction zones. • Implement dust suppression and noise control measures.
Cultural Heritage	• No known cultural or historical sites within the proposed project area.	• · Monitor during excavation; protect any unexpected finds following ESIA procedures.
Environmental & Social Risks	• Possible soil disturbance, dust generation, and vegetation loss during site clearing. • Risk of improper handling of construction waste or lab chemicals post-construction.	• Implement the Environmental and Social Management Plan (ESMP): dust suppression, controlled waste disposal, and proper chemical handling and storage. • Ensure landscaping and vegetation restoration after construction.
Land Acquisition & Resettlement	• The proposed site is owned by DWMC; no displacement is anticipated, though minor extensions for access roads or fencing may require clear community agreements.	• Secure written approvals from relevant authorities and surrounding land users before construction begins.
Overall Stakeholder Position	• Strong support for the construction of the water testing laboratory and offices to strengthen water quality monitoring and improve service delivery.	• Strictly follow ESIA mitigation measures to safeguard community health, environmental quality, and operational efficiency.

8.5 Stakeholder Engagement Plan

The proposed construction of a water testing laboratory and administrative office within Dollow town requires the direct involvement of a range of stakeholders with substantial capacity to influence the project. The Stakeholder Engagement Plan (SEP) developed for this initiative aligns with the African Development Bank's (AfDB) Guidance Note No. 10 on Stakeholder Engagement and Information Disclosure, as well as Somalia's regulatory framework. It emphasizes structured, inclusive, and continuous engagement throughout the project lifecycle.

A robust SEP, in line with AfDB OS10 requirements, includes the following components:

a) Stakeholder Identification and Analysis

Stakeholders relevant to the construction of the water testing lab and office were systematically mapped and analysed based on criteria such as dependency, interest, and influence. This ensures inclusive and targeted engagement. Details are provided in sections 2.1 & 2.2 and supported by section 3.3 and Table 4 of the SEP Report.

b) Planning Engagement Activities

The SEP outlines clear engagement strategies tailored to each phase of the lab and office construction i.e. implementation, closure, and operation/maintenance. Roles and protocols are defined in sections 3.9 and 3.10 of the SEP Report.

c) Information Disclosure

Mechanisms for timely and accessible disclosure of project-related information are described in section 3.11 of the SEP Report. These ensure that all stakeholders, including vulnerable groups, receive relevant updates in appropriate formats and languages.

d) Stakeholder Consultation

The SEP documents consultations conducted during feasibility and environmental/social impact assessments (ESIA), and sets protocols for ongoing structured consultations during implementation. These are detailed in sections 3.8–3.9 and Annexes 1–3 of the SEP Report.

e) Grievance Redress Mechanism

A comprehensive Grievance Redress Mechanism (GRM), aligned with AfDB standards, is outlined in Chapter 5 of the SEP Report. It includes procedures for handling grievances at community, town, and state levels, and provides Terms of Reference for Grievance Redress Committees.

f) Feedback Mechanisms

Feedback loops are integrated through monitoring, reporting, and dedicated communication channels to ensure stakeholder concerns are addressed. This is covered in sections 6.8 and 6.9 of the SEP Report.

g) Budget for SEP Implementation

The SEP includes a dedicated budget for stakeholder sensitization, consultations, grievance management, monitoring, and capacity-building activities related to the construction of the water testing lab and office. This is presented in section 6.10 and Table 21 of the SEP Report.

By incorporating these elements, the SEP provides a strong framework for meaningful, inclusive, and continuous engagement throughout the construction and operationalization of the water testing laboratory and office in Dollow town.

Table 22: Stakeholder Engagement Plan

Project Phase & Activity	Objectives	Level & Type of Stakeholders	Methods	Materials/Resources
Pre-Construction				
Organize stakeholder sensitization workshop	To inform and mobilize stakeholders on their roles and responsibilities in the construction of the water testing laboratory and office	County/district authorities, water agency representatives, beneficiary community leaders, local administration, contractors	Formal meetings at county/district level	IEC materials (posters, brochures), radio announcements
Construction Phase				
Conduct project kick-off meetings	To disseminate project details, timelines, and expected outcomes for the lab and office construction	Beneficiary communities, local leaders, contractors, county/district/state authorities, NGOs	Meetings at county/district and community levels; face-to-face sessions	IEC materials (English and local language), presentations
Organize periodic progress meetings	To provide updates on construction progress, address challenges, and share next steps	Technical staff, contractors, supervision team, county/district officials, funding agency representatives	Monthly and quarterly review meetings; site visits	Meeting venues, internet access, refreshments, progress reports
Engage local community in construction support works	To create local employment opportunities and foster community ownership of the lab and office	Local skilled/unskilled laborers, youth groups, host community	Community barazas, contractor-led recruitment sessions	Notices, flyers, local radio announcements
Operation & Maintenance (O&M)				
Sensitize stakeholders on facility operation and maintenance	To ensure proper use, management, and sustainability of the laboratory and office after construction	Water company management, laboratory staff, local government authorities, community representatives	Training workshops, face-to-face meetings, local resource mobilization	Training manuals, IEC materials, radio programs

9 ANALYSIS OF ALTERNATIVES

This section describes the preferred alternatives that have been considered in light of those that were rejected. Furthermore, the analysis of alternatives aimed at developing a proposed action that is both technically and financially viable, which minimizes environmental and social impacts to as low as rationally feasible.

9.1 The No Project Alternatives

This "no-project" alternative means that the proposed construction of the water testing laboratory and office would not take place, and the current challenges related to water quality monitoring and administrative efficiency would persist. The proposed site would remain in its present state, and the anticipated positive impacts such as improved water quality testing, enhanced service delivery, and strengthened operational capacity of the water utility, would not be realized. Likewise, no construction-related negative impacts would occur. However, this option is not considered feasible due to the critical need for a dedicated water testing laboratory and administrative offices to support effective water management in Dollow town and its surrounding areas.

9.2 Alternative Options

9.2.1 Option 1: Mobile Water Testing Kits and Field-Based Monitoring

Portable water testing kits allow for on-site analysis of basic water quality indicators such as pH, turbidity, chlorine levels, and microbial contamination. These kits are lightweight, relatively affordable, and suitable for rapid assessments in remote or underserved areas. However, their limitations are significant. Most kits cannot detect chemical contaminants like arsenic, fluoride, or heavy metals—elements that pose serious health risks, particularly to pregnant women and children. Additionally, the accuracy of results depends heavily on the skill of the user and environmental conditions, which can lead to inconsistent data. Without a centralized facility, there is no structured system for data storage, reporting, or regulatory oversight, making long-term monitoring and accountability difficult to achieve.

9.2.2 Option 2: Partnership with External Accredited Laboratories

In this model, water samples from the target area are collected and sent to regional or national accredited laboratories for comprehensive analysis. This approach leverages existing infrastructure and expertise, potentially reducing the need for local investment. However, it comes with logistical challenges. Transporting samples to distant labs can result in delays, risking sample degradation and postponing critical decisions. The recurring costs of transport, handling, and testing fees may eventually exceed the cost of building a local facility. Moreover, in emergency situations or during outbreaks, waiting for external results can hinder timely response. This model also limits community engagement, as local residents and staff have no direct access to the testing process or immediate feedback.

9.2.3 Option 3: Renting a Room in Dollow Town for Temporary Lab Use and Office

A third option involves renting a room in Dollow town to serve as a temporary water testing lab. This would provide a local base for testing without the need for full-scale construction. While this may seem practical, it presents several drawbacks. Rented spaces often lack the structural requirements for safe chemical handling, proper ventilation, and secure equipment storage. The temporary nature of such arrangements makes them vulnerable to eviction, theft, or vandalism, especially in high-traffic or informal areas. Expansion or upgrading is difficult in a rented space, and the lack of formal identity undermines community trust and regulatory recognition. A rented room also fails to provide the institutional permanence needed for long-term water quality management.

9.2.4 Construction of Water Testing Lab and Office

The preferred alternative is to proceed with the construction of a fully equipped water testing laboratory and administrative office in Dollow town. This option will enable the establishment of dedicated facilities to enhance water quality monitoring, improve administrative efficiency, and strengthen the operational capacity of the Dollow Water Management Company—ultimately ensuring safer drinking water, better service delivery, and more reliable management of water resources. The laboratory will be outfitted with advanced digital data loggers and multiparameter sondes integrated with telemetry systems capable of measuring pH, electrical conductivity (EC), temperature, dissolved oxygen (DO), and turbidity, with real-time data transmission. A central server will be installed to host a licensed software platform for data integration, dashboard visualization, and analytical reporting. The system will include a comprehensive database setup with

cloud integration, user account management, and secure access protocols to support long-term monitoring and decision-making. The administrative office will facilitate coordination, public engagement, and dispute resolution, serving as a central hub for water governance. The proposed site, owned by the Dollow Water Management Company, is secure, strategically located, and easily accessible to the public, making it ideal for the intended development. Consultations with local government authorities, the water company, key NGOs, and community representatives confirmed broad support for the project, with no objections raised regarding land ownership or the planned

9.3 Considered Option

The selected and preferred option is the construction and operation of a dedicated water testing laboratory and administrative offices in Dollow District. This solution is the most feasible and impactful, especially when compared to temporary or external alternatives, which face limitations in reliability, responsiveness, and long-term sustainability. A permanent facility will ensure full control over water quality operations, secure storage of equipment, and the ability to conduct comprehensive assessments including chemical, microbial, and physical parameters. The laboratory will be equipped with advanced digital data loggers and multiparameter sondes integrated with telemetry systems to monitor key indicators such as pH, electrical conductivity (EC), temperature, dissolved oxygen (DO), and turbidity, with real-time data transfer capabilities. A central server will be installed to host licensed software for data integration, dashboard visualization, and analytical reporting. The system will include a robust database setup with cloud integration, user account management, and secure access protocols to support long-term monitoring, decision-making, and transparency.

The administrative office will serve as a formal platform for staff coordination, public communication, and dispute resolution, fostering trust and improving service delivery. It will also support the operational capacity of the Dollow Water Management Company and UNICEF in managing water resources more effectively for both the local community and internally displaced persons (IDPs). The proposed site, owned by the Dollow Water Management Company, is secure, strategically located, and easily accessible to the public, making it ideal for the intended development. Following a comprehensive environmental, social, and economic assessment by the ESIA team, no significant issues were found that would hinder implementation. Potential negative impacts have been identified, and appropriate mitigation measures are proposed within this report. With proper adherence to these measures, the project is expected to proceed smoothly, delivering substantial public health and service delivery benefits without causing significant harm to the environment or surrounding communities.

10 GRIEVANCE REDRESS MECHANISM

10.1 Introduction

The grievance redress mechanism (GRM) is a critical component of the effective ESMP implementation. The objective of the GRM is to provide a platform to the internal and external stakeholders to raise their concerns, issues and queries about the project. The mechanism would allow the stakeholders to identify persons or channels through which their queries will be channelled and will ensure timely responses to each project-related query in each sub-project.

The GRM will be accessible and understandable for all stakeholders in the project and for the entire cycle of the project. The GRM will be communicated to relevant stakeholders and all complaints should be addressed to and by promptly using an understandable and transparent process that is culturally appropriate and readily acceptable to all segments of the affected communities, and it is at no cost to the project and without retribution.

10.2 Grievance Channel

MoEWR and UNICEF as implementing the project will be expected to establish appropriate channels (i.e. in person, a toll-free number, email address, etc) to be used for the submission of project-related complaints, concerns, and grievances.

10.3 Grievance Management System

10.3.1 Existing Grievance Management System

Based on stakeholder engagement discussions in Dollow and its surrounding 5 IDP camps, (Qansaxley, Qurdubey, Ladan, Kaharey and Kabasa) it was clear that existing informal Grievance Redress Mechanisms (GRMs) are actively used and trusted by the community. These include Camp Management Committees (CMCs), traditional elders, and religious leaders who help resolve complaints related to aid distribution, shelter, and access to water. Community members typically raise grievances through verbal reports, community meetings, or help desks supported by humanitarian actors. While these systems are culturally embedded and responsive, stakeholders noted the need to strengthen their transparency, documentation, and inclusivity to ensure fair and consistent resolution of issues.

10.3.2 Proposed Grievance Management System

In the study area of Dollow, an informal grievance redress mechanism (GRM) already exists, operating mainly through traditional community leadership structures, including elders, religious leaders, and camp committees. These informal systems have historically provided the first point of contact for resolving disputes and community concerns. The builds on these existing informal GRM structures by formalising them into structured Grievance Redress Management Committees (GRMCs) to ensure inclusivity, accountability SEP, and alignment with AfDB OS10 requirements.

The project establishes a three-tiered grievance redress system that builds on existing informal mechanisms in Dollow as discussed in chapter 5 of the Stakeholder Engagement Plan Report prepared under the same project. These will operate at community, project, state, and federal levels to ensure accessibility, inclusivity, and alignment with AfDB OS10 requirements.

- **Tier 1** – Community Level: Grievances are first received and addressed at the community entry point through existing informal mechanisms led by camp committees, elders, women and youth representatives, and other trusted leaders. These serve as the first line of response, ensuring accessibility and cultural sensitivity. Unresolved cases are escalated.
- **Tier 2** – State/Project Level: At this level, State-level Grievance Redress Committees (GRCs) are established in each relevant institution (e.g., MoEWR, UNICEF) implementing project activities. These committees are inclusive, bringing together representatives of PAPs, IDPs, host communities, women and youth associations, elders, religious leaders, and water operators. Contractors and the Project Management Team (PMT) participate where relevant.
- **Tier 3** – Federal Level: The Federal GRC, formed under the PMT at the Federal MoEWR, addresses grievances that cannot be resolved at the state/project level or that involve cross-cutting, systemic issues across ministries. This tier provides

oversight, ensures consistency, and escalates unresolved grievances to AfDB's Independent Recourse Mechanism (IRM) if necessary

10.4 Grievance Management Process

The project will aim to address grievances with the following steps:

Step	Action	Suggested Timeline
1	Receive, register, and acknowledge complaints in written format	Within 2 working days of receipt
2	Screen and establish the basis of the grievance	Within 5 working days
3	Consider and identify ways to address the complaint	Within 10 working days
4	Implement resolution through grievance management systems; allow complainant to seek redress if unsatisfied	Within 15 working days of screening
5	Document grievance, actions taken, and submit report to the Project Management Team (PMT)	Within 5 working days after resolution
6	Elevate the case to a formal court if the complainant is not satisfied with GRC resolution	Timeline depends on legal framework; as per national judicial process

10.5 Key Roles of Grievance Redress Committee

The main functions of the GRC are;

- Inform the affected persons about the existence of GRM;
- Verify grievances and their merits;
- Recommend solutions for the PMT grievance process;
- Communicate the decisions that were taken to the complainants;
- Ensure that all notices, forms and other documents required by complainants are made available in the local language; and
- Ensure documentation of all received complaints and the progress of remediation.

10.6 Gender-Based Violence GRM

There will be a separate reporting mechanism for GBV cases that are discrete from general GRM. Issues from this mechanism will not go through the normal GRM. The federal MoEWR will be capacitated to a qualified expert in Gender and Social Affairs and should be the focal point for handling GBV-related complaints in consideration of confidentiality, safety and survivor-centered approach. At this level all registered data should be anonymous and confidential.

11 INSTITUTIONAL CAPACITY

11.1 Introduction

Federal, state and local level institutions are involved in the planning, coordination and monitoring of the project, with different roles in environmental and social management and protection. These include the federal MoEWR, line ministries and/or agencies at state level and local government authorities. The institutional capacity assessment during the ESIA study aimed to identify certain structures and policies in place and to assess their capacity to adequately manage the environmental and social aspects, and identify the capacity building required in the implementation of the ESMMP of the project. The main institutions involved in a major way by the activities of the project are: federal MoEWR and line ministries of water and sanitation at state level, local government authorities and water operators.

11.2 Summary of the findings

Based on the ESIA study, in particular the capacity needs assessment of the institutions; the following challenges were identified as gaps and barriers to the effective implementation of the environmental and social safeguards requirements:

- Inadequate environmental and social safeguards policies at the federal and state level ministries and/or agencies.
- There is no dedicated department or teams at the ministries for environmental and social issues. In addition, environmental and social issues are not included in the institutional departmental structures as well as core mandates.
- There are limited or no employees currently employed to deal with environmental and social issues at the federal and state levels.
- Limited alignment and harmonization of the policies and regulations at the federal government and state levels.
- Limited coordination mechanisms to address the issues of overlapping and duplication of mandates and responsibilities.

11.3 Interventions

In order to strengthen the environmental and social sustainability, including climate resilience, the adverse impacts and risks of the project need to be avoided or reduced and where possible mitigated. The institutional capacity building will encompass training and awareness creation of the stakeholders in appreciating and understanding their roles and participation. The fundamentals of environmental and social safeguards will form the basis. This will include and not limited to the following areas: sensitization of the environment and safety; assessment and management of environmental and social risks and mitigation measures to ensure all stakeholders are part of the process of sustainability. The interventions will be geared towards helping them understand their roles, change mindset and behavior.

Furthermore, key necessary interventions include the following:

- The need for close collaboration between the water and sanitation sector ministry and those of environment, climate change and social issues.
- Environmental and social issues to be well addressed within the WASH project. There is need to recruit environmental and social specialist and institutionalize the environmental and social safeguard management systems.
- Develop environment, health and safety (EHS) guidelines for WASH sector.

11.4 Training Needs

The training needs in support of the project and the proposed capacity building training targets in environmental and social technical staff and other staff in the ministries and agencies and local government authorities. The training entails the following topics:

- Environmental and social screening and impact assessment;
- Management of environmental and social risks and impacts in WASH projects;
- Mitigating gender-based violence and exploitations in the project;

- Grievance handling mechanisms
- Monitoring and reporting compliance to environmental and social requirements;
- Occupational Health and Safety best industrial-specific practices in the WASH sector, and
- Community Health and Safety aspects in the WASH sector.

12 CONCLUSION AND RECOMMENDATIONS

12.1 Conclusions

This ESIA assessed the environmental and social impacts associated with the construction of Water Testing Laboratory and water company offices is in Dollow town. The proposed project will improve the delivery of clean water to the IDPs and vulnerable host communities living in target district. The results of the study have shown that the project activities from the design and construction stages will have minimum adverse impacts to the biophysical and socio-economic environment provided that the recommended mitigation measures in this report are successfully implemented.

The ESIA study shows that the project will have few and limited adverse impacts combined with significant social and health benefits. No known cultural or historical sites exist within the project area, though a chance finds procedure will be applied to address any unforeseen discoveries. The operation phase is not anticipated to cause soil erosion, air quality issues, or significant vegetation loss, with only minor disturbances from human and livestock movement expected around the recharge weir sites. The findings of this assessment support the implementation of the proposed facilities on the provision that all the mitigation and enhancement measures identified in the study are fully implemented.

12.2 Recommendations

This sub-section discusses recommendations, based on the findings for federal and state level ministries, water operators, and contractors.

12.2.1 Federal and State Level Ministries

These include the following:

- Prioritize the establishment of Project Management Teams (PMTs) Within first 3 Months of mobilization for coordination and implementation of the project;
- Ensure the compliance of environmental and social requirements of the AfDB during the implementation of the project; Continues through the project
- Hire qualified experts for environmental and social safeguards who will be responsible for monitoring and ensuring that all environmental and social safeguards are followed consistently during the implementation of the project;
- Make sure that environmental and social requirements (i.e backfilling, PPE items, soil and water erosion control, etc) are well embedded in bidding documents and contracts during tendering of the project
- Continue stakeholder consultation and participation throughout the project lifetime
- Develop or review standard of operations and/or agreements of the existing water service providers (i.e. water operators); and
- Improve the institutional capacity of water operators through training programs, to be initiated in the first year of the project and continued periodically.

12.2.2 Security arrangements during implementations

- Expand community policing to monitor the construction site and surrounding areas, using trained youth volunteers and mobile reporting tools.
- Engage traditional leaders to mediate local tensions and support peaceful collaboration during project implementation.
- Strengthen local police capacity with training, equipment, and inclusion of female officers to ensure professional and inclusive site security.
- Link security to youth employment by involving local youth in construction-related jobs and vocational programs to reduce vulnerability.
- Coordinate border and checkpoint management to prevent unauthorized access and ensure safe movement of materials and personnel.
- Establish a local security information hub to track threats and enable rapid response during construction activities.

- Ensure humanitarian-security coordination to protect IDPs and maintain safe access for workers and service providers.
- Include women and displaced groups in site safety discussions to address specific protection needs.
- Leverage international partners for technical support and mentoring of local security actors, with a focus on sustainability.
- Promote accountability through clear complaint channels and transparent communication with the community about security measures.

12.2.3 Water Operators

These include the following:

- Consider environmental and social responsibilities during water expansion works in their respective districts particularly addressing water quality monitoring, waste management, and occupational health; (continuous through the project)
- Empower gender inclusion in water related decision making.by setting up inclusive water user committees within the first 12 months of project implementation, who shall be consulted throughout the project implementation

12.2.4 Contractors

These include the following:

- Contractors should develop and implement a Contractor ESMP for the project's construction phase.

In addition to the C-ESMP, contractors shall prepare and implement the following sub-management plans 1–3 months of mobilization:

i. Occupational Health and Safety Plan (OHS Plan)
ii. Waste Management Plan
iii. Traffic Management Plan
iv. Chance Find Procedure for Cultural Heritage
v. Community Health and Safety Plan
vi. Labor Management Plan (including workers' code of conduct and GBV/SEA measures)
vii. Emergency Preparedness and Response Plan

13 REFERENCE

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ANNEX

Annex 1: Stakeholder Engagement Log

Date	Location	Stakeholders Engaged	Key Issues Raised	Feedback/Response Provided

Annex 2 Grievance Redress Log Template

Grievance ID	Date Received	Complainant (if not anonymous)	Location	Nature of Complaint	Action Taken	Resolution Status	Date Closed

Annex 3: Labour registration forms

Worker ID	Full Name	Gender	Age	National ID/Refugee ID	Position/Role	Start Date	Contract Type	Verified by Site Supervisor

Annex 4: Environmental Monitoring Checklist Template

Monitoring Item	Indicator/Parameter	Frequency	Responsible Party	Monitoring Method	Notes
Air Quality	Dust levels (PM10/PM2.5)	Weekly	Contractor, MoEWR	Visual inspection, dust meter	During excavation and trenching
Water Quality	Turbidity, pH, E. coli levels	Monthly	Water Company, MoEWR	Lab sampling and testing	At borehole and distribution points
Noise Levels	Decibel readings (dB)	Weekly	Contractor	Sound level meter	Near construction machinery
Soil Erosion	Visual signs of erosion	Bi-weekly	Contractor	Field inspection	Post-rainfall and construction
Waste Management	Waste disposal practices	Weekly	Contractor	Site observation	Segregation, transport & disposal

Annex 5: Gender Action Plan (GAP) Matrix

Objective	Action Item	Indicator	Responsible Party	Timeline

Promote women's participation in workforce	Hire women in skilled and unskilled roles	% of women in workforce (target: 30%)	Contractor, MoEWR	Throughout
Prevent Gender-Based Violence (GBV)	Conduct SEA/SH and GBV awareness sessions	Number of sessions held; attendance logs	Contractor, NGO partner	Quarterly
Ensure safe access to WASH services for women	Install lighting near water points	Number of water points with lighting	Contractor	Construction
Support women's inclusion in decision-making	Engage women's groups in consultations	Number of meetings attended by women	PIU, Community Liaison	Bi-monthly
Monitor gender-specific impacts	Track benefits and grievances by gender	Gender-disaggregated data reports	M&E Officer, PIU	Monthly

Annex 6: Community Feedback Report Templates

Date	Location	Community Group/Individual	Feedback Summary	Action Taken	Follow-up Required	Responsible Party

Annex 7: Photos for Consultation Meetings

Kabasa IDP Camp Stakeholder Engagement Meeting

Figure 1: DWMC Engagement Meeting

Ladan IDP Camp Stakeholder Engagement Meeting

Kaharey IDP Camp Stakeholder Engagement Meeting

Qansaxley IDP Camp Stakeholder Engagement Meeting

FGD in Kabasa IDP Camp

UNICEF and other NGOs in Doolow Consultant Engagement Meeting in Dollow

Annex 8: Sample of Questionnaire Used

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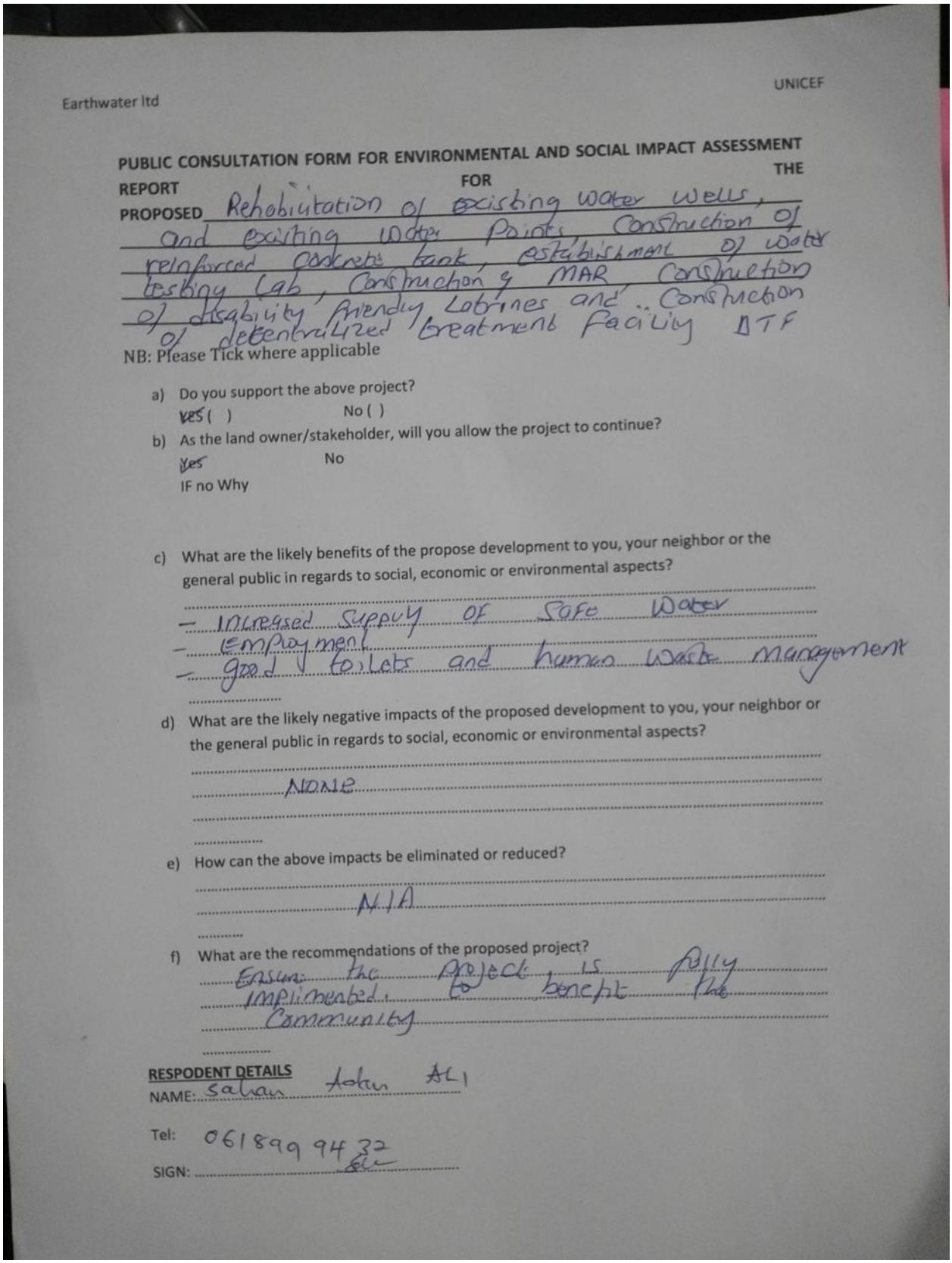


Earthwater ltd

UNICEF

PUBLIC CONSULTATION FORM FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED Rehabilitation of existing water wells, and existing water points, construction of reinforced concrete tank, establishment of water testing Lab, Construction of MAR Construction of disability friendly Latrines and Construction of decentralized treatment facility DTF

NB: Please Tick where applicable

a) Do you support the above project?
Yes ( ) No ( )

b) As the land owner/stakeholder, will you allow the project to continue?
Yes No
IF no Why

c) What are the likely benefits of the propose development to you, your neighbor or the general public in regards to social, economic or environmental aspects?
- Increased supply of safe water
- employment
- good toilets and human waste management

d) What are the likely negative impacts of the proposed development to you, your neighbor or the general public in regards to social, economic or environmental aspects?
NONE

e) How can the above impacts be eliminated or reduced?
N.I.A

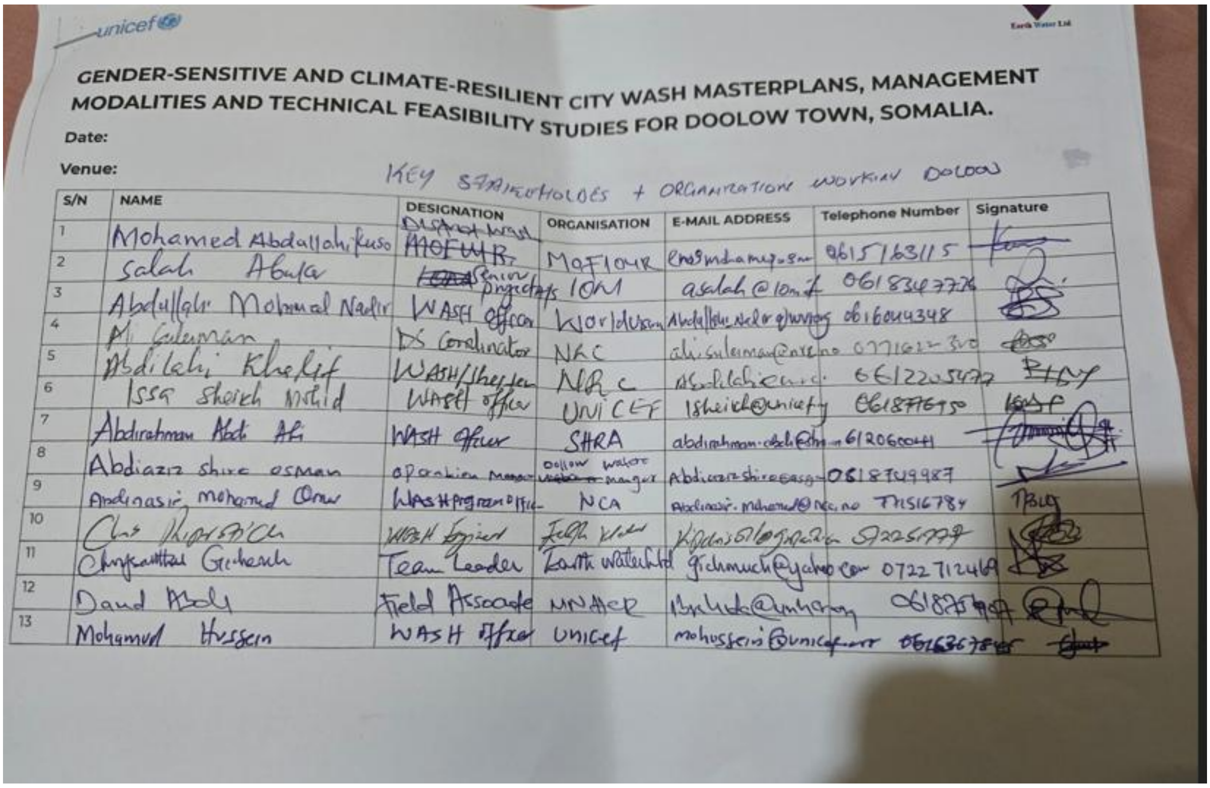
f) What are the recommendations of the proposed project?
Ensure the project is fully implimented. The benefit the Community

RESPODENT DETAILS
NAME: Salwa Isha Ali

Tel: 0618999432

SIGN:

Annex 9: Consultations Attendance Registers



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GENDER-SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR DOOLOW TOWN, SOMALIA.

Date:

Venue: KEY STAKEHOLDERS + ORGANIZATION WORKING DOLOW

S/N	NAME	DESIGNATION	ORGANISATION	E-MAIL ADDRESS	Telephone Number	Signature
1	Mohamed Abdallahi Fuso	District WASH MOEWR	MoEWR	[illegible]	0615163115	
2	Salah Abula	Senior Projects	IOM	asalah@iom.int	0618347776	
3	Abdullahi Mohamed Nadir	WASH Officer	World Vision	Abdullahi_Nadir@wvi.org	0616044348	
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5	Abdilahi Khalif	WASH/Shelter	NRC	[illegible]	0612205477	
6	Issa Sheikh Mohamed	WASH Officer	UNICEF	isheikh@unicef	0618776750	
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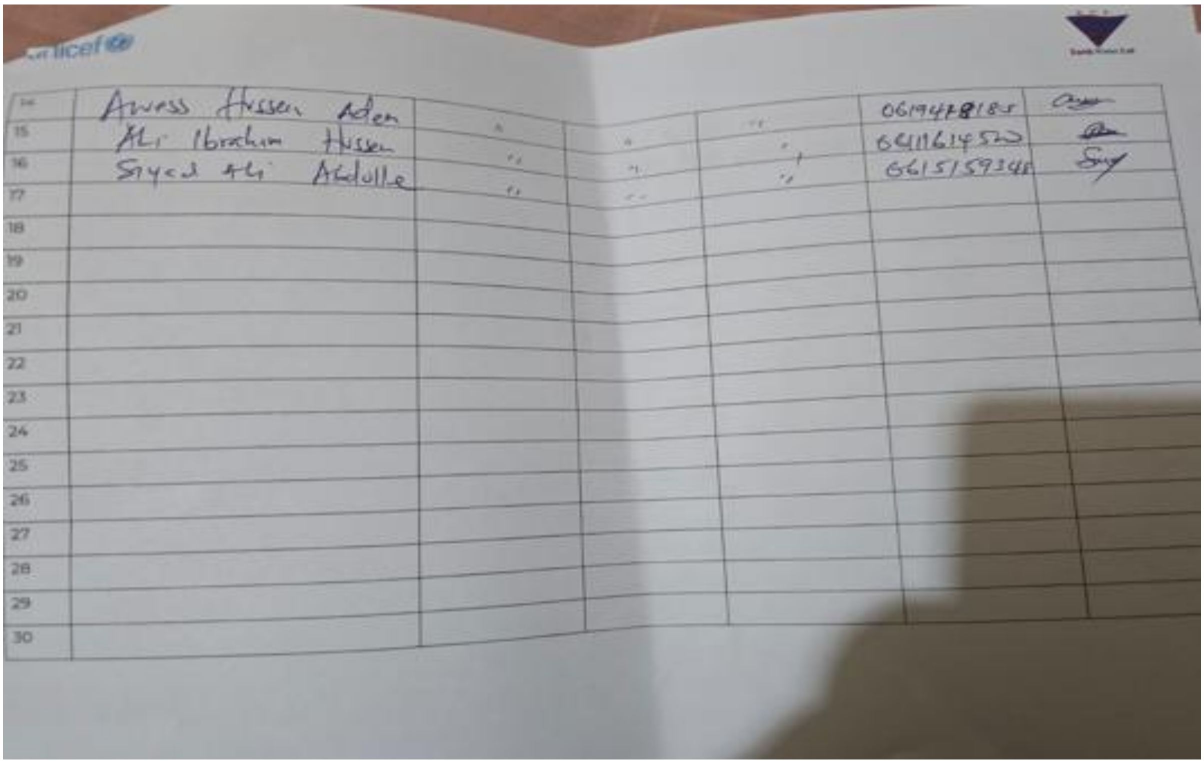
9	Abdinasir Mohamed Omar	WASH Program Officer	NCA	Abdinasir.mohamed@nca.no	771516784	
10	[illegible]	WASH Engineer	[illegible]	[illegible]	592251779	
11	[illegible] Gichuchi	Team Leader	Earth Water Ltd	gichmuch@yahoo.com	0722712469	
12	Daud Abdi	Field Associate	UNHCR	[illegible]@unhcr.org	0618751919	
13	Mohamud Hussein	WASH Officer	UNICEF	mohussein@unicef.org	0616367845	



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S/N	NAME	DESIGNATION	ORGANISATION	E-MAIL ADDRESS	Telephone Number	Signature
14	Awess Hussein Aden	"	"	"	0619478185	
15	Ali Ibrahim Hussein	"	"	"	0611614520	
16	Siyad Ali Abdulle	"	"	"	0615159348	
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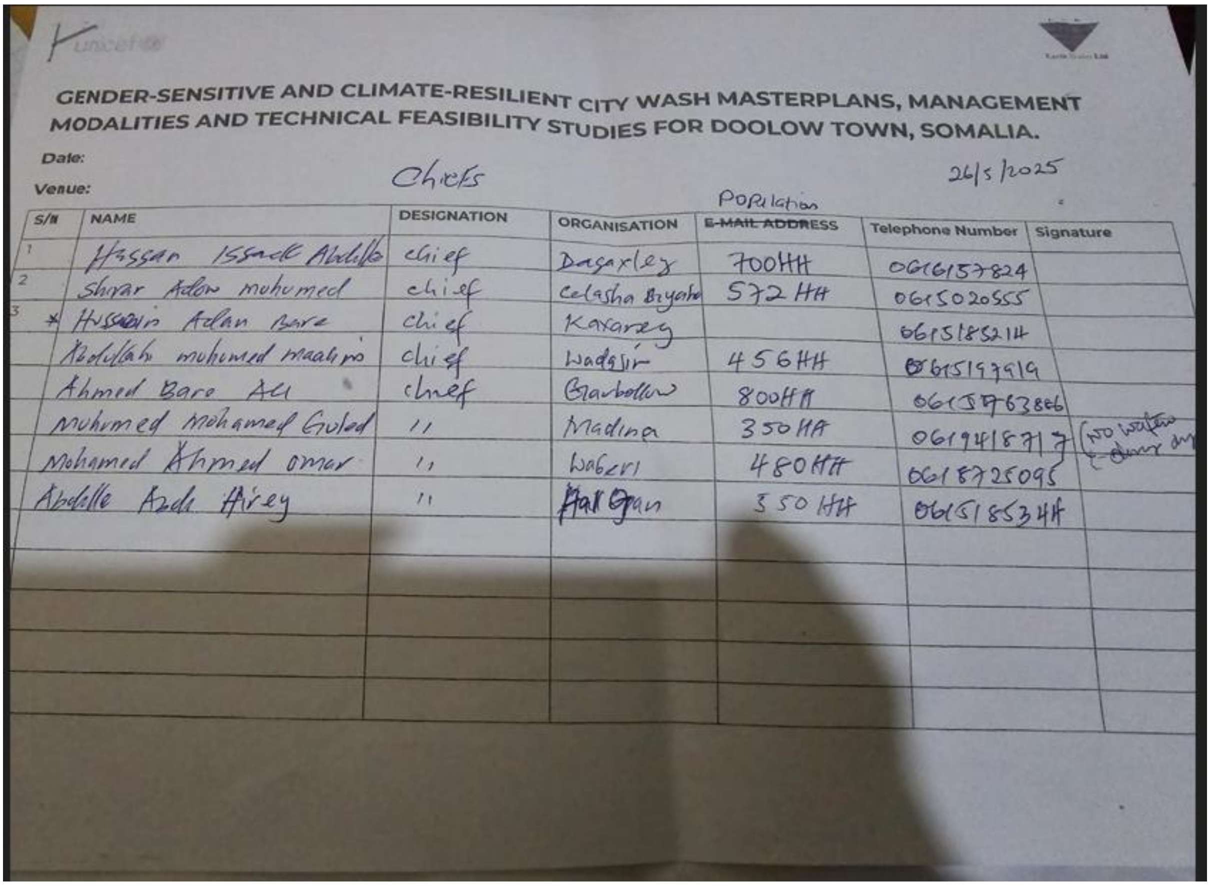

GENDER-SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR DOOLOW TOWN, SOMALIA.

Date: 26/5/2025

Venue: Chiefs

S/N	NAME	DESIGNATION	ORGANISATION	Population ~~E-MAIL ADDRESS~~	Telephone Number	Signature
1	Hassan Issack Abdille	chief	Dagaxley	700HH	0616157824	
2	Shirar Adow muhumed	chief	Celasha Biyaha	572 HH	0615020555	
3	* Hussein Adan Bare	chief	Kaxarey		0615185214	
	Abdullahi muhumed maalim	chief	Wadajir	456HH	0615197919	
	Ahmed Bare Ali	chief	Garbollow	800HH	0615763866	
	Muhumed Mohamed Guled	"	Madina	350HH	0619418717	(no water ...)
	Mohamed Ahmed Omar	"	Waberi	480HH	0618725095	
	Abdulle Aden Airey	"	Halgan	350 HH	0615185344	

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GENDER-SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR DOOLOW TOWN, SOMALIA.

Date:

Venue: KEY STAKEHOLDES + ORGANIZATION WORKING DOLOW

S/N	NAME	DESIGNATION	ORGANISATION	E-MAIL ADDRESS	Telephone Number	Signature
1	Mohamed Abdallahi Kuso	District WASH MOEWR	MOEWR	[illegible]	0615163115	
2	Salah Abula	Senior Projects	IOM	asalah@iom.int	0618349776	
3	Abdullahi Mohamed Nadir	WASH Officer	WorldVision	Abdullahi_Nadir@wvi.org	0616044348	
4	Ali Suleiman	DS Coordinator	NRC	ali.suleiman@nrc.no	0771622300	
5	Abdilahi Khalif	WASH/Shelter	NRC	[illegible]	0612205477	
6	Issa Sheikh Mohid	WASH officer	UNICEF	Isheikh@unicef.org	0618776950	
7	Abdirahman Abdi Ali	WASH Officer	SHRA	abdirahman.abdi@[illegible]	612060041	
8	Abdiaziz shire osman	operation Manager	Dollow water manger	Abdiaziz shire [illegible]	0618749987	
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24	Yahya Ali Abdullahi	G. Manager	DWMC	yahyafaqid114@gmail.com	0615019414	
25						
26	MEETING CAO	25/5/25				
27						
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