



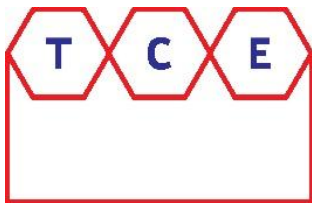
PREPARATION OF GENDER SENSITIVE AND CLIMATE-RESILIENT
CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND
TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH
GALKAYO, SOMALIA

CONTRACT NO. 43428762

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
(ESIA) FOR NEW PIPELINE EXTENSION AND REHABILITATION
OF THE EXISTING NETWORK - INSTALLATION OF CHAMBERS -
AIR VALVES, WASHOUTS, AND JUNCTIONS AND MARKER
POSTS IN QARDHO

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SUBMITTED BY



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Table of Contents

LIST OF FIGURES	V
LIST OF TABLES	V
LIST OF ABBREVIATIONS	VII
GLOSSARY	VII
E. EXECUTIVE SUMMARY	X
E.1 PROJECT INFORMATION	X
E.2 WATER PIPELINE INTERVENTIONS	XI
E.3 OBJECTIVES OF ESIA.....	XI
E.4 LEGAL AND POLICY REGULATORY INSTRUMENTS	XI
E.5 BASELINE SETUP	XVI
E.6 STAKEHOLDER CONSULTATIONS.....	XIX
E.7 PROJECT POSITIVE IMPACTS.....	XX
E.8 CONSTRUCTION PHASE NEGATIVE IMPACTS	XXI
E.9 OPERATION PHASE NEGATIVE IMPACTS	XXII
E.10 PROJECT CATEGORIZATION	XXII
E.11 ESIA RECOMMENDATIONS	I
1. BACKGROUND INFORMATION	1
1.1 PROJECT INFORMATION	1
1.2 THE PROJECT LOCATION.....	1
1.2.1 Project site description.....	1
1.2.2 Representation of the project pipelines	1
1.3 LOCAL ADMINISTRATION	1
1.4 OBJECTIVES OF ESIA.....	1
1.5 ASSESSMENT METHODOLOGY	2
1.5.1 Initial Screening and Baseline Assessment	2
1.5.2 Stakeholder Engagement.....	2
1.5.3 Impact Assessment Methodology	3
1.5.4 Impact Evaluation Methodology	3
1.5.5 Mitigation and Enhancement Measures	6
1.5.6 Management and Monitoring and Audit	6
2. PROPOSED PROJECT INTERVENTIONS.....	7
2.1 ESTIMATED PROJECT SHORT TERM INTERVENTIONS FOR QARDHO	7
2.2 PROPOSED PIPELINE EXTENSION AND REHABILITATION INTERVENTIONS	7
2.3 PROJECT ACTIVITIES RELATED TO CONSTRUCTION OF WATER SUPPLY INTERVENTIONS.....	9
2.3.1 Material for Pipe Laying.....	9
2.3.2 Water Pipelines Constructions activities.....	9
2.3.3 Equipment Required for Pipe laying	9
2.3.4 Excavation of Pipe Laying.....	10
2.3.5 Traffic Control Plan of Pipe Laying	11
3. SITE BASELINE INFORMATION	13
3.1 CLIMATE	13
3.2 PHYSICAL AND TOPOGRAPHIC CONDITIONS	14
3.2.1 The Project Town Location.....	15
3.2.2 Flood-Prone Areas in Qardho.....	17
3.2.3 Topography and Landscape	18
3.2.4 Geology and Soils	18

3.2.5	Vegetation Cover	19
3.2.6	Air Quality	20
3.2.7	Hydrology	20
3.3	BIOLOGICAL BASELINE DATA	20
3.3.1	Flora	20
3.3.2	Fauna	20
3.3.3	Environmental Sensitivity	21
3.4	SOCIAL BASELINE INFORMATION	21
3.4.1	Demographic Data:	21
3.4.2	Land Ownership:	21
3.4.3	Administrative Setup:	21
3.4.4	Infrastructure & Services:	21
3.4.5	Health Institutions in Qardho	21
3.4.6	Educational Institutions	22
3.5	SOCIO ECONOMIC BASELINE INFORMATION	22
3.5.1	Land Ownership and Settlements Patterns	22
3.6	WATER SUPPLY SITUATION	23
3.6.1	Water sources	24
3.6.2	Power / Energy Sources	24
3.6.3	Water Distribution	24
3.6.4	Water Storage	24
3.6.5	Water Treatment	25
3.6.6	Connections	26
3.6.7	Water supply Tariff	26
3.6.8	Non-Revenue Water	26
3.6.9	Water Supply Deficit	27
3.6.10	Gaps Identified	27
3.7	EXISTING WATER SERVICE PROVISION	28
3.7.1	The Ministry of Energy and Water Resources (MoEWR), Federal Government of Somalia	28
3.7.2	The Ministry of Energy, Minerals and Water (MoEMW), Puntland state	28
3.7.3	Municipal Authority of Qardho District	28
3.7.4	Puntland Water Development Agency (PWDA)	28
3.7.5	Qardho Water Company (HODMAN Co.)	28
3.8	INCOME, LIVELIHOODS AND EXPENDITURE	28
3.9	HEALTH	29
3.10	SECURITY	29
4.	POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK FRAMEWORKS.....	31
4.1	NATIONAL REGULATORY AND POLICY FRAMEWORK	31
4.1.1	The Provisional Constitution of the Federal Republic of Somalia	31
4.1.2	Legislation and Policies on the Environment and Social Sectors	32
4.1.3	The Somali Labor Code	33
4.1.4	Legislation and Policies for the Health Sector	34
4.1.5	Legislation and Policies for the Water and Sanitation	36
4.1.6	Provisional Constitution of Somalia (2012) – Land & Natural Resources	36
4.1.7	Puntland Land Policy (Draft, 2018)	37
4.1.8	Customary Land Tenure (Xeer Somali)	37
4.1.9	National Security & Safety Frameworks (Federal & Puntland Levels)	38
4.1.10	Urban Planning and Land Use Regulations (Municipal Guidelines, Puntland)	38

4.1.11	Conflict Prevention & Social Cohesion Policies (Puntland Development Plan, 2020–2024).....	38
4.2	INSTITUTIONAL CAPACITY FOR ENVIRONMENTAL MANAGEMENT IN FGS	38
4.3	Institutional and Stakeholder Framework for Environmental & Social Management in Somalia	39
4.4	KEY INTERNATIONAL INSTRUMENTS RATIFIED OR ACCEDED TO BY SOMALIA:	41
4.5	RELEVANT INTERNATIONAL LABOUR ORGANIZATION (ILO) AND HUMAN RIGHTS INSTRUMENTS	43
4.6	REGIONAL TREATIES RELEVANT TO GBV, SEA, VAC AND PERSONS LIVING WITH DISABILITY (PLWD)	44
4.7	AFRICAN DEVELOPMENT BANK INTEGRATED SAFEGUARDS SYSTEM)	44
4.8	COMPARISON BETWEEN THE FGS FRAMEWORKS AND OTHER INTERNATIONAL STANDARDS.....	48
5.	STAKEHOLDER CONSULTATIONS.....	50
5.1	IDENTIFIED STAKEHOLDERS AND THEIR ROLES	50
5.2	METHODOLOGY OF STAKEHOLDER ENGAGEMENT	51
5.3	STAKEHOLDER CONSULTATION SUMMARY	54
5.3.1	Key Informant Interviews	54
5.3.2	Focus Group Discussions	54
5.4	GOVERNMENT AND INSTITUTIONAL VISITS.....	55
5.5	PLANNED STAKEHOLDER ENGAGEMENT ACTIVITIES.....	56
5.5.1	Stakeholder Engagement Plan (SEP)	56
5.5.2	Project implementation phase	58
5.5.3	Project closure phase	59
5.5.4	Process to be followed for arranging engagement activities	60
5.5.5	Engagement protocols	60
6.	ANALYSIS OF ALTERNATIVES.....	61
6.1	ALTERNATIVE MATERIALS FOR WATER PIPES.....	61
6.1.1	Water Supply Pipes	61
6.1.2	Summary for Qardho pipeline alternatives.....	62
6.1.3	Design Alternatives (Pipe Material)	62
6.1.4	Location/Pipeline Routing Alternatives.....	63
6.1.5	Operating Conditions Alternatives.....	64
6.1.6	'No-Action' Option	64
7.	ASSESSMENT OF ENVIRONMENT AND SOCIAL IMPACTS	65
7.1	INTRODUCTION.....	65
7.2	PROJECT POSITIVE IMPACTS.....	65
7.2.1	Water Supply - Operation phase positive impacts.....	65
7.3	CONSTRUCTION PHASE NEGATIVE IMPACTS	66
7.3.1	Impacts on Water Resources	66
7.3.2	Impacts on Soil Resources	68
7.3.3	Impact on Air quality within the Air - Shed.	70
7.3.4	Impacts related to Noise and Vibration	72
7.3.5	Impacts on Flora	74
7.3.6	Impact Ranking.....	77
7.4	Traffic Management on Site	77
7.5	Waste Management on Site.....	79
7.6	Social Resources and Receptors.....	80
7.6.1	Workers, Community Health Safety and Security	80
7.6.2	Children Protection	84
7.6.3	Sexual Exploitation and Abuse (SEA)	84
7.7	OPERATION PHASES NEGATIVE IMPACTS.....	85

8.	ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMP) 87	
8.1	C-ESMPs AND SUB PLANS.....	87
8.2	LICENSES AND PERMITS (OCCUPATIONAL HEALTH AND SAFETY RELATED)	87
8.3	PURPOSE AND OBJECTIVES OF ESMP	88
9.	GRIEVANCE REDRESS MECHANISM.....	97
9.1	INTRODUCTION.....	97
9.2	PURPOSE OF GRM	97
	9.2.1 Purpose of Grievance Redress Mechanism (GRM)	97
9.3	OBJECTIVES OF GRM	98
9.4	GRM CORE PRINCIPLES	98
9.5	GRM FRAMEWORK.....	99
	9.5.1 Grievance Category	99
	9.5.2 GRM Provisions.....	100
9.6	GRM IMPLEMENTATION STEPS	101
9.7	INSTITUTIONAL RESPONSIBILITIES.....	108
9.8	MONITORING AND REPORTING.....	108
9.9	BUDGET FOR GRM IMPLEMENTATION.....	108
9.10	CONCLUSION	108
10.	FINDINGS AND PROVISIONS	108
10.1	ASSESSMENT RECOMMENDATIONS:	109
10.2	PRE-CONSTRUCTION SAFEGUARDS READINESS	109
	10.2.1 Permits and Licenses	109
	10.2.2 Engage ESHS Officers	109
	10.2.3 Preparation of C-ESMP and Sub Plan.....	110
	10.2.4 ESHS Training	110
10.3	GENERAL OUTCOME OF THE ASSESSMENT	110
	10.3.1 Positive Impacts Identified	110
	10.3.2 Medium and High Impacts Identified.....	111
	10.3.3 Mitigation to Ensure Sustainability.....	111
	10.3.4 Contrast: Positive vs. Negative Impacts	112
11.	APPENDIXES.....	113
	APPENDIX 1: STAKEHOLDER CONSULTATION	114
	(MINUTES, REPORTS, LIST OF ATTENDANCE)	114
	APPENDIX 2: MEETING PHOTOGRAPHS.....	123
	APPENDIX 3: ATTENDANCE LIST - QARDHO MEETING	124
	APPENDIX 4: KEY INFORMANT INTERVIEWS FORMS	126
	SCHEMATIC REPRESENTATION OF PIPELINE AREA	133

LIST OF FIGURES

Figure 1.1: Study Area of Qardho Town	1
Figure 1.2: Qardho Town, -Water supply	2
Figure 1.3 Qardho IDP, -Water supp	4
Figure 1.4 Pipeline path representation.....	1
Figure 1.5: Impact Assessment Process	2
Figure 2.1 Layout Plan of the Project Area with the Existing and Proposed Water Networks in Qardho.....	8
Figure 3.1: Relative Humidity of Qardho.....	14
Figure 3.2: Average High and Low Temperature in Qardho from 1981 – 2024	14
Figure 3.3: Annual rainfall for Qardho	14
Figure 3.4: Study Area of Qardho.....	15
Figure 3.5: Qardho Town, Pipelines project interventions	16
Figure 3.6 Flood mapping in Qardho	18
Figure 3.7: Beiyo-cadde Water Tanks for Qardho Town	25
Figure 9.1 Categories of Grievances.....	100
Figure 9.2 Grievance Flow in Basic GRM.....	106
Figure 9.3 Detailed GRM Flow Chart	107

LIST OF TABLES

Table E.1 Summary of the Proposed Pipeline Extension and Rehabilitation- Qardho	xi
Table E.2 Legal and policy regulatory Instruments relevant to ESIA.....	xi
Table E.3 Institutional Framework – Qardho New Pipeline Extension and Rehabilitation Project	xiii
Table E.4 ISS Operational safeguards	xvi
Table E.5: Key Informant Interviews	xix
Table E.6: Focus Group Discussions	xx
Table E.7: Public Meeting	xx
Table E.8 Construction Stage Negative Impacts and Mitigation Measures.....	xxi
Table E.9 Operation Phase Negative Impacts and Mitigation Measures	xxii
Table E.10 Environmental and Social Management Plan (ESMP) – Pipeline Extension & Rehabilitation Project, Qardho.....	i
Table 1.1 Steps in impact assessment methodology	3
Table 1.2: Impact characteristics	3
Table 1.3: Impact Type Definitions.....	4
Table 1.4: Definition of Likelihood	4
Table 1.5: Impact Significance	5
Table 2.1 Estimated Project Costs	7
Table 2.2: Summary of the Proposed pipeline extension and rehabilitation in Qardho	7
Table 2.3: Summary of Pipe laying Activities and E&S Risks	10
Table 2.4 Traffic Control Plan during Pipe Laying and Rehabilitation Works.....	11
Table 3.1: Pipeline Summary in Qardho.....	24
Table 3.2: List of storage tanks in Qardho Town.....	25
Table 3.3: Water Demand in Qardho Town	27
Table 4.1: Social operation safeguards provision.....	46

Table 4.2 Comparison of the FGS Frameworks vs other international standards adopted in this project	49
Table 5.1 Stakeholder Engagement Matrix	52
Table 5.2 Key Informant Interviews.....	54
Table 5.3: Focus Group Discussions.....	54
Table 5.5 Stakeholder Mapping Matrix	56
Table 5.6: Summary of planned stakeholder engagement in project implementation phase	59
Table 8.1: Pre-Mitigation Impact Assessment	66
Table 8.2: Residual Impact Significance	67
Table 8.3: Pre-Mitigation Impact Assessment	68
Table 8.4: Residual Impact Significance	69
Table 8.5: Ambient Particulate Matter (PM _{2.5} and PM ₁₀)	70
Table 8.6: Ambient NO _x SO _x , CO ₂ and O ₃	70
Table 8.7: Pre-Mitigation Impact Assessment	71
Table 8.8: Residual Impact Significance	72
Table 8.9. World Bank Group Noise Level Guidelines	72
Table 8.10: Pre-Mitigation Impact Assessment	72
Table 8.11: Residual Impact Significance	74
Table 8.12: Pre-Mitigation Impact Assessment	75
Table 8.13: Residual Impact Significance	76
Table 8.14: Pre-Mitigation Impact Assessment	82
Table 8.15: Residual Impact Significance	84
Table 9.1: C-ESMPs and Sub plans.....	87
Table 9.2: Permits and Licenses	87
Table 9.3: Environment and Social Management Monitoring Plan – Construction Phase Pipeline extension and Rehabilitation	90
Table 9.4: Environment and Social Management Monitoring Plan – Operation of water supply related Works	91
Table 9.5: Decommissioning Flow Chart.....	93
Table 9.6: Monitoring Plan – During Construction Phase.....	94
Table 9.1 Categories of Grievances.....	99

LIST OF ABBREVIATIONS

AfDB	African Development Bank
BOD	Biological Oxygen Demand
C-ESMP	Construction – Environment and Social Management Plan
CoC	Code of Conduct
DEWATS	Decentralized Wastewater Treatment Systems.
ESIRT	Environment and Social Incidence Reporting Toolkit
EHS	Environmental Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMP	Environment and Social Management Plan
FAO SWALIM	Food and Agriculture Organization of the United Nations (FAO) Somalia Water and Land Information Management
FGS	Federal Government of Somalia
GRC	Grievance Redress Committee
GM	Grievance Mechanism
GRM	Grievance Redress Mechanism
GPN	Good Practice Note
IDP	Internally Displaced Person
IFC	International Finance Cooperation
ILO	International Labour Organization
LACP	Land Acquisition and Compensation Plan
H&S	Health and Safety
MHM	Menstrual Hygiene Management
MOWDAFA	Ministry of Women Development and Family Affairs.
NGO	Non-Governmental Organization
NO _x	Sulphur Oxides
SO _x	Nitrogen Oxides
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SPD	Standard Procurement Documents
OHS	Occupational, Health and Safety
Pm	Particulate Matter
PPE	Personal Protective Equipment
PWDA	Puntland Water Development Agency
TMP	Traffic Management Plan
ToR	Terms of Reference
UNICEF	United Nations Children Fund
WB	World Bank
WBG	World Bank Group
WWTP	Waste Water Treatment Plant

GLOSSARY

Water Supply & Pipelines

- **Air Valves:** Devices installed on pipelines to release trapped air, preventing blockages and improving flow efficiency.
- **Appurtenances:** Accessories or components attached to a pipeline, such as valves, hydrants, chambers, and marker posts.
- **Backfill:** Material (like soil, sand, or gravel) used to refill an excavated trench after a pipe has been laid.
- **Borehole:** A deep hole drilled into the ground to extract groundwater.
- **Distribution Network:** The system of smaller pipes that carries water from main pipelines or storage tanks to consumers within a town or area.
- **Ductile Iron (DI) Pipe:** A strong, durable type of iron pipe often used for water mains, though heavy and expensive.
- **Easement / Right of Way (ROW):** A legal right to use a specific path across someone else's land, often used for utility lines like pipelines. The project aims to use existing road easements.
- **Fittings:** Components like elbows, tees, and couplings used to connect pipe sections or change direction.
- **Galvanized Steel (GI) Pipe:** Steel pipe coated with zinc to prevent rust, sometimes used for water lines but prone to corrosion over time.
- **HDPE (High-Density Polyethylene) Pipe:** A flexible, durable plastic pipe resistant to corrosion, often joined by heat fusion. It's the selected material for this project.
- **Hydraulic:** Relating to the flow and pressure of water within pipes.
- **Jointing:** The process of connecting pipe sections securely (e.g., using solvent cement for PVC, heat fusion for HDPE).
- **Marker Posts:** Visible posts installed along a buried pipeline route to indicate its location and prevent accidental damage.
- **Non-Revenue Water (NRW):** Water that is lost before it reaches the customer, due to leaks, theft, or metering inaccuracies. Reducing NRW is a key goal of rehabilitation.
- **PVC (Polyvinyl Chloride) / uPVC (Unplasticized PVC):** Common, rigid plastic pipe materials used for water supply, relatively low-cost but can be brittle.
- **Transmission Main:** A large-diameter pipeline that transports bulk water over longer distances, typically from the source (wellfield) to storage tanks or the distribution network.
- **Washouts:** Valves installed at low points in a pipeline to allow sediment to be flushed out.
- **Wellfield:** An area containing one or more wells or boreholes that supply water.

Environment & Construction

- **Alluvial Soils/Deposits:** Soil, sand, and gravel deposited by flowing water, found in wadis.
- **Aquifer:** An underground layer of rock or sediment that holds groundwater.
- **Ambient (Air Quality):** The general quality of the surrounding outdoor air.
- **Benching:** Excavating the sides of a trench in steps to prevent collapse.
- **Compaction:** The process of pressing soil or backfill material tightly to increase its density and stability.
- **Ephemeral (Wadi/Stream):** A watercourse, like Wadi Qardho, that only flows temporarily after rain.
- **Excavation:** The process of digging earth to create trenches or foundations.
- **Flora/Fauna:** Plant life (flora) and animal life (fauna) of a specific region.
- **Karstic Aquifer:** An aquifer formed in soluble rock (like limestone) with fractures and channels that hold water.
- **Particulate Matter (PM):** Tiny solid or liquid particles suspended in the air (like dust).
- **Riparian:** Relating to the banks of a river or wadi.
- **Sedimentation / Siltation:** The accumulation of soil particles (sediment) in water bodies.
- **Shoring:** Installing supports (like timber or metal plates) to prevent the walls of an excavation from collapsing.

- **Spoil:** Earth or rock material removed during excavation.
- **Topography:** The physical features and shape of the land surface.
- **Trenching:** Excavating long, narrow ditches for laying pipes.

Social & Assessment Terms

- **Bankable (Project):** A project considered financially sound and well-structured, suitable for investment.
- **Mitigation:** Actions taken to prevent, reduce, or compensate for negative project impacts.
- **Receptor:** Any person, community, environment, or resource potentially affected by the project.
- **Residual Impact:** The impact remaining *after* mitigation measures are implemented.
- **Sexual Exploitation and Abuse (SEA) / Sexual Harassment (SH):** Forms of gender-based violence involving abuse of power or unwanted sexual conduct.
- **Significance (of impact):** The overall importance or severity of an impact, based on its magnitude and the sensitivity of the receptor.
- **Stakeholder:** Any individual, group, or organization affected by or interested in the

E. EXECUTIVE SUMMARY

E.1 Project Information

The Federal Government of Somalia has applied for funding from the African Water Facility, to help improve adaptability to climate change and create society resilience through the Building Resilience to Climate Change through WASH in Qardho, Project. The Project will support immediate key interventions, undertake preparation studies for bankable projects, which will include identification of site-specific climate risks and vulnerabilities, determination of appropriate climate adaptation and mitigation measures including strengthening watershed and WASH management in the targeted towns of Qardho and its respective peripheral urban poor settlements and villages.

UNICEF Somalia appointed Tertiary Consulting Engineers Ltd in Joint venture with Vital Care Consultancy Limited to carry out the study in six months and come up with bankable investment projects to address the water and sanitation inadequacy in the city of Qardho.

The project- new pipeline extension and rehabilitation is set to cost \$375,000 for new pipeline extension drilling and \$260,000 for existing pipeline rehabilitation, totaling to \$635,000 for the cost of construction.

The cost of the projects ESMP implementation is estimated at **\$30,000**

E.1.1 Project Site Description: Pipelines

The project involves two main pipeline activities: the installation of a new transmission main and the rehabilitation of the existing distribution network.

1. New Transmission Pipeline Installation

This component involves laying a new primary pipeline to transport water from the wellfields to the town's storage reservoirs.

- **Exact Locality and Route:** The pipeline will originate from the new and existing borehole clusters, particularly the productive **Horyale wellfield** in the north and the **Aada wellfield** in the southwest. It will then follow the path of existing major roads towards the central storage tanks in Qardho town.
- **Geo-references (Approximate Route):**
 - **Start (Horyale Wellfield):** The route begins near the Horyale boreholes (e.g., around **Latitude 9.51°N, Longitude 49.06°E**).
 - **End (Central Town):** It terminates at the main reservoirs within Qardho town (approximate center around **Latitude 9.50°N, Longitude 49.08°E**).
- **Roads and Villages:** The pipeline will primarily be buried along the easement of the main access roads connecting the Horyale and Aada areas to the town center, minimizing the need for new land acquisition.

2. Existing Distribution Network Rehabilitation

This component focuses on replacing old, leaking pipes within the established neighborhoods of Qardho to improve efficiency and water pressure.

- **Exact Locality:** The rehabilitation work will take place within the existing water supply grid in the most densely populated parts of Qardho. This includes the central commercial district and residential estates like

Kuleejka, Xingood, and Warshada.

- As this involves a network, there is no single geo-reference. The project area is the existing town footprint, roughly centered around **Latitude 9.49°N, Longitude 49.08°E**.
- **Roads and Estates:** The work will be conducted under the existing streets and alleys of the town's established neighborhoods where the current water network is located.

E.2 Water Pipeline Interventions

The scope of works for Qardho pipeline extension and rehabilitation is stated in the **Table E.1** below.

Table E.1 Summary of the Proposed Pipeline Extension and Rehabilitation- Qardho

No.	Position/Description	Unit	Quantity
1	New pipeline extension - various sizes 200mm diameter to 12.5mm diameter including fittings and appurtenances	Km	15
2	Rehabilitation of the existing network - Installation of Chambers - Air valves, Washouts, and junctions and also Marker posts	No.	130

E.3 Objectives of ESIA

Reference is made to the African Development Bank adopted an Integrated Safeguards System (ISS) (also referred to as the “2013 ISS”, Amended in 2023) Environmental and Social Operational Safeguard 1: Assessment and Management of Environmental and Social Risk and Impact. The aim of this overarching Operational Safeguard (OS), together with the other Operational Safeguards (Oss) that complement it, is to mainstream environmental and social (E&S) considerations, including those related to climate change vulnerability. into Bank operations and thereby contribute to sustainable development in the continent. Therefore, the Objectives of the ESIA was done as per the AfDB and Somalia E&S laws.

E.4 Legal and Policy Regulatory Instruments

Federal Government of Somalia

The ESIA made reference to below listed Legal and Policy provisions in Federal Government of Somalia

Table E.2 Legal and policy regulatory Instruments relevant to ESIA

Instrument	Year	Brief Summary	Relevance to OS1 (E&S Assessment)
Constitution of Somalia	2012	Establishes the right to a clean and healthy environment (Art. 25) and obligates the state to protect ecosystems, biodiversity, and	Provides the constitutional mandate for ESIA and environmental governance; forms the legal foundation

		natural resources (Art. 45).	for safeguards.
National Environmental Policy (NEP)	2017	Aims to promote sustainable development through integrated environmental management, pollution control, and natural resource conservation.	Sets policy principles for environmental sustainability and supports project-level ESIA requirements.
Climate Change Policy	2020	Provides national direction for climate mitigation and adaptation, focusing on resilience in water, agriculture, health, and energy sectors.	Aligns projects with climate risk screening and adaptation planning under OS1.
National Adaptation Plan (NAP) Framework	Ongoing (post-2020)	Framework for implementing Somalia's adaptation priorities under the Paris Agreement.	Guides climate resilience measures in project design, as required in OS1.
Climate Change Education Policy	Draft (2020s)	Promotes awareness, curricula, and public engagement on climate change.	Supports capacity building and stakeholder engagement in safeguards process.
Environmental Management Bill	Draft (2020s)	Establishes environmental governance institutions, introduces a formal ESIA process, and defines penalties for non-compliance.	Core legal framework for ESIA compliance in Bank-financed projects.
Environmental Protection and Management Act	2024	Recently enacted, consolidates environmental protection measures, formalizes ESIA and environmental audits, and strengthens enforcement.	Provides a binding legal basis for ESIA, audits, and mitigation – directly mirrors OS1 requirements.
National Environmental Policy (updated)	2020 Draft	Updated NEP includes climate change, disaster risk reduction, and sustainable resource management.	Strengthens policy consistency with ISS safeguards.
ESIA and Audit Regulations	Draft/under adoption	Provide detailed procedures for conducting ESIA, audits, public participation, and disclosure.	Directly regulates screening, assessment, and monitoring (core of OS1).
Water Resources Law	2014 (Drafts earlier)	Governs sustainable use, allocation, and protection of water resources; prohibits pollution of water sources.	Relevant to water projects – sets standards for water quality, pollution prevention.
Forests and Wildlife Law	Draft/various	Provides for protection of forests, wildlife conservation, and biodiversity management.	Links to OS3 but triggered by OS1 screening; requires biodiversity considerations in ESIA.
Fisheries Law	1985 (revised drafts)	Regulates exploitation of marine resources, prohibits discharge of pollutants into coastal waters.	Ensures marine and coastal protection for projects affecting water bodies, aligned with OS1 + OS3.

Institutional Framework for bodies with direct relevance to the project

Table E.3 Institutional Framework – Qardho New Pipeline Extension and Rehabilitation Project

Institution/ Body	Type	Roles/ Influence on Project
Ministry of Environment & Climate Change (MoECC) – Federal Government of Somalia	Public (Federal)	National policy oversight on environment, climate change, and safeguards; custodian of the Environmental Protection and Management Act (2024) and ESIA regulations. Provides approvals and guidance for compliance with national laws relevant to AfDB OS1.
Ministry of Water Resources (MoWR) – Federal Government	Public (Federal)	Oversees water policy, water quality standards, groundwater/ water source protection, and water regulation at national level.
Ministry of Health (MoH) – Federal Government	Public (Federal)	Ensures water systems in the public institutions meet health and sanitation standards; oversees infection prevention and control.
Ministry of Education, Culture and Higher Education (MoE)	Public (Federal)	Ensures WASH infrastructure in schools meets education policy and hygiene standards; responsible for integration of hygiene awareness/ education.
Puntland Ministry of Environment, Agriculture and Climate Change (MoEACC)	Public (State – Puntland)	Direct state-level regulator in Qardho. Issues ESIA permits, monitors compliance, and enforces environmental management law. Primary institution for environmental approvals.
Puntland Ministry of Water and Energy (MoWE)	Public (State – Puntland)	Regulates water use, water supply, and sanitation infrastructure within Puntland. Supports technical oversight and alignment with water resources law.
Puntland Ministry of Health (MoH-P)	Public (State – Puntland)	Supervises sanitation, hygiene, and health safety within health institutions in Qardho; ensures medical water is safely treated.
Qardho District Local Government/ Municipality	Public (Local)	Provides permits for construction and land use; engages communities in planning; supports O&M (operation and maintenance) through municipal service frameworks.
African Development Bank (AfDB)	Development Financier	Project financier; requires compliance with 2013 ISS (and updated 2023 ISS). Provides technical guidance, safeguard screening, and monitoring during project lifecycle.
UNICEF Somalia/ Puntland Office	Development Partner	Supports WASH programming in schools and health centres; often co-funds or provides technical support in sanitation projects.
FAO Somalia	Development Partner	Implements water/land resource management projects; relevant for climate-resilient design and

		technical assistance on water reuse.
NGOs (e.g., ADRA, CARE, NRC, local NGOs)	Non-state / Implementing partners	Active in Qardho on WASH-in-Schools and health facility sanitation; potential implementers for community engagement, training, and system operation.
Private Contractors/ Consultants	Private	Design and construct New Pipeline Extension and Rehabilitation; provide O&M training; ensure technical compliance with ESMP/ESIA.
Community Groups (Hospital Boards, School Management Committees, Parent Associations, Water User Committees)	Civil Society	Key stakeholders for project acceptance, monitoring, and sustainability; ensure local ownership, report grievances, and participate in decision-making.
Academic/Research Institutions (e.g., Puntland State University)	Academia	Provide technical expertise, research on water management, training programs for students and professionals.

The African Development Bank Integrated Safeguards System (ISS) and Somali E&S Laws

This ESIA follows the following Somali E&S laws and the AfDB ISS standards

Somalia Environmental laws relevant to the project

1. Provisional Constitution of the Federal Republic of Somalia (2012)

- **Article 25:** Every person has the right to an environment that is not harmful to their health and well-being.
- **Article 45:** The Federal Government must give priority to the protection, conservation, and preservation of the environment against anything that may cause harm to natural biodiversity, ecosystems, or the environment.

2. Environmental Management Bill (Draft, 2020s)

- Somalia has developed a draft **Environmental Management Bill**, with support from UNEP/UNDP. It establishes an **environmental and social impact assessment (ESIA) system**, requiring screening, assessment, mitigation, and monitoring before project approval.

3. National Environmental Policy (NEP) – 2015 (updated 2020 in draft form)

- Sets out principles for sustainable development, including pollution control, ecosystem protection, and ESIA requirements. It recognizes the need for environmental safeguards in development projects (water, energy, infrastructure).

4. Somali Environmental and Social Impact Assessment (ESIA) Regulations (under development)

- Somalia (through the Ministry of Environment & Climate Change) has been developing **ESIA regulations** that:
 - Define categories of projects requiring ESIA.
 - Outline consultation and disclosure obligations.
 - Specify review and approval roles.

5. Puntland Environmental Management & Climate Change Laws

The state-level laws and regulations that apply:

- Puntland has its own **Environmental Management Law (2016)**, which requires:
 - Environmental impact assessments for major projects.
 - Pollution control and waste management standards.
 - Institutional oversight through the Puntland Ministry of Environment, Agriculture and Climate Change.

AfDB ISS standards

In 2013, the African Development Bank adopted an Integrated Safeguards System (ISS) also referred to as the “2013 ISS”, Revised 2023), which established the Bank Group’s commitment to sustainable development, consolidating and building on the Environment (2004) and Involuntary Resettlement (2003) safeguard1 policies, as well as cross-cutting policies and strategies on gender (Gender Strategy for 2021–2025, “Investing in Africa’s Women to Accelerate Inclusive Growth”), and then the Civil Society Engagement Framework (2012).

The updated ISS improves the consistency of the Bank’s approach to key thematic issues, Environmental and Social Assessment (ESA), and stakeholder engagement activities by adopting 10nr Oss. The 10nr E&S OSs set out the requirements for Borrowers relating to the identification and assessment of E&S risks and impacts associated with operations supported by the Bank.

The ten E&S OSs establish the standards that Borrowers shall meet, as appropriate, in projects, activities, and initiatives supported through Bank financing throughout the life cycle of operations, the OS are summarized below.

Table E.4 ISS Operational safeguards

No	OS	Provisions
1	Operational Safeguard 1	Assessment and Management of Environmental and Social Risk and Impact
2	Operational Safeguard 2	Labour and Working Conditions
3	Environmental and Social Operational Safeguard 3	Resources Efficiency and Pollution Prevention and Management
4	Environmental and Social Operational Safeguard 5	Community Health, Safety and Security
7	Environmental and Social Operational Safeguard 8:	Vulnerable Groups
10	Environmental and Social Operational Safeguard 5	Stakeholder Engagement and Information Disclosure

E.5 Baseline Setup

In Qardho Town the water supply is managed by Hodman Water Management (HODMAN Co.) which is a private water company established in 2006 with the mandate to provide safe drinking water and expand water services to all of Qardho town. The Water Utility provides water to the population and nomads living in the surroundings of the town and their cattle through operating, managing and connecting the water supply system to the customers of the city of Qardho and distributing the waters to the nomads. HODMAN Co. operates under a 10-year lease agreement of the State-owned infrastructure under the close supervision of Puntland Water Development Authority (PWDA). HODMAN is responsible for operation and maintenances for water supply systems.

The Puntland Ministry of Energy, Minerals, and Water Resources (MoEMWR) plays a vital role in Puntland's socio-economic development by managing and promoting the utilization of natural resources like water, energy, and minerals. Specifically, the ministry's functions include formulating policies, managing resources, and coordinating development in these sectors, all while ensuring sustainable practices.

Qardho town's primary surface water source is the Kubo River, which experiences frequent flooding due to urbanization impacting its water flow capacity. The town primarily relies on groundwater sources, specifically boreholes, for its water supply. These boreholes are a key component of the town's water infrastructure, ensuring a regular supply to the community. There are 12 number boreholes which collects water to one overhead painted steel panel tank installed on a reinforced concrete frame 10,0 m high. However, out of the 12 only 8 boreholes are functional while 2 have been faced out due to flooding effects.

There are 12 no boreholes abstracted as ground water source for Qardho town. Based on each borehole yield in Table 3.1 the approximate yield per day based on the numbers of hours the pump is working 2,820 m³ per day. Water from the boreholes Water is pumped directly to

elevated steel tank of 550m³ capacity located in Beiyo-cadde area at an elevation of 8 meters high. All the boreholes have been fitted with 100mm diameter steel pipes that draw water from the deep boreholes. There exist other smaller elevated concrete tanks located within the borehole sites which are currently not in use due to excessive leakage.

Qardho town is situated within the Ariel valley. The town is generally surrounded by high rises of limestone rocks, with the valley traversing the town from the north east to the south west. The town is basically located on a deposition zone. Within the valley bed, where Qardho town is situated, the terrain is generally flat with gentle sloping plains towards the North-East. In the north, parallel to the Gulf of Aden coast is a maritime plain varying in width from roughly twelve kilometers in the west to as little as two or three kilometers in the East. Scrub-covered, semi-arid, and generally drab, this plain, known as the Guban (burnt land), because of its heat and dryness during much of the year. It is crossed by broad, shallow watercourses that are beds of dry sand except in the rainy seasons. Inland from the gulf coast, the plain rises to the precipitous north-facing cliffs dissected by highlands. These form rugged mountain ranges that extend from Somalia's northwestern border with Ethiopia, eastward to the tip of the Horn where they end in the sheer cliffs of Caseyr.

Current situation in Qardho (water supply / pipelines)

1. Pressure from IDPs and Host Communities

Qardho hosts a large number of internally displaced persons (IDPs), which has placed additional pressure on water supply and related infrastructure. The population of Qardho city is estimated at 185,000, with the wider district population reaching around 300,000. As of April 2024, an IDP site verification exercise confirmed the presence of 19,757 individuals across 12 verified IDP sites in Qardho. This influx has strained already limited water, sanitation, and hygiene (WASH) services, creating increased demand that exceeds current supply capacity.

2. Feasibility and Planning Underway

To address these challenges, the "Building Resilience to Climate Change through WASH in Qardho, Dollow and South Galkayo" project has been approved, with funding dedicated to improving water supply and sanitation services. The project scope includes feasibility studies, detailed design work, and the preparation of WASH masterplans. In addition, the initiative aims to strengthen the technical and institutional capacity of local water utilities to better manage and sustain service delivery.

3. Damage from Flooding and Environmental Factors

Qardho is highly vulnerable to flash floods, which frequently damage or disrupt local infrastructure such as roads and boreholes. Heavy rains often overwhelm drainage systems, leading to contamination of water sources and damage to boreholes that supply parts of the population. These environmental shocks have contributed to

recurrent service interruptions, leaving communities exposed to water shortages and increased health risks.

4. Alternative and Supplemental Sources

In response to recurrent water shortages, alternative water harvesting and storage systems have been developed in rural and peri-urban areas, including dams, catchments, and solar-powered pumping systems supported by organizations such as FAO Somalia through its Water and Land Information Management (SWALIM) program. While some boreholes and shallow wells are functional or undergoing rehabilitation, many remain non-functional, are not connected to a reliable piped distribution network, or are costly to operate due to fuel and maintenance expenses. Moreover, water quality from these sources is inconsistent and often unreliable.

5. Community and Governance Issues

Urban planning challenges further complicate water infrastructure development in Qardho. Weak enforcement of planning regulations has led to the encroachment of buildings into natural waterways, construction of unpermitted structures, and developments over drainage channels. These issues worsen flood impacts and hinder the protection of pipelines and other infrastructure. At the same time, regulatory and institutional capacity in the water sector remains weak, underscoring the need

Water supply infrastructure in Qardho

Primary Water Sources and Infrastructure

The primary source of water for the population in Qardho is groundwater, accessed through a mix of boreholes and wells. Deep wells and boreholes are considered the most reliable sources, though they require a power supply—historically diesel generators, but increasingly solar panels are being adopted to reduce costs and improve sustainability. Shallow wells are also used by some communities; however, they are highly vulnerable to contamination from flooding and poor sanitation practices, and many remain unprotected, posing significant health risks. To supplement groundwater and address water scarcity during the dry seasons, water harvesting and storage systems such as dams and ponds have been developed to capture seasonal rainwater. These systems are often managed by communities and are progressively being equipped with solar-powered pumps to minimize dependence on expensive fuel.

Water Distribution Network

The distribution of water in Qardho relies on a combination of formal and informal systems. In some established parts of the town, piped water networks exist, though their coverage is limited and does not extend to the entire population. For communities not served by these networks, particularly those in remote areas and IDP camps, water is delivered through trucking, a system that is essential but often costly for residents. Additionally, communal water points play an important role in distribution, providing access to water for households that are not directly connected to the piped system.

Current Conditions and Challenges

The water distribution infrastructure in Qardho faces multiple challenges that undermine access, quality, and long-term sustainability. Much of the existing infrastructure, including boreholes and piped networks, is in poor condition and lacks proper maintenance, with many systems requiring rehabilitation and expansion. The high cost of operations further strains the sector, as reliance on diesel generators for pumping places a heavy financial burden on communities, and while solar-powered systems offer a more sustainable alternative, their initial costs remain a significant barrier. The infrastructure is also highly vulnerable to natural hazards such as flash floods, which frequently damage boreholes, contaminate water sources, and disrupt supply. Access remains limited for many communities, particularly those in IDP camps and remote areas, forcing them to rely on unsafe or expensive alternatives. Water quality adds to the concern, with groundwater sources often showing high salinity and contamination from unprotected wells and inadequate sanitation, contributing to the spread of waterborne diseases. Compounding these challenges is weak institutional capacity within the water sector, marked by limited funding for maintenance, management, and long-term planning.

E.6 Stakeholder Consultations

A total of 5 key informant interviews and 6 Focused Group Discussions (FGD) were conducted with representatives from the following sectors. Additionally, Public participation forums were held on 3rd September 2025 At Mayor Office Qardho.

Table E.5: Key Informant Interviews

Date	Stakeholder/Office Visited	Key Issues Discussed
12 th June 2025	Ministry of Women Development and Family Affairs (MOWDAFA) - Qardho-Social Department	Women's representation in WASH planning, lack of menstrual hygiene services, need for gender mainstreaming in local development plans.
11 th June 2025	Qardho Municipality (Mayor's Office & Public Works Dept.)	Infrastructure gaps, urban sanitation planning, challenges in maintaining public toilets.
9 th June 2025	Ministry of Water and Environment - Hoodman Water Management Company	Access to clean water, distance to water points, maintenance issues, low women involvement in user committees.
12 th June 2025	Ministry of Health - Shabeellee Health Centre	WASH-related health concerns, diarrhoea outbreaks, link between sanitation and maternal health.
13 th June 2025	Local NGOs (including women's associations)	Gender-based violence risks at water points, lack of sanitary pads, women's limited access to funding.

Table E.6: Focus Group Discussions

Date	Group Composition	Key Themes
12 th June 2025	Women from IDP camps (5 participants)	Long distances to water points, lack of safety and privacy at latrines, stigma around menstruation.
11 th June 2025	Waste services provider	Poor school sanitation, need for capacity building, establishment of recycling facilities
16 May 2025	Men and male youth (community leaders)	Limited awareness of gender-specific needs in WASH, support for improved community hygiene.
12 th June 2025	Mixed group: nurses, CHWs	Importance of inclusive WASH education, role of schools and health centers, capacity-building needs.

Table E.7: Public Meeting

Suggestion / Question	Response
<i>Community Members</i> wanted to be informed How do you plan to mitigate the noise and air pollution from construction vehicles and drilling machinery, especially in residential areas, during the initial implementation phase?	Residents were informed that during implementation of the project there is a plan to limit and minimize noise. For air pollution, we will use modern, well-maintained vehicles and water down construction areas to control dust.
<i>Community Members</i> wanted to know if youths in the area will get employment opportunities during project implantation.	Residents were informed that all unskilled labour and some skilled will be sourced from the local community. Youths were encouraged to organize themselves into groups and avail themselves for the job opportunities for consideration.

In addition to interviews, visits were made to:

- District Administration Office: Discussed governance and coordination of basic services.
- Water Service providers and Boreholes: Observed operation, tariff practices, and community usage patterns.
- Health Centers and IDP Camps: Inspected hygiene facilities, water availability, and MHM provisions.
- Women's Centers and Safe Spaces: Engaged with service providers supporting GBV survivors and awareness programs.

E.7 Project Positive Impacts

Construction phase positive impacts

- Employment Creation: At construction stage, an estimate 50-80 workers will be deployed per site to help in construction and land preparation activities. This will include both skilled and unskilled personnel especially from the local population.
- Income/Revenue to Government: Income to government will be realized in terms of taxes generated during the acquisition of relevant statutory licenses such as Water

Abstraction / Borehole Drilling Permit, Environmental Compliance Certificate (ECC) / Environmental Clearance, Land Use / Site Clearance Permit, Construction Permit, Water Quality and Safety Approval, Occupational Health & Safety Compliance, Community Agreement / Consent (Social License to Operate. Materials to be used during construction will also be taxable through revenues generated, the government will be capable of financing its responsibility to her citizens.

- Income to Other Businesses: During implementation of the project, there will be need for transporters, suppliers of raw materials and other service providers, who will benefit from the proposed development.

Water Pipeline Extension and Rehabilitation: Operation phase positive impacts

- Availability of water for domestic use, the project will ensure a reduction in the distance between the various households and the water collection points as compared to the long distances initially covered from the homesteads to water points. The estimated number of beneficiary households from the pipelines project is approximately **20,000**.
- Reduction in poverty levels of many households, this will be as a result of the availability of reliable water for domestic use, households will therefore engage more time in other income streams.
- Employment opportunities will be created both to those working directly along the pipeline route.
- Improved public hygiene and sanitation and at home because of water availability.

E.8 Construction Phase Negative Impacts

A summary of negative Impacts anticipated during construction stage are summarized in the table below.

Table E.8 Construction Stage Negative Impacts and Mitigation Measures

Negative Impact	Impact Ranking	Mitigation Measures
Water resource contamination (spills, leakage, slurry)	High	Proper containment of drilling slurry; safe storage of fuels/lubricants; quick cleanup of spills.
Soil disturbance and erosion	Medium	Controlled excavation; timely backfilling; soil stabilization and revegetation.
Air pollution (dust, emissions)	Medium	Regular watering of dusty areas; well-maintained machinery; limit idling of vehicles.
Noise and vibration disturbances	Medium-High	Restrict works to daytime hours; use low-noise equipment; provide PPE to workers.
Vegetation loss	Low-Medium	Minimize clearance; restrict works to defined areas; replant trees/shrubs where feasible.
Traffic disruption	High	Implement Traffic Management Plan; signage, diversions, phased works.
Solid and liquid waste generation	Medium	Segregate, collect and dispose waste properly; recycle materials where possible.
Occupational health & safety	High	Provide PPE; train workers; enforce site safety

risks		procedures and emergency plans.
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E.9 Operation Phase Negative Impacts

Table E.9 Operation Phase Negative Impacts and Mitigation Measures

Impact Area	Anticipated Negative Impacts	Characteristics
Water Resources	- Risk of leakages or bursts leading to water loss or localized flooding. - Potential contamination if leaks interact with untreated water or runoff.	Medium significance; can affect service reliability and local users.
Soil Resources	- Minor erosion or localized soil degradation around pipeline access points during maintenance.	Low to medium; limited to maintenance sites.
Air Quality	- Emissions from maintenance vehicles or generators used for pumping or monitoring.	Low; intermittent, short-term emissions.
Noise and Vibration	- Noise from pumping stations or maintenance activities.	Low; intermittent and localized.
Vegetation/ Flora	- Disturbance along pipeline right-of-way during maintenance.	Low; mainly in areas where vegetation regrows over pipelines.
Community & Safety	- Risk of accidental contact with exposed pipelines during repairs. - Tripping hazards near pipeline markers or access points.	Medium; can be managed with proper signage and fencing.
Socioeconomic/ Access	- Temporary disruption of access to properties during maintenance or emergency repairs.	Low; limited duration and scope.
Waste Generation	- Minor generation of maintenance wastes : used lubricants, repair materials, damaged pipes.	Low; requires proper disposal.

E.10 Project Categorization

Under the African Development Bank's Integrated Safeguards System (2023), this project is classified as **Environmental Category 2**, a designation for initiatives likely to cause site-specific, reversible, and readily mitigated impacts. Similarly, Somalia's national legal and policy framework, including the Environmental Protection and Management Act (2024), designates it as a **Medium-Risk Project**, which is the national equivalent of the AfDB's Category 2. This consistent classification is driven by key project features such as the planned wastewater discharge, generation of solid waste, temporary construction disturbances like dust and noise, and localized effects on the biodiversity and ecosystem services of Wadi Qardho, thereby triggering multiple operational safeguards and requiring the preparation of an Environmental and Social Management Plan (ESMP) or a preliminary environmental assessment pending final regulatory screening. The potential adverse impacts are moderate, local, and reversible, and can be effectively mitigated through a well-prepared ESMP covering:

- Water resource protection and quality monitoring
- Safe handling and disposal of chemicals and laboratory wastes

- Occupational health and safety safeguards
- Community engagement and grievance mechanisms

Table E.10 Environmental and Social Management Plan (ESMP) – Pipeline Extension & Rehabilitation Project, Qardho

Project Activity	Potential Environmental / Social Impacts	Mitigation Measures	Responsible Party	Monitoring/Frequency	Monitoring Budget (USD)
Trenching & Pipe Laying	Soil erosion, dust; disruption of access to properties; damage to roads or other utilities.	Use dust suppression; provide temporary access bridges; clearly mark trenches; coordinate with other utility providers.	Contractor / Project Engineer	Daily checks on access and safety signage; weekly erosion control inspection.	\$500 (for project duration)
Pipe Jointing & Pressure Testing	Future leakages from poor joints; safety hazards from potential pipe bursts during testing.	Use certified technicians for jointing; conduct phased pressure increase; clear testing area of personnel.	Contractor / Project Engineer	Visual inspection of all joints before backfilling; direct supervision of pressure tests.	\$400 (for project duration)
Management of Excavated Spoil & Old Pipes	Improper disposal of old pipes (potential hazardous materials); soil blocking drainage or roads.	Test old pipes before disposal; stockpile soil properly and reuse for backfilling; transport excess spoil to approved sites.	Contractor / Project Manager	Weekly inspection of stockpile management and disposal activities.	\$200 (for project duration)
Connection & Service Interruption	Temporary loss of water supply to the community during connection to the main network.	Provide advance public notice of shutdown timing and duration; supply alternative water sources (e.g., tankers).	Contractor / Community Liaison	Daily confirmation that community notifications have been issued.	\$300 (for project duration)
Community Interaction / Access	Disruption to local traffic, pedestrian movement, and access to homes and businesses along the route.	Inform community of schedules; provide safe, clearly marked crossings and pathways over trenches.	Contractor / Community Liaison	Daily monitoring of access points and community feedback during construction.	\$1,500 (for project duration)
Health & Safety	Occupational hazards (trench collapse); public safety risks (falling into open trenches).	Provide PPE; ensure proper trench shoring/sloping; securely fence off the entire work corridor.	Contractor / Safety Officer	Daily checks on PPE use, trench safety measures, and site fencing.	\$1,800 (for project duration)
Pipeline Operation & Maintenance	Water loss from leaks; contamination from illegal connections or breaks.	Conduct regular leak detection surveys; maintain valves and chambers; establish a rapid repair protocol.	Local Water Committee / Utility Operator	Monthly leak detection walks along the pipeline route.	\$75 (per month)
Community Awareness & Engagement	Conflicts; illegal tapping/connections to the new pipeline; misuse of water resources.	Conduct awareness sessions on water conservation and the dangers/consequences of illegal connections.	WASH Project Team / Local Authorities	Quarterly community feedback sessions.	\$400 (per quarter)

E.11 ESIA Recommendations

Assessment Recommendations:

- The Bid documents prepared for the Project incorporate the Environment, Social Health and Safety Provisions discussed under Chapter 7 of this report (Environment and Social Impact Assessment and Mitigation Measures).
- The contractors through the support of ESHS officer will ensure that all workers sign Code of Conduct (CoC) before site deployment
- The supervising and contractor will undertake training of personnel on Environment, Social, Health and Safety matters tailored to the Project Scope prior to commencement of works
- The contractor will through the ESHS officer apply the provision of Environment and Social Management Toolkit (ESIRT) in management of incidences and accident's during project implementation stage
- The contractor will prepare monthly and quarterly reports on status of implementation of Environment and social compliance measures discussed in this report.
- Contractor will be required to commit to implementing the Environment, Social Health and Safety (ESHS) Provisions by;
 - - i. Hiring ESHS officers,
 - ii. Developing site specific (C-ESHS) and Sub Plans as listed
 - iii. Implement Provisions of the Plans and Undertake Monthly and Quarterly reporting of ESHS compliance.

1. BACKGROUND INFORMATION

1.1 Project Information

Qardho is a historic and culturally significant town in Somalia's semi-autonomous Puntland state, serving as the administrative capital of the Karkaar region. Historically a key territory within the Majeerteen Sultanate, its legacy continues to shape its socio-political landscape. The town's economy is primarily based on livestock and pastoralism, supplemented by growing commerce due to its strategic location on a major trade route.

Governed by a local council under the Puntland state, Qardho faces challenges such as the need for improved water infrastructure and the impacts of climate change, which are being addressed by various development projects. The population is predominantly from the Harti-Darod clan, specifically the Majeerteen sub-clan. As a cultural hub with growing educational institutions, including a university campus, Qardho remains a vital center of Somali tradition and development in the region.

The Terms of Reference (ToR) for this project stress the urgent need to develop climate-resilient, scalable, and context-appropriate solutions for Qardho. This includes decentralized wastewater treatment systems (DEWATS), fecal sludge treatment plants (FSTPs), and resilient on-site sanitation options, particularly for high-risk, flood-prone, and informal settlements. The master plan must also integrate land use, population projections, and infrastructure planning while promoting community engagement and institutional coordination.

To address these gaps, the Federal Government of Somalia – with support from the African Water Facility – is implementing the “Building Resilience to Climate Change through WASH in Qardho” project.

1.2 The Project Location

The pipeline extension and rehabilitation project is located in Qardho town, which lies within the catchment of Wadi Qardho (also known as Togga Qardho), a prominent seasonal river (Qardho river) that flows through the heart of the town. This river, although dry for most of the year, becomes active during the rainy seasons, often carrying flash floods that affect low-lying areas and informal settlements along its banks. Qardho is definitely situated in a broad, shallow natural valley formed by seasonal watercourses.

Qardho valley collects runoff from the surrounding highlands and plateaus, channelling it through seasonal rivers and gullies that feed into Togga Qardho during the rainy season. The location of the town is as presented in the figure below in the Federal Republic of Somali.

The town is located at approximately 237 km South of Bosaso port city. The distance from Qardho to Somalia's Capital City of Mogadishu is approximately 1,153 km and 205 KM from Garowe City the administrative capital of Puntland State. The town 's Global Positioning System is at Longitude 9° 30' 02" Latitude 49° 05' 31".

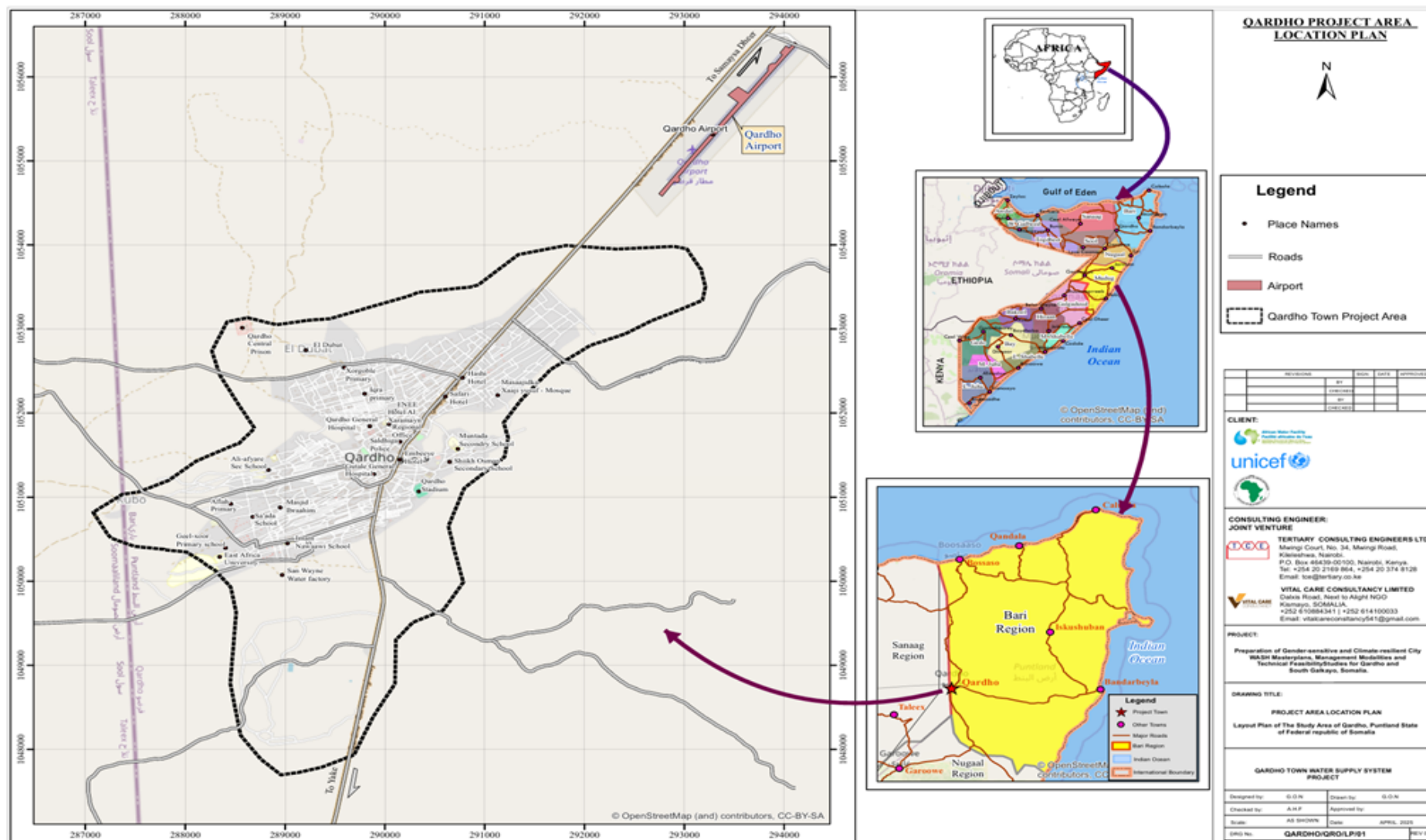


Figure 1.1: Study Area of Qardho Town

The Town of Qardho- with the proposed pipeline drilling and extension interventions is as presented in the figure below;

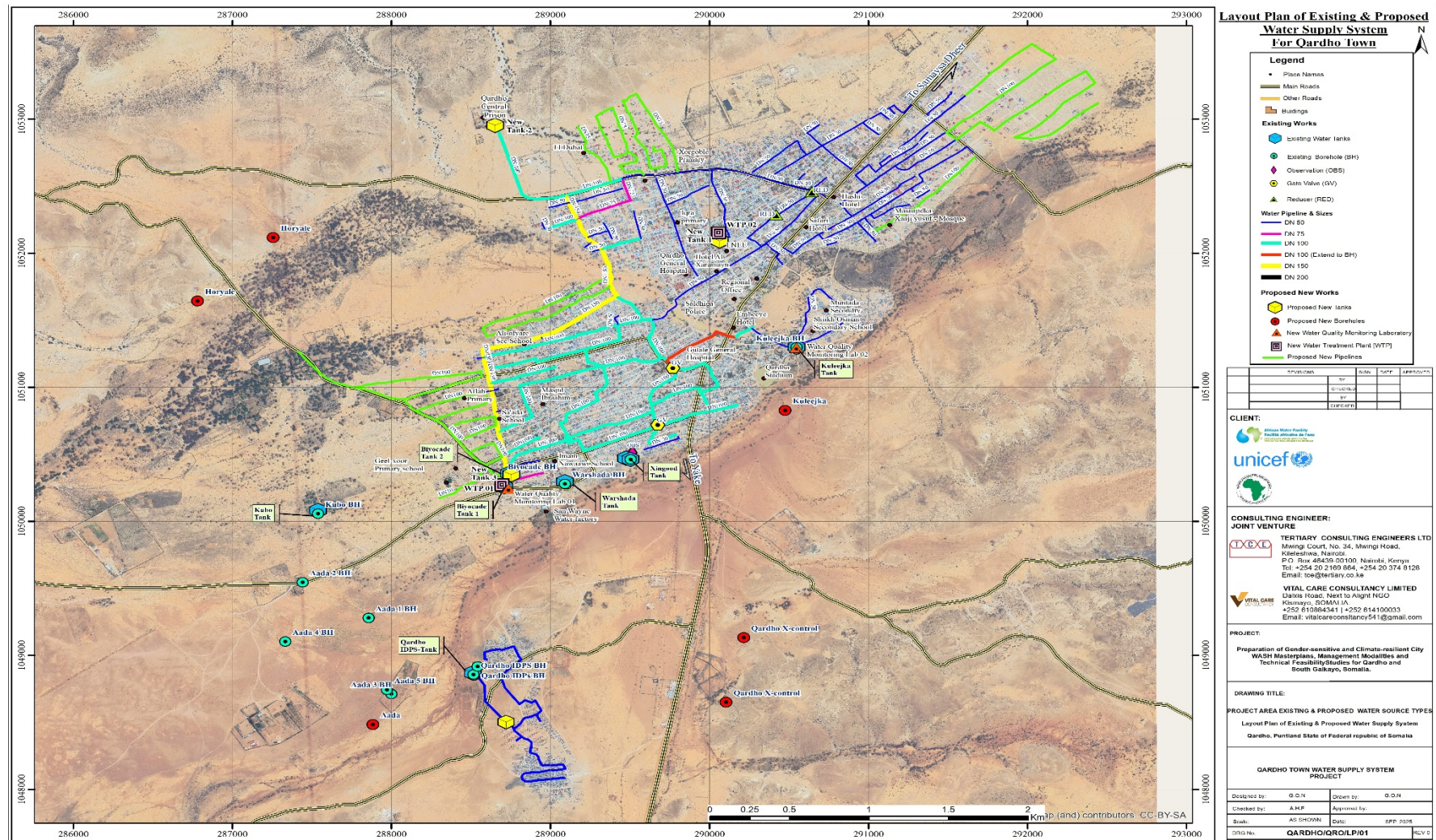


Figure 1.2: Qardho Town, -Water supply

*New Pipeline Extension and Rehabilitation Of The
Existing Network - Installation Of Chambers - Air
Valves, Washouts, Junctions and Marker Posts In
Qardho*

Environmental And Social Impact Assessment (ESIA)

Source: Google Earth



1.2.1 Project site description

The project involves two main pipeline activities: the installation of a new transmission main and the rehabilitation of the existing distribution network.

1. New Transmission Pipeline Installation

This component involves laying a new primary pipeline to transport water from the wellfields to the town's storage reservoirs.

- **Locality and Route:** The pipeline will originate from the new and existing borehole clusters, particularly the productive **Horyale wellfield** in the north and the **Aada wellfield** in the southwest. It will then follow the path of existing major roads towards the central storage tanks in Qardho town.
- **Geo-references:**
 - **Start (Horyale Wellfield):**
The route begins near the Horyale boreholes (e.g., around **Latitude 9.51°N, Longitude 49.06°E**).
 - **End (Central Town):**
It terminates at the main reservoirs within Qardho town (approximate center around **Latitude 9.50°N, Longitude 49.08°E**).
- **Roads and Villages:** The pipeline will primarily be buried along the easement of the main access roads connecting the Horyale and Aada areas to the town center, minimizing the need for new land acquisition.

2. Existing Distribution Network Rehabilitation

This component focuses on replacing old, leaking pipes within the established neighborhoods of Qardho to improve efficiency and water pressure.

- **Locality:** The rehabilitation work will take place within the existing water supply grid in the most densely populated parts of Qardho. This includes the central commercial district and residential estates like **Kuleejka, Xingood, and Warshada**.
- As this involves a network, there is no single geo-reference. The project area is the existing town footprint, roughly centered around **Latitude 9.49°N, Longitude 49.08°E**.
- **Roads and Estates:** The work will be conducted under the existing streets and alleys of the town's established neighborhoods where the current water network is located.

1.2.2 Representation of the project pipelines

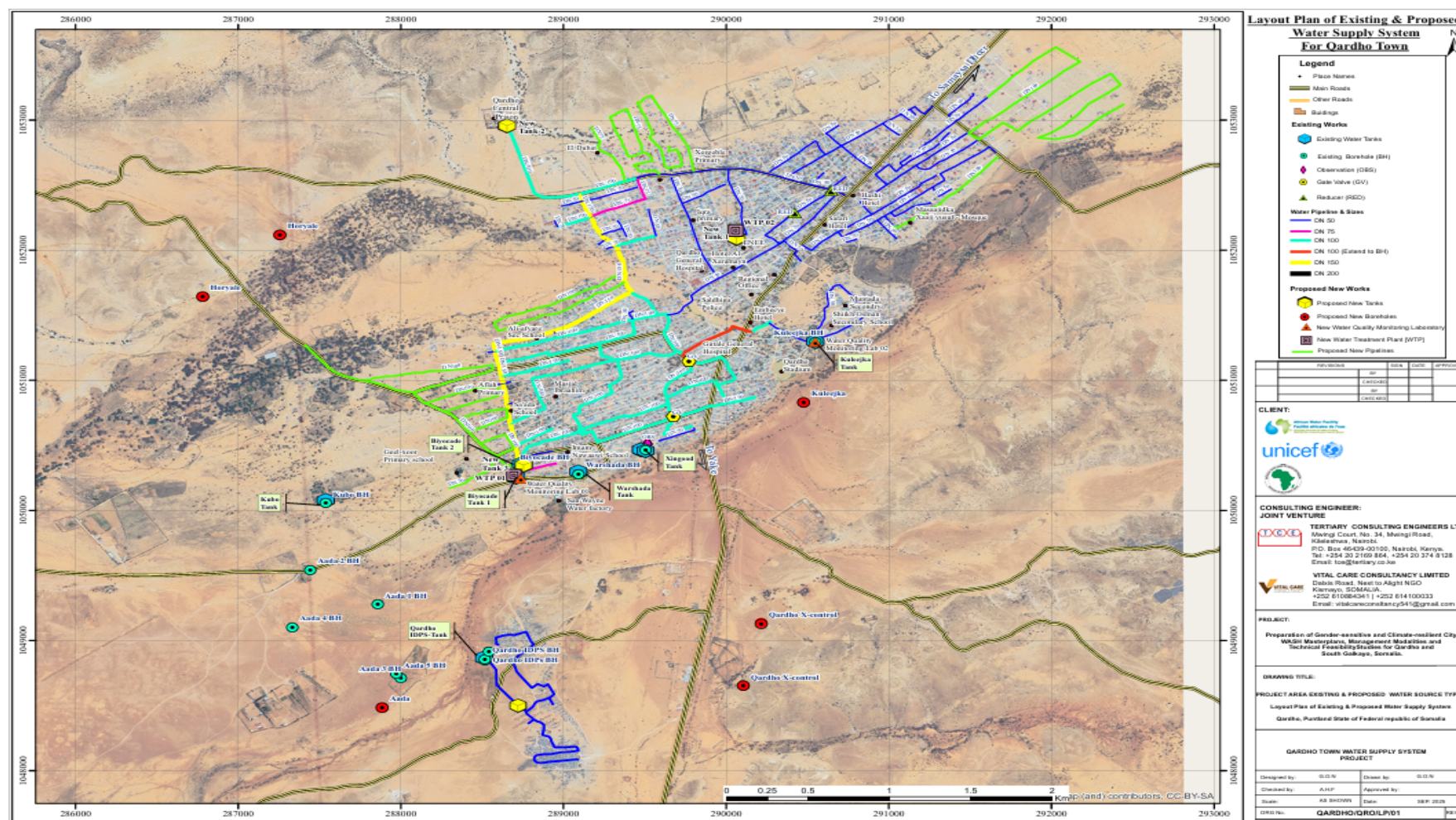


Figure 1.4 Pipeline path representation

Source: Google earth

1.3 Local Administration

Qardho is both a district and the capital of the Karkaar region in Puntland, an autonomous federal state of Somalia. The administration of Qardho is shaped by its growing and diverse population. The local council and mayor are responsible for ensuring equitable service delivery and inclusive governance, especially after the introduction of direct elections. Population data (though limited) is central to planning, budgeting, and prioritization of services like water, sanitation, housing, and health. Qardho town, is home to a variety of Somali clans, though it is primarily dominated by clans from the Darod clan family. The majority population of Qardho belongs to the Majeerteen sub-clan of the Darod family with several lineages present, such as Omar Mohamoud, Issa Mohamoud, and Ali Saleebaan. Other Darod Sub-clans include smaller numbers of other Harti Darod groups (e.g., Warsangeli, Dhulbahante) who have settled in Qardho for trade, pastoralism, and political ties.

Minority & IDP Clans include internally displaced persons (IDPs) from diverse backgrounds, including Hawiye, Rahanweyn (Digil-Mirifle), and marginalized Somali groups.

1.4 Objectives of ESIA

Reference is made to the African Development Bank adopted an Integrated Safeguards System (ISS) (also referred to as the “2013 ISS” Amended in 2023) Environmental and Social Operational Safeguard 1: Assessment and Management of Environmental and Social Risk and Impact. The aim of this overarching Operational Safeguard (OS), together with the other Operational Safeguards (Oss) that complement it, is to mainstream environmental and social (E&S) considerations, including those related to climate change vulnerability. into Bank operations and thereby contribute to sustainable development in the continent. Therefore, the Objectives of the ESIA are aligned to the provisions of OS 1 as summarized below.

- **Screen and categorize the project** according to the significance of its potential environmental and social impacts, in line with the AfDB’s Operational Safeguard 1 (OS 1) classification system.
- **Define the scope of assessment (scoping)** to identify key environmental and social issues, areas of influence, and project components requiring detailed study.
- **Establish baseline environmental and social conditions** to provide a factual reference for assessing potential changes and for future monitoring.
- **Identify and assess potential environmental and social impacts** (positive and negative, direct and indirect, cumulative, and transboundary) associated with all project phases – design, construction, operation, and decommissioning.
- **Integrate environmental and social considerations** into the project planning, design, and decision-making processes to enhance sustainability, resilience, and long-term benefits.
- **Develop feasible mitigation and enhancement measures**, and consolidate these into a practical **Environmental and Social Management Plan (ESMP)** with clear roles, responsibilities, timelines, and budget provisions.
- **Ensure compliance with applicable national environmental and social legislation**, as well as AfDB’s safeguard requirements
- **Facilitate inclusive stakeholder participation** through effective consultation, information disclosure, and a culturally sensitive, gender-responsive approach.

- **Promote transparency and accountability** by establishing mechanisms for documentation, disclosure, and grievance redress throughout the project cycle.
- **Provide a decision-support framework** for the Government of Somalia, the AfDB, and other stakeholders to ensure environmentally and socially responsible project implementation.

1.5 Assessment Methodology

The assessment was guided by Good International Industry Practice (GIIP) guide on preparation of Environmental and Social Impacts assessments as presented in below below.

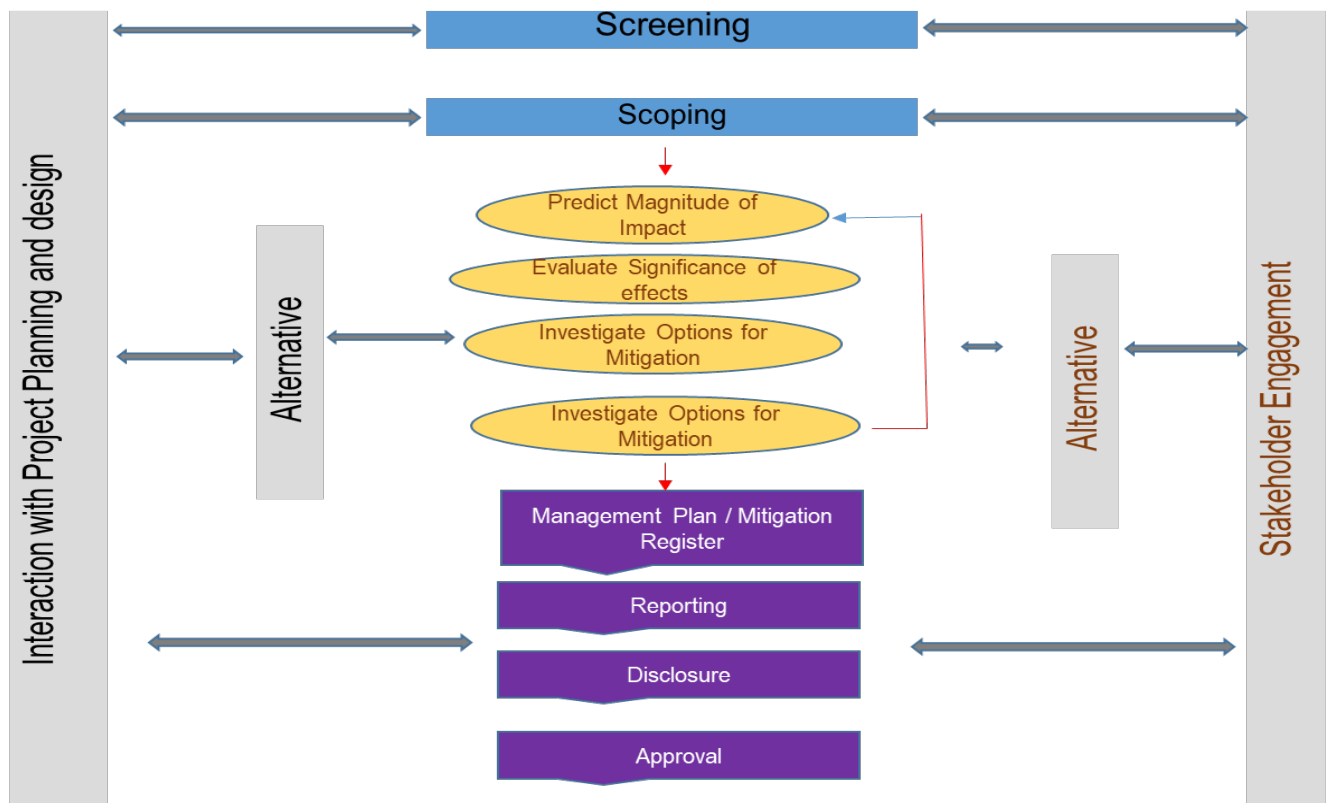


Figure 1.5: Impact Assessment Process

1.5.1 Initial Screening and Baseline Assessment

To provide a context within which the impacts of the Project can be assessed, a team of environmentalists undertook a site visit in June 2025, along the proposed water pipeline alignments using the Project KML files. The purpose of the visit was to identify bio physical and socio-economic data and receptors. The focus was to understand the baseline setup of flora and fauna, water resources, soils, land use and landscape as well as secondary literature review.

1.5.2 Stakeholder Engagement

Stakeholder engagements inform of community meetings, Key Informant Interviews (KII) and Focused Group Discussions (FGD) were conducted during the ESIA process to inform project stakeholders of the proposed project and explain the likely impacts, both positive and negative, during the project life cycle. Stakeholder Identification and analysis was done in close liaison with

the local administration with Qardho Town. Detailed Stakeholder Consultation process is presented separately under chapter 5 of this report.

1.5.3 Impact Assessment Methodology

Impact identification and assessment starts with scoping and continues through a structured impact assessment process. The principal steps followed are summarized in **Figure 1.4** above and comprises the below listed steps.

Table 1.1 Steps in impact assessment methodology

Step 1 -	Impact prediction – This step involves identifying and forecasting the potential environmental and social impacts that could result from the proposed Project and its related activities. Environmental resources likely to be impacted may include air, water, soil and biodiversity while social receptors include land use, business disruptions, and vulnerable groups
Step 2 -	Impact evaluation -Once potential impacts are identified, they are assessed to determine their overall significance. This evaluation considers, the magnitude of the impacts, the sensitivity and values of the affected environmental or social receptors.
Step 3 -	Mitigation and enhancement – Appropriate measures are proposed to address the impacts identified. For negative impacts, mitigation measures are designed to avoid, minimize, reduce or compensate for the adverse effects on the environment and communities. As for positive impacts, enhancements measures are developed to strengthen the beneficial outcomes
Step 4 -	Residual impact evaluation – This final step involves reassessing the significance of impacts after applying the proposed mitigation and enhancement measures. It helps in determining residual impacts that would remain even with effective implementation of the measures. This evaluation is essential in analysing the sustainability of the proposed mitigation measures and in making informed decision making including the need for additional safeguards

1.5.4 Impact Evaluation Methodology

Impact evaluation is a structured and detailed assessment process used to determine the significance of the identified impacts in Step 1. This process involves key steps, commencing with the characterization of each potential impact and finalising with an overall significance rating. The process is outlined below.

Characterizing Impact Attribute.

The terminology used to describe impact characteristics is shown in the table below

Table 1.2: Impact characteristics

Characteristic	Definition	Designation
Type	A Descriptor indicating the relationship of the impact to the Project (in terms of cause and effect	Direct, Indirect, Induced
Extent	The ‘reach’ of the impact (e.g., confined to a small area around the Project Footprint, Projected for several km etc.)	Local, Regional, International
Duration	The time period over which a resource/	Temporary, Short term, long term

	receptor is affected	Permanent
Scale	The size of the impact (e.g., the size of the area damaged or impacted, the fraction of a resource that is lost or affected, etc.)	No fixed designation, intended to be a numerical value or a qualitative description of intensity
Frequency	A measure of the constancy or periodicity of the impact	No fixed designation, intended to be a numerical value or a qualitative description

2. Impact Type Definitions

The type of impact is further defined as follows in the table below

Table 1.3: Impact Type Definitions

Definition	Designation
Direct	Impacts that result from a direct interaction between the Project and a resource/receptor (e.g., between occupation of a plot of land and the habitats which are affected)
Indirect	Impacts that follow on from the direct interactions between the Project and its environment as a result of subsequent interactions within the environment (e.g., viability of a species population resulting from loss of part of a habitat as a result of the Project occupying a plot of land).
Induced	Impacts that result from other activities (which are not part of the Project) that happen as a consequence of the Project (e.g., influx of camp followers resulting from the importation of a large Project workforce).

3. Unplanned Events and Likelihoods

For unplanned events such as accidental spills or equipment failures, an attribute described as likelihood is assessed. This refers to the probability of an event occurring during the Projects lifecycle under normal operating conditions. The likelihood of an unplanned event occurring is designated using a qualitative scale, as described in the table below

Table 1.4: Definition of Likelihood

Likelihood	Definition
Unlikely	The event is unlikely but may occur at some time during normal operating conditions
Possible	The event is likely to occur at some time during normal operating conditions.
Induced	Impacts that result from other activities (which are not part of the Project) that happen as a consequence of the Project (e.g., influx of camp followers resulting from the importation of a large Project workforce).
Likely	The event will occur at normal operating conditions (i.e., it is essentially inevitable).

4. Assigning Magnitudes.

Once an impact's characteristics are defined, each impact is assigned a magnitude which is a measure of the severity of the impact on the resource or receptor. Magnitude is a function of a combination of the following impact characteristics:

- Extent
- Duration
- Scale
- Frequency

The magnitude designations themselves are universally consistent, but the descriptions for these

designations vary on a resource/receptor-specific basis. The universal magnitude designations are:

- Positive
- Negligible
- Small
- Medium
- Large

In the case of a positive impact, no magnitude designation (aside from ‘positive’) is assigned. It is considered sufficient for the purpose of the area of influence to indicate that the Project is expected to result in a positive impact, without characterizing the exact degree of positive change likely to occur.

In the case of impacts resulting from unplanned events, the same resource/receptor-specific approach to concluding a magnitude designation is utilized, but the ‘likelihood’ factor is considered, together with the other impact characteristics, when assigning a magnitude designation.

5. Evaluating Sensitivity, Vulnerability and Importance

Parallel to magnitude, the sensitivity, vulnerability and importance of each affected resource or receptor are assessed. These terms collectively describe how susceptible the receptor/resource is to be impacted. Considerations may include legal protection, government policy, stakeholder views and economic or cultural value.

As in the case of magnitude, the sensitivity/vulnerability/importance designations themselves are universally consistent, but the definitions for these designations vary on a resource/receptor basis. The sensitivity/vulnerability/importance designations used herein for all resources/receptors are:

- Low
- Medium
- High

6. Determining Impact Significance

Once the magnitude of impact and sensitivity/vulnerability/importance of resource/receptor are characterized, the significance was assigned for each impact. Impact significance was designated using the matrix shown in the table below.

Table 1.5: Impact Significance

Magnitude of Impact		Sensitivity / Vulnerability / Importance of Resource / Receptor		
		Low	Medium	High
	Negligible	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	Large	Moderate	Major	Major

The matrix applies universally to all resources/receptors, and all impacts to these resources/receptors, as the resource/receptor-specific considerations were factored into the assignment of magnitude and sensitivity, vulnerability and importance designations that enter into the matrix.

1.5.5 Mitigation and Enhancement Measures

Further, once the significance of an impact was characterized, the next step was to evaluate what mitigation and enhancement measures are warranted. For the purposes of this assessment, the following order or hierarchy was applied for development of mitigation:

- Avoid at Source, Reduce at Source: avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).
- Abate on Site: add something to the design to abate the impact (e.g., pollution control equipment, traffic controls, perimeter screening and landscaping).
- Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).
- Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g., agricultural land and forestry due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.
- Compensate in Kind, Compensate Through Other Means: where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

The priority in mitigation for the Project was to first apply mitigation measures to the source of the impact (i.e., to avoid or reduce the magnitude of the impact from the associated Project activity), and then to address the resultant effect to the resource/receptor via abatement or compensatory measures or offsets (i.e., to reduce the significance of the effect once all reasonably practicable mitigations have been applied to reduce the impact magnitude).

Residual Impact

In addition, once mitigation and enhancement measures were specified the next step in the Impact Assessment Process was to assign residual impact significance. This is essentially a repeat of the impact assessment steps discussed above, considering the implementation of the proposed mitigation and enhancement measures.

1.5.6 Management and Monitoring and Audit

The final stage in the impact assessment process was the development of a management plan for implementing controls and mitigation and monitoring effectiveness. Monitoring is done to verify that: a) impacts or their associated project components remain in conformance with applicable standards; and b) mitigation measures are effectively addressing impacts and compensatory measures and offsets are reducing effects to the extent predicted. An Environmental and Social Management Plan (ESMP), which is a compilation of all actions identified in the impact assessment, is provided in Chapter 8. This includes mitigation measures, compensatory measures and offsets and management and monitoring activities.

2. PROPOSED PROJECT INTERVENTIONS

2.1 Estimated Project Short Term Interventions for Qardho

Based on the adopted unit rates, the cost estimates for the extension and rehabilitation of pipelines in Qardho are summarized in the table 2-1 below

Table 2.1 Estimated Project Costs

No.	Position/Description	Unit	Quantity	Unit Cost (USD)	Total Cost (USD)
1	New pipeline extension - various sizes 200mm diameter to 12.5mm diameter including fittings and appurtenances	Km	15	25,000	375,000
2	Rehabilitation of the existing network - Installation of Chambers - Air valves, Washouts, and junctions and also Marker posts	No.	130	2,000	260,000
	Subtotal (Qardho)				635,000

2.2 Proposed Pipeline Extension and Rehabilitation Interventions

A summary of Qardho pipeline extension and rehabilitation detailed design is given in Table 2-1 below

Table 2.2: Summary of the Proposed pipeline extension and rehabilitation in Qardho

No.	Position/Description	Unit	Quantity
1	New pipeline extension - various sizes 200mm diameter to 12.5mm diameter including fittings and appurtenances	Km	15
2	Rehabilitation of the existing network - Installation of Chambers - Air valves, Washouts, and junctions and also Marker posts	No.	130

Figure 2.1 shows a Layout Plan of the Project Area with the Existing and Proposed Water supply Networks in Qardho.

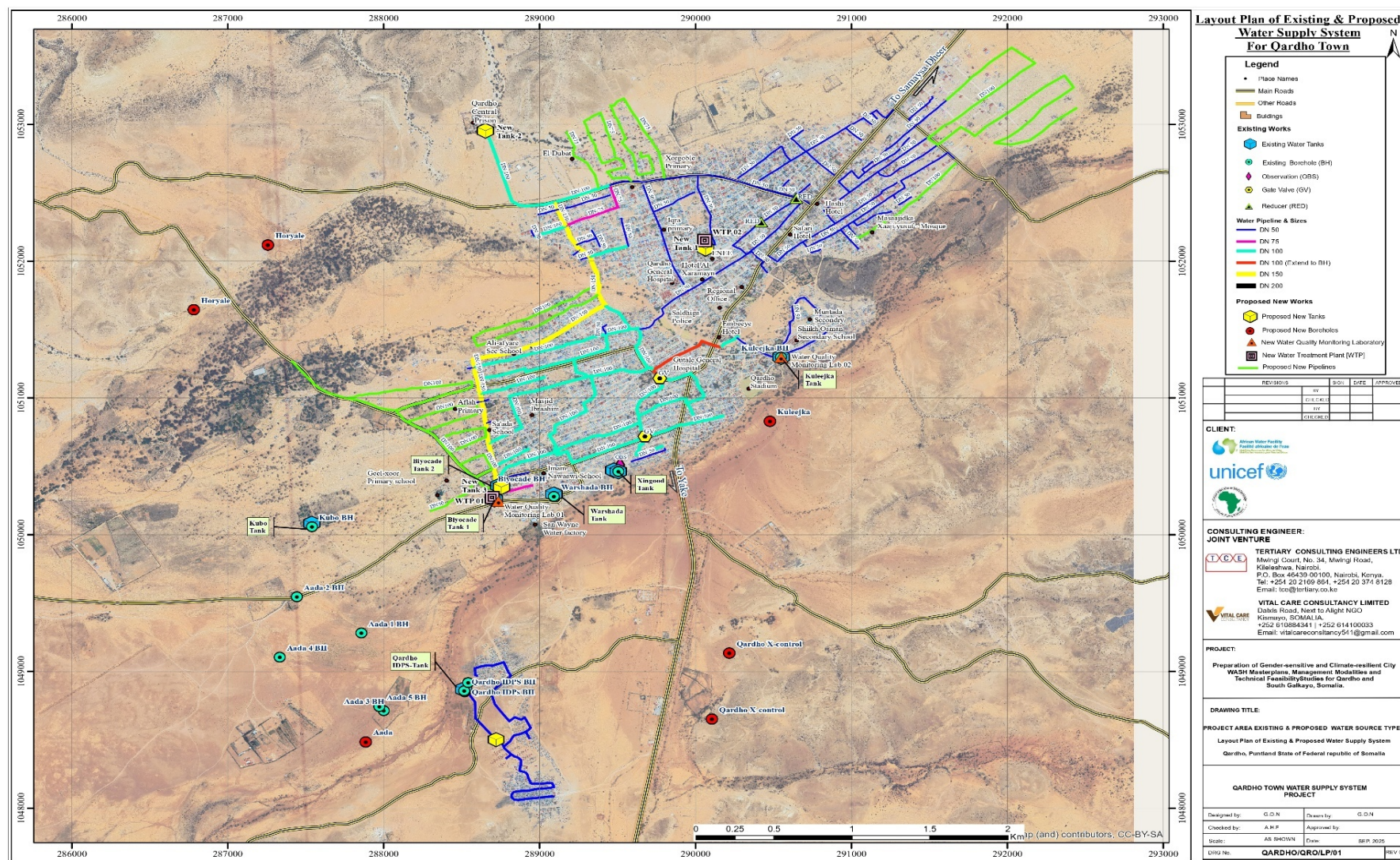


Figure 2.1 Layout Plan of the Project Area with the Existing and Proposed Water Networks in Qardho

2.3 Project Activities Related to Construction of Water supply Interventions

The process includes various stages as presented below.

2.3.1 Material for Pipe Laying

Pipe laying requires specific materials and equipment to properly install pipes. Here are some common materials and equipment used in pipe laying:

- a) **Pipes:** The choice of pipe material depends on the specific application. Common pipe materials include PVC (Polyvinyl Chloride), HDPE (High-Density Polyethylene), ductile iron, steel, and concrete for Water pipes and PVC, ABS, cast iron, concrete and HDPE
- b) **Fittings:** Fittings are used to connect and join pipe sections, allowing for changes in direction, size, and branching. Common fittings include elbows, tees, couplings, valves, and flanges.
- c) **Jointing Materials:** Depending on the pipe material, jointing materials such as solvent cement, adhesives, gaskets, or welding rods may be required to ensure secure and watertight connections between pipe sections.
- d) **Backfill Materials:** After pipes are laid in the trench, suitable backfill materials like sand, gravel, or a specified engineered material are used to cover and support the pipes, providing stability and protection.

2.3.2 Water Pipelines Constructions activities

Installation of Water Pipeline will entitle below listed activities

- a) Excavation,
- b) Pipe placement,
- c) Pointing, and
- d) Backfilling.

2.3.3 Equipment Required for Pipe laying

Pipe laying activities will require below listed equipment's

- a) **Excavators:** Excavators are used to dig trenches or excavate areas for the installation of pipes. They come in various sizes and configurations to suit different project requirements.
- b) **Pipe Layers:** Pipe layers are specialized machines designed to lift and position pipes into the trench. They ensure accurate placement and alignment of pipes during installation.
- c) **Trenching Machines:** Trenching machines, such as trenchers or backhoes, are used to excavate the trench in which the pipes will be laid. They come in different sizes and types, including chain trenchers and wheel trenchers.
- d) **Pipe Cutters:** Pipe cutters, such as reciprocating saws or cut-off saws, are used to cut pipes to the required lengths during installation.
- e) **Welding Equipment:** In cases where pipe joints require, welding equipment such as welding machines, electrodes, or fusion equipment may be necessary to create strong and secure welded connections.

- f) **Compactors:** Compactors, such as vibratory compactors or plate compactors, are used to compact the backfill material around the laid pipes, ensuring stability and preventing settlement.
- g) **Testing Equipment:** Various testing equipment, including pressure gauges, leak detection devices, and cameras, are used to inspect and test the integrity of the installed pipes, ensuring they meet the required standards.

2.3.4 Excavation of Pipe Laying

Excavation activities should take into account any potential environmental impacts, such as the protection of water bodies, sensitive habitats, or cultural heritage sites. Erosion control measures should be implemented to prevent sediment runoff and contamination. The table below presents a summary of activities related to pipe laying.

Table 2.3: Summary of Pipe laying Activities and E&S Risks

#	Activity	Details	Environment Health and Safety Risks
1	Pre-construction Stage Surveying and marking	Before excavation begins, surveying is done to mark the alignment and depth of the trench accurately. This ensures that the trench is dug in the correct location and follows the desired grade and slope.	<ul style="list-style-type: none"> Resettlement impacts, land question impacts Impacts on private assets and sources of livelihood
	Soil Classification	The type of soil encountered during excavation plays a significant role in determining the excavation method, trench support requirements, and backfilling considerations. Soil conditions can range from cohesive soils (clay) to granular soils (sand and gravel) or a combination of both.	<ul style="list-style-type: none"> E&S risks related to trench wall collapse on workers if wrong method of excavation is selected
2	Construction Stage Trenching	Trenching is the primary excavation method used for pipe laying. It involves the excavation of a trench along the designated path for the pipes. The width and depth of the trench depend on the pipe size, soil conditions, and any specific requirements or regulations.	<ul style="list-style-type: none"> Tripping and fall into open trenches by workers and community members Human and livestock drowning if trenches fill-up with runoff water Trench Walls collapse on workers during excavations
	Excavation Equipment	Excavation for pipe laying is typically performed using excavators, which come in different sizes and configurations depending on the scale and complexity of the project. Excavators equipped with buckets or specialized attachments are used to dig and remove soil from the trench.	<ul style="list-style-type: none"> Traffic related accidents Oil and fuel leaks into soil and water resources
	Sloping and Benching	Proper sloping or benching techniques are employed to ensure the stability and safety of the trench walls. Sloping involves angling the sides of the trench, while	Trench collapse on workers causing injuries or fatalities and that lead to Lost Time Inquiry (LTI)

		benching creates horizontal platforms at intervals along the trench.	
	Shoring and Trench Support	In situations where the soil conditions are unstable or the trench depth exceeds a certain threshold, shoring or Trench support systems may be required. These systems provide temporary support to prevent cave-ins and protect workers during excavation.	Trench collapse on workers causing injuries or fatalities and that lead to Lost Time Inquiry (LTI)
	Spoil Management	Soil or excavated material, known as spoil, needs to be managed appropriately. It may be stockpiled nearby for later use as backfill material or transported off-site for disposal or reuse, depending on the project requirements and local regulations.	Environmental pollution related to sedimentation, contamination of water resources and soils.
3	Operations Stage - Flushing	Network operations related to Cleaning (flushing) and Valves & hydrants maintenance	Risk related to sludge management, although quantities of such sludge is expected to be less significant.
	Network replacement	Network replacement due Failure of some sections, this will involve excavation and reinstatement	Re- contaminating of treated water at the point of repair

2.3.5 Traffic Control Plan of Pipe Laying

A traffic control plan is an essential component of pipe-laying projects to ensure the safe and efficient movement of vehicles, pedestrians, and workers around the work area. It aims to minimize disruptions and maintain traffic flow while ensuring the safety of all stakeholders. The Construction Environmental and Social Management Plan (C-ESMP) before commencement of Works should include a Traffic Management Plan that will entitle below listed protocols in the table below.

Table 2.4 Traffic Control Plan during Pipe Laying and Rehabilitation Works

Component	Description / Initiative
Traffic Assessment	- Conduct a baseline study of vehicle volume, pedestrian flow, and peak hours. - Identify high-risk intersections and sensitive receptors (schools, hospitals).
Work Zone Identification	- Clearly demarcate construction zones, staging areas, and pipeline routes. - Use barricades or fencing to separate work areas from traffic.
Signage and Road Markings	- Install warning signs ("Construction Ahead," "Detour," "Slow Down") in advance of work zones. - Use reflective cones, temporary lane markings, and barriers for clear guidance.
Lane Closure Planning	- Limit lane closures to off-peak hours where possible. - Coordinate with local authorities for approvals and

	detour routes. - Implement temporary traffic lanes or shifts to maintain flow.
Temporary Traffic Control Devices	- Deploy cones, barricades, delineators, and channelizers along the pipeline route. - Ensure pedestrian and vehicle separation at all times.
Pedestrian Safety Measures	- Provide temporary walkways or ramps around work zones. - Use flaggers to guide pedestrians safely past construction areas.
Flagging Operations	- Trained personnel direct traffic at key intersections or crossing points. - Equip flaggers with high-visibility vests, flags, and communication devices.
Communication & Public Awareness	- Notify the public about construction schedules, detours, and expected delays via: • Community meetings • Notices at schools and hospitals • Local radio announcements
Emergency Vehicle Access	- Maintain clear routes for ambulances, fire trucks, and other emergency vehicles. - Coordinate with local authorities to ensure quick access during incidents.
Monitoring and Adjustments	- Regularly inspect traffic flow and work zone conditions. - Adjust signage, detours, or flagging based on real-time observations and feedback.
Training and Roles	- Train construction workers, flaggers, and supervisors on TCP implementation. - Assign traffic safety officers to oversee compliance during construction.

3. SITE BASELINE INFORMATION

3.1 Climate

Regionally Somali has an arid to semi-arid climate as shown in climate map of Somalia on figure 2.5. Qardho District, located in Puntland state has a hot arid climate, classified as a hot desert climate according to the Köppen climate classification. The average high temperature is 91°F (33°C), and the average low is 70°F (21°C). Precipitation is generally low, with an average of 0.48 inches per year. The town is characterized by the following climatic conditions

- High Temperature: The highest average high temperature is in May, at 91°F (33°C).
- Low Temperature: The lowest average low temperature is also in May, at 81°F (27°C).
- Precipitation: May has the highest average precipitation at 27.7 millimetres
- Humidity: The average humidity is 71%.
- Wind: The average wind speed is 19 mph.

The Rainfall 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
- 2Gu': 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.

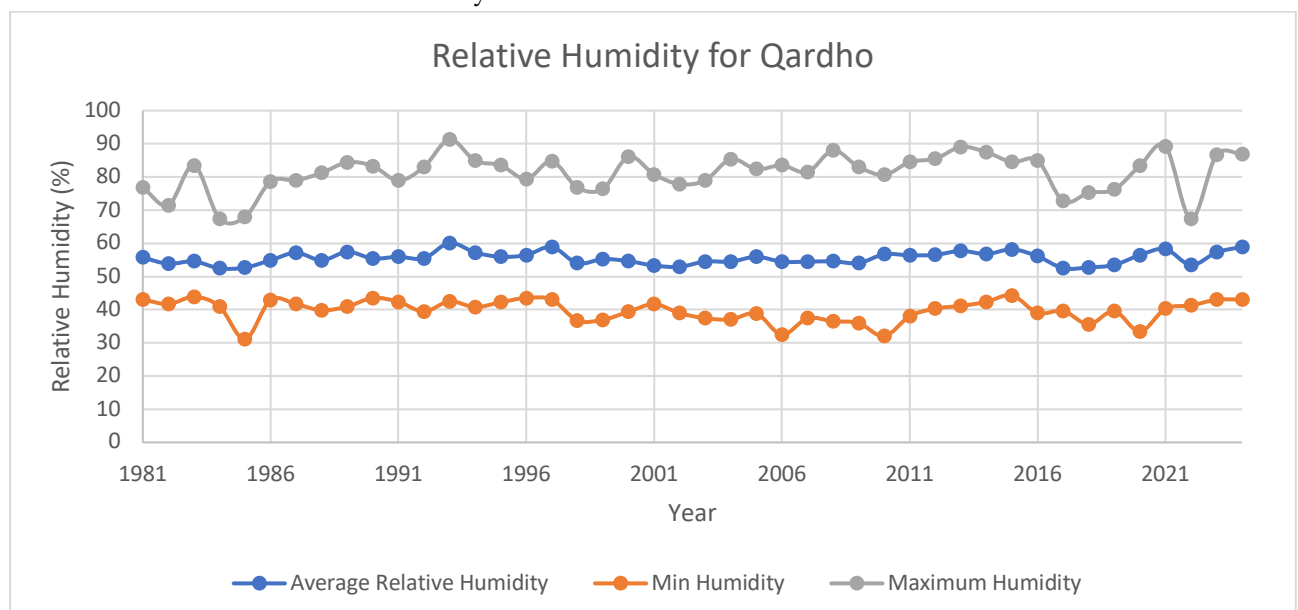


Figure 3.1: Relative Humidity of Qardho

Source: FAO SWALIM

The Average high and low temperatures are as presented in the figure below. The months of March and October having the highest average high temperatures.

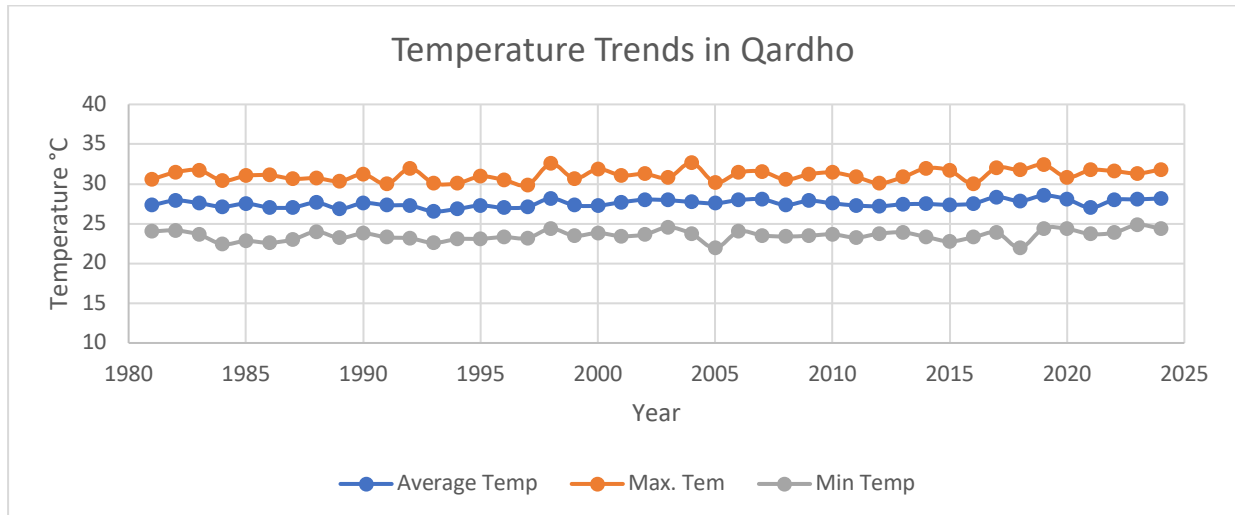


Figure 3.2: Average High and Low Temperature in Qardho from 1981 - 2024

Source: FAO SWALIM

The figure below shows the annual rainfall patter from 1981 to 2023. The trend shows that 1981 -1985 was the worst dry period while from 2021 rainfall has been at its peak.

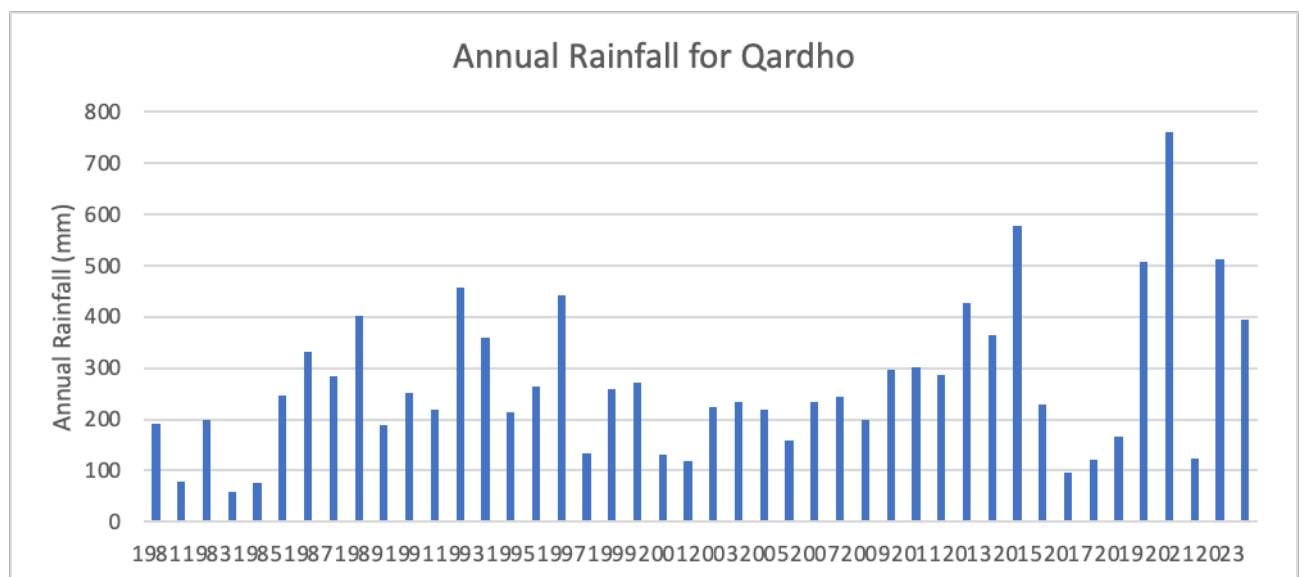


Figure 3.3: Annual rainfall for Qardho

3.2 Physical and Topographic Conditions

3.2.1 The Project Town Location

Qardho town lies within the catchment of Wadi Qardho (also known as Togga Qardho), a prominent seasonal river (Qardho river) that flows through the heart of the town. This river, although dry for most of the year, becomes active during the rainy seasons, often carrying flash floods that affect low-lying areas and informal settlements along its banks. Qardho is definitely situated in a broad, shallow natural valley formed by seasonal watercourses. While the valley may not have a widely documented or officially named separate identity beyond its association with Togga Qardho, “Qardho Valley” is the commonly used local term to describe the natural depression and drainage basin that shapes the town’s topography. This valley collects runoff from the surrounding highlands and plateaus, channelling it through seasonal rivers and gullies that feed into Togga Qardho during the rainy season.

The location of the town is as presented in the figure below in on the Federal Republic of Somali.

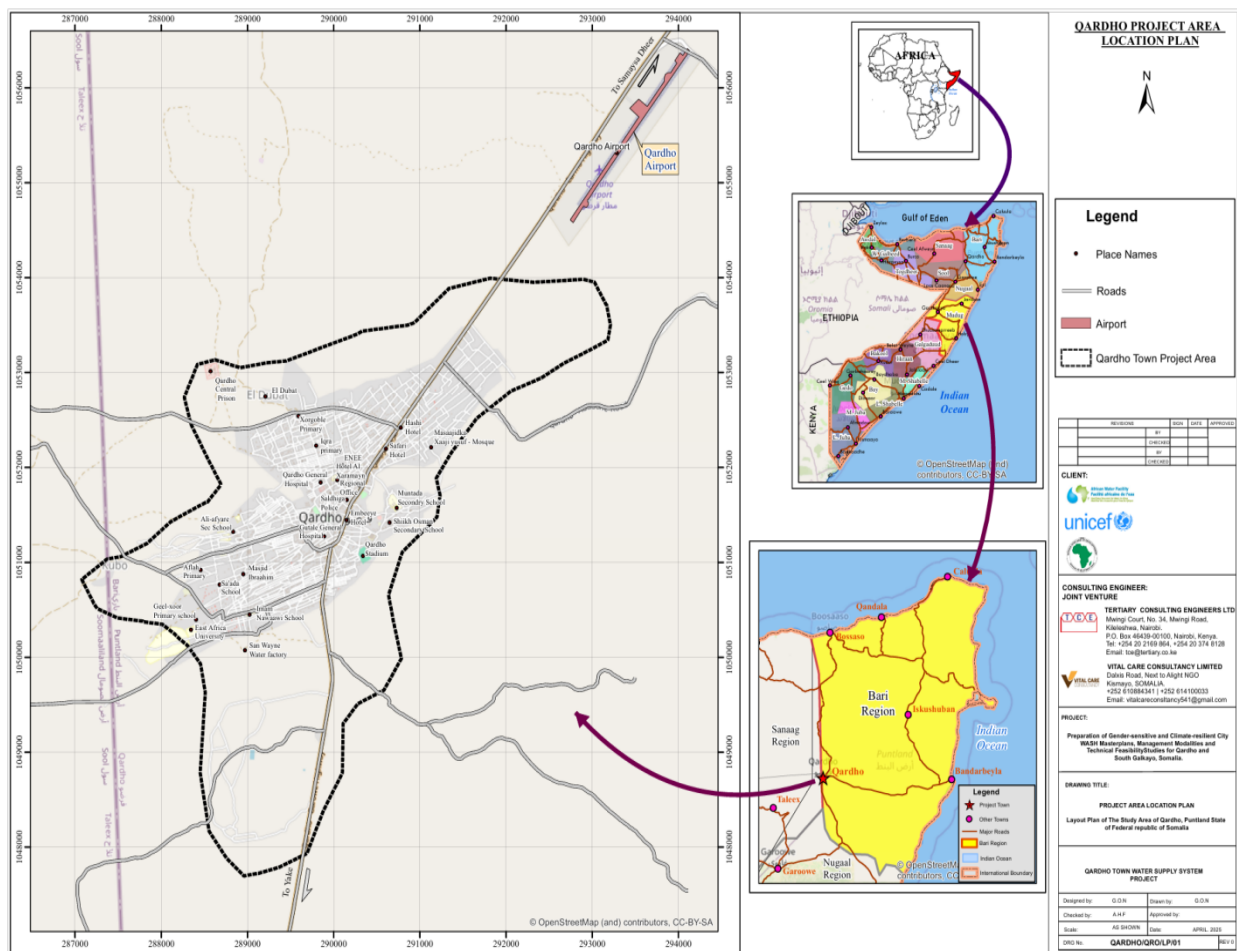


Figure 3.4: Study Area of Qardho

The Town of Qardho is as presented in the figure below;

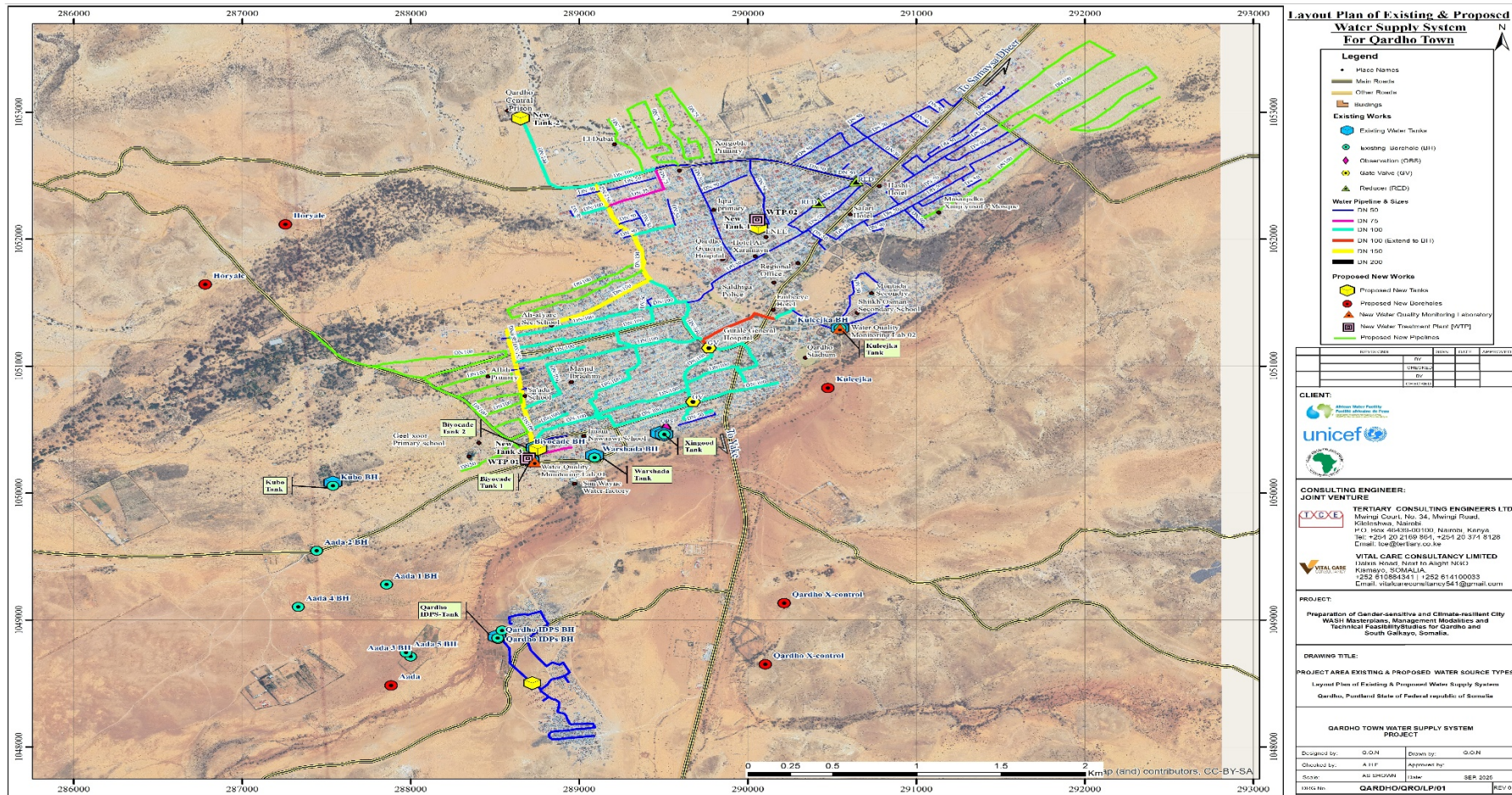
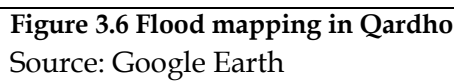


Figure 3.5: Qardho Town, Pipelines project interventions
Source: Google Earth



The topography of Qardho is generally flat with gentle sloping plains towards the North-East. In the north, parallel to the Gulf of Aden coast is a maritime plain varying in width from roughly twelve kilometres in the west to as little as two or three kilometres in the East. Shrub-covered, semi-arid, and generally drab, this plain, is known as the Guban (burnt land), because of its heat and dryness during much of the year. It is crossed by broad, shallow watercourses that are beds of dry sand except in the rainy seasons. Inland from the gulf coast, the plain rises to the precipitous north-facing cliffs dissected by highlands. These form rugged mountain ranges that extend from Somalia's north western border with Ethiopia, eastward to the tip of the Horn where they end in the sheer cliffs of Caseyr

Geology

Karkar Formation (Eocene): This is a prominent geological feature in the region. It is primarily composed of limestone, with layers of marl and dolomite. This formation is significant not only structurally but also as an important karstic aquifer, meaning it holds groundwater in fractures and solution channels within the rock.

Taleh Formation (Eocene): Underlying the Karkar Formation, the Taleh Formation is also widespread. It consists largely of evaporitic rocks such as gypsum and anhydrite, interbedded with limestone and marl.

The landscape is part of the rugged Karkaar mountain ranges and is incised by ephemeral riverbeds, known locally as wadis or togas. These riverbeds are a key feature, prone to flash floods and accumulating alluvial deposits.

Soils

The soils in and around Qardho are generally shallow, with low organic matter and nutrients, reflecting the arid climate and the parent limestone and gypsum bedrock. The dominant soil types are:

Calcisols and Gypsisols: These are soils rich in calcium carbonate (lime) or gypsum, respectively. They are common in arid and semi-arid environments and typically have low moisture retention.

Alluvial Soils: Found within the wadis and adjacent floodplains, these soils consist of sediments like sandy clay, silt, and gravel deposited by seasonal water flow. While potentially more fertile than the surrounding upland soils, they are localized to the river channels.

Overall, the soils are highly susceptible to erosion, particularly from water during intense, infrequent rainfall (causing flash floods) and from wind during the dry seasons. This susceptibility contributes to land degradation in the region.

3.2.5 Vegetation Cover

Qardho Somalia falls within Arid and Semi-Arid (ASALs) zone within ecological zone V-VI. Zone V receives rainfall between 300mm-600mm annually and is characterized by low trees, grass and shrubs while zone VI receives annual rainfall of 200mm to 400mm. The Project area receives an average of 240mm of rainfall per year, the rainfall is erratic and short making it unfavorable for vegetation growth. However, the area was once covered exhibits arid characterizes with dominant species noted as cactus family and Acacia sp including; Acacia species (*A. mellifera*, *A. tortilis*), *Commiphora* spp., *Dobera glabra*, *Boscia coriacea*

Vegetation Description Along the Pipeline Corridor

The pipeline corridor lies within a semi-arid rangeland typical of Puntland's interior plateau, where rainfall is low and erratic and vegetation cover remains sparse. The natural vegetation is dominated by drought-resistant shrubs and scattered grasses, with brief bursts of herbaceous growth following seasonal rains.

Vegetation Types: The shrubland and bushland along the route consist mainly of *Commiphora* spp. (*myrrh*), *Acacia tortilis*, *Acacia etbaica*, and scattered *Boswellia* spp. (*frankincense*), especially on rocky slopes and outcrops near the northern approach from Horyale. Seasonal grasses such as *Cenchrus ciliaris* and *Chrysopogon plumulosus* flourish in flatter terrain and low-lying depressions during the Gu (April-June) and Deyr (October-December) rains. Widely scattered drought-resistant trees, including *Acacia tortilis*, *Dobera glabra*, and *Balanites aegyptiaca*, occur along the route, though many are subject to fuelwood harvesting and charcoal production, creating localized pressure on tree cover.

Human Influence: Vegetation close to settlements shows significant degradation due to heavy grazing pressure from pastoralist herding of goats, camels, and sheep. Along the main access roads, where the pipeline will likely follow existing easements, vegetation has already been cleared or disturbed by vehicle traffic and small-scale quarrying. In peri-urban areas and around IDP settlements, such as Shabelle camp on the outskirts of Qardho, vegetation is mostly cleared or trampled, leaving only scattered shrubs and occasional trees.

Sensitive/Valuable Vegetation: No dense forests or critical habitats lie directly along the proposed corridor. However, isolated *Boswellia* trees in rocky zones and mature *Acacia* stands have cultural and economic significance and should be preserved where possible during construction planning.

3.2.6 Air Quality

Air quality in Qardho is generally considered poor. The main pollutant of concern is fine particulate matter (PM_{2.5}), which consists of tiny particles that can be inhaled and pose a health risk. This is a common issue in arid and semi-arid regions due to the prevalence of dust and sandstorms. The use of traditional fuels like charcoal for cooking and heating also contributes to local air pollution.

3.2.7 Hydrology

Qardho's hydrology is shaped by its arid and semi-arid climate, making water a scarce and highly valuable resource. Surface water is extremely limited, with ephemeral streams or tooggays flowing only briefly after rare rainfall events, and unlike southern Somalia, the region has no permanent rivers or surface water bodies. As a result, groundwater is the primary source for both domestic and livestock use, though accessing it is costly and technically demanding, requiring deep drilling and the use of diesel generators or increasingly solar-powered pumps. This heavy reliance on groundwater leaves communities highly vulnerable during prolonged droughts when recharge is minimal. The area also faces the dual challenge of seasonal water scarcity and flash floods, with heavy rains occasionally damaging infrastructure and contaminating wells. To address these challenges, both local communities and international organizations have invested in water management measures such as dams, ponds, and rainwater harvesting systems, aimed at capturing and storing seasonal rainfall for future use.

3.3 Biological Baseline Data

3.3.1 Flora

The project area in Kuleejka is primarily peri-urban with patches of semi-arid vegetation. The dominant plant species: *Acacia* spp., *Commiphora* spp., drought-resistant shrubs, and scattered grasses. Vegetation is mostly disturbed due to urban development, livestock grazing, and human activity. There is limited presence of trees within institutional compounds (schools, hospitals) which may provide shade but are few.

3.3.2 Fauna

The fauna within the project area is limited and primarily composed of species adapted to urban and peri-urban environments. Mammals include small species such as rodents, as well as

domestic animals like cats, dogs, goats, and sheep that are commonly found in surrounding areas. Birdlife is dominated by urban-adapted species such as pigeons and sparrows, with occasional sightings of migratory birds. Reptiles and insects typical of semi-arid urban settings are also present, including lizards, scorpions, and a variety of insect species.

3.3.3 Environmental Sensitivity

There are no significant protected areas or endangered species within the immediate project area. Wildlife presence is minimal, largely due to the urbanized nature of the site and the disturbance caused by human activities.

3.4 Social Baseline Information

3.4.1 Demographic Data:

Qardho town has an estimated population of approximately 65,000–70,000 people, including internally displaced persons (IDPs) and surrounding communities. The population is predominantly ethnic Somali, with clan structures playing a central role in shaping social organization and decision-making processes. Vulnerable groups within the community include low-income households, women, children, and IDPs, many of whom rely on communal water and sanitation facilities. Specifically, the estimated population around the project area in Kuleekja is between 1,000 and 3,000 people.

3.4.2 Land Ownership:

Land ownership in Qardho consists of a mix of state-owned, community-managed, and privately held land. The proposed construction sites for the project are located primarily on public or institutionally leased land, which minimizes the risk of displacement or conflict over land use.

3.4.3 Administrative Setup:

Qardho District falls under the Bari Regional Government, with district administration providing overall governance and oversight. At the local level, ward committees and traditional elders play a significant role in community engagement and land-use decision-making. In terms of WASH governance, Community Water and Sanitation Committees (CWSCs) are responsible for overseeing water points and treatment facilities to ensure equitable access, proper operation, and regular maintenance.

3.4.4 Infrastructure & Services:

Qardho town is served by a basic road network that connects key public institutions and residential areas. The water supply is primarily sourced from existing boreholes, while sanitation coverage remains limited and inadequate for the growing population. Health and educational institutions largely depend on community water sources, underscoring the urgent need for improved and reliable water supply systems.

3.4.5 Health Institutions in Qardho

Qardho General Hospital serves as the main hospital in Qardho. It includes a Microbiology Laboratory. A **new health centre** was inaugurated in February 2023 by Save the Children, in partnership with the Puntland Ministry of Health and funding from Sheikh Thani bin Abdullah

Al Thani. This centre provides primary health services: prenatal care, safe deliveries, vaccinations, and maternal & child nutrition services.

3.4.6 Educational Institutions

Educational institutions in Qardho, form a developing system composed of public, private, and religious schools, ranging from primary to university levels.

Levels of Education

- **Primary and Secondary Education:** Qardho has a number of primary and secondary schools that serve the city and surrounding areas. These include both government-run and privately-managed institutions, which form the foundation of formal education in the region. Notable schools include Al-Azhar Primary and Secondary School, Haji Ali Bihi Secondary School, and Sheikh Osman Secondary School.
- **Koranic Schools:** Alongside the formal system, traditional Koranic schools (*Dugsi*) play a crucial role in providing foundational religious education and basic literacy for many children.
- **Higher Education:** Qardho is a regional hub for higher learning, most notably hosting a major campus of East Africa University (EAU). This institution offers various undergraduate degree programs, providing vital opportunities for post-secondary education and professional training within the region.

3.5 Socio Economic Baseline Information

3.5.1 Land Ownership and Settlements Patterns

Land use activities in Qardho primarily revolve around agriculture, with tea being the dominant crop, followed by coffee and other cash crops like sugarcane and horticulture. Residential and commercial developments are also significant, contributing to infrastructure growth and potential urbanization challenges. Additionally, wetlands play a role in cultural practices and resource utilization, while also facing encroachment issues.

Land Tenure and Use – Proposed Borehole Sites, Qardho

The proposed borehole sites are primarily located within public and institutional lands in urban and peri-urban areas of Qardho. These sites include school grounds, hospital and health center compounds, and community-managed open spaces. Land tenure in these areas is generally state-owned or institutionally controlled, minimizing risks of private disputes or displacement.

Key Characteristics:

- **Public/Institutional Land:** Most boreholes are sited within government-managed or community-institutional plots. Access and use rights are regulated by local authorities or institutional management committees, facilitating formal approval for development and long-term maintenance.
- **Community-Managed Land:** Some peri-urban boreholes may be located on community-controlled land, where local elders and Water and Sanitation Committees

(WSCs) play a critical role in managing access, ensuring equitable distribution of water resources, and mediating any disputes.

- **Tenure Security:** Since sites are public or community-controlled, formal permissions are easily obtained from relevant authorities. This reduces the potential for land tenure conflicts and supports sustainable borehole operation.

The selection of borehole sites on public and institutionally managed land ensures that the project can proceed without causing displacement or land disputes. Engagement with local authorities, Water and Sanitation Committees, and community leaders will safeguard tenure rights and ensure equitable access to water.

Right of Way (RoW) Land Requirement Calculations

Formula:

$$\text{Land area (ha)} = (\text{Length (m)} \times \text{Width (m)}) / 10,000$$

Pipeline Lengths:

Transmission mains (Horyale → Qardho and Aada → Qardho): 15 km (15,000 m)

Community extensions (Shabelle Camp and Shimbiralle): 1 km (1,000 m)

Total length: ~16 km (16,000 m)

Transmission Mains (15,000 m)

$$\text{At 5 m RoW: } 15,000 \times 5 / 10,000 = 7.5 \text{ ha}$$

$$\text{At 10 m RoW: } 15,000 \times 10 / 10,000 = 15.0 \text{ ha}$$

Community Extensions (1,000 m)

$$\text{At 5 m RoW: } 1,000 \times 5 / 10,000 = 0.5 \text{ ha}$$

$$\text{At 10 m RoW: } 1,000 \times 10 / 10,000 = 1.0 \text{ ha}$$

Total Estimated Land Requirement

$$\text{Minimum (5 m RoW): } 7.5 + 0.5 = 8.0 \text{ ha}$$

$$\text{Maximum (10 m RoW): } 15.0 + 1.0 = 16.0 \text{ ha}$$

The project will require **between 8.0 and 16.0 hectares of land for the pipeline RoW**, depending on whether a 5 m or 10 m corridor is applied.

3.6 Water Supply Situation

There are no permanent rivers in the region; only flashy streams exist which have surface water only after high rainfall events and normally drain into either the Indian Ocean, or the Gulf of Aden. These ephemeral water courses are important for water sources (wells dug at the river banks / beds), and for their relatively rich vegetation.

The water supply situation is not adequate, particularly in rural areas where women and children travel long distances to a water source in the dry season to collect water for domestic and livestock use. Surface water resources are generally scarce because of their dependency on seasonal climatic variations that leave traditional surface water storage facilities either partially filled or empty.

3.6.1 Water sources

Surface water Sources

Qardho town's primary surface water source is the Kubo River, which experiences frequent flooding due to urbanization impacting its water flow capacity. A project focuses on reducing flood risks and improving the river's productive potential, including its use for irrigation. Additionally, water harvesting and storage systems are being implemented to provide water during dry seasons.

Ground Water Sources

Qardho town primarily relies on groundwater sources, specifically boreholes, for its water supply. These boreholes are a key component of the town's water infrastructure, ensuring a regular supply to the community. There are 12 number boreholes which collects water to one overhead painted steel panel tank installed on a reinforced concrete frame 10,0 m high. However, out of the 12 only 8 boreholes are functional while 2 have been faced out due to flooding effects.

3.6.2 Power /Energy Sources

The source of energy for the water abstraction from boreholes are solar, power grid and generator. However, the cost of power grid and generators is expensive to sustain due to high costs involved. On the other side solar power is cheap despite the initial cost of installation.

3.6.3 Water Distribution

Water Abstraction Sources

There are 12 no boreholes abstracted as ground water source for Qardho town. Based on each borehole yield in Table 3.1 the approximate yield per day based on the numbers of hours the pump is working **2,820 m3** per day.

Water Transmission

From the storage tanks, water gravitates to town water distribution network through uPVC pipes ranging 200mm to 25mm. The distribution network includes the followings pipe sizes;

Table 3.1: Pipeline Summary in Qardho

Pipeline Summary	Pipeline Lengths (m)
DN 50	17,886
DN 75	770
DN100	11,635
DN150	2,854
DN200	155
Total	33,300

3.6.4 Water Storage

Water from the boreholes Water is pumped directly to elevated steel tank of 550m3 capacity located in Beiyo-cadde area at an elevation of 8 meters high. All the boreholes have been fitted with 100mm diameter steel pipes that draw water from the deep boreholes. There exist other

smaller elevated concrete tanks located within the borehole sites which are currently not in use due to excessive leakage.



Figure 3.7: Beiyo-cadde Water Tanks for Qardho Town

Table 3.2: List of storage tanks in Qardho Town

	Name	Latitude	Longitude	Tank size(m3)	Materials	Elevation (m)	condition
1	Kuleejka	9.5053253	49.0920145	400	RC	10	working
2	Xingood	9.4977197	49.0825547	100	RC	8	Faulty
	Xingood	9.4977197	49.0825547	240	RC	9	Faulty
3	Warshada	9.4960567	49.0788059	45, 23	RC	8	Faulty
4	Biyocade	9.496573	49.075586	324	steel	15	working
5	Kubo	9.493965	49.064671	50	RC	9	working
6	Qardho IDPS	9.4831673	49.0736369	40	RC	8	working

3.6.5 Water Treatment

The only water source to secure the water demand of the town is the deep aquifer, which unfortunately produces saline water. Currently there is no treatment provided for the water being supplied to Qardho town. The solution to secure drinkable water to the inhabitants is the construction of a desalinization plant and distribution system.

Proposed Water Treatment Process – Qardho

The following treatment train is proposed to ensure raw groundwater extracted from boreholes in Qardho meets WHO drinking water standards, with a focus on microbiological safety, turbidity reduction, and chemical contaminant removal (if present):

1. Raw Groundwater Extraction

- Source: Existing borehole(s) in Qardho.
- Typical Issues: May contain turbidity, iron, and microbial contamination.
- Action: Groundwater is pumped using submersible or solar-powered pumps into the treatment line.

2. Sand Filtration (Turbidity Removal)

- Purpose: Removes suspended solids, organic matter, and reduces turbidity.
- System: Slow or rapid sand filter unit, possibly dual media (sand + gravel).
- Benefit: Improves water clarity and enhances the effectiveness of subsequent disinfection.

3. Iron Removal (Conditional)

- Trigger: Activated if groundwater testing reveals elevated iron levels (>0.3 mg/L).
- Method: Aeration followed by filtration, or manganese dioxide-coated sand media.
- Benefit: Prevents discoloration, metallic taste, and fouling of downstream systems.

4. Chlorination (Disinfection)

- Purpose: Kills pathogens including bacteria, viruses, and protozoa.
- System: Manual or automated chlorination (liquid chlorine or tablets).
- Monitoring: Regular residual chlorine testing (target: 0.2–0.5 mg/L at point of use).

Benefit: Ensures microbiological safety of water before distribution

3.6.6 Connections

Each household is metered with a consumer meter which is read once a month for billing purposes. According to the company, it has about **5,000** Water Connections. The connections include for schools, mosques and hospitals which do not pay for the water services they enjoy.

Water Kiosks

In Qardho especially at the IDP Camps where individual connections is not possible water kiosk and public fountains are constructed for easier access for the residents. The Water kiosks are fitted with prepaid systems which is very simple and inexpensive installation, and it is relatively secure during the periods when the attendants are not present.

Livestock Troughs

Livestock troughs are containers designed to hold water (or sometimes feed) for animals such as cattle, sheep, goats, camels, horses, or donkeys. They're a critical part of livestock water supply systems, especially in arid and semi-arid regions or where animals are kept in paddocks, kraals, or grazing areas away from natural water sources. There are several

3.6.7 Water supply Tariff

At every household there is a water meter to measure the consumption and for monthly billing. The water supply tariff for domestic and commercial consumption is 1.6USD/m³ while the one supplied to the IDP camps is subsidized at 0.8USD/m³. Institutions such as schools, mosques and hospitals are supplied with water free of charge. They are currently metered but there will be a proposal to meter each and every consumer 100% for accountability on Non-Revenue Water.

3.6.8 Non-Revenue Water

From the available data it is not possible to define the unaccounted water losses present in the system quantitatively, in the opinion of the technicians of HODMAN Co. the quantities of

water loss due to abuses or leakages of the system is negligible according to the management. However, it is worth noting that based on the billing information to be provided by the company, the Consultant will be able to estimate the non-revenue water.

3.6.9 Water Supply Deficit

Based on the current borehole productions provided, it was calculated, and it was estimated that currently, the company provides 2820m³/day for supply to Qardho Town. Considering water supply demand above, Qardho has a water deficit of 1564.77m³/d currently in 2025 and will grow to an ultimate deficit of 15,090.52m³/day in the year 2047. Table 3-3 below shows the water deficit for the entire period. The deficits need to be bridged in the water master plan under consideration for preparations.

Table 3.3: Water Demand in Qardho Town

Year	2015	2025	2027	2032	2037	2042	2047
Qardho Population	80000	109,619	116,747	136,661	159,972	213,362	255,865
per capita use(l/c/d)		40	50	50	60	70	70
Water demand(M3/d)		4,384.77	5,837.36	6,833.05	9,598.31	14,935.32	17,910.52
Current Water Supply (M3/day)		2,820.00	2820.00	2820.00	2820.00	2820.00	2820.00
Deficit		1564.77	3017.36	4013.05	6778.31	12115.32	15090.52

3.6.10 Gaps Identified

The current water supply for Qardho Town is from deep boreholes and the existing infrastructure requires rehabilitation and expansion due to the growth of the town and the IDP camps located in the various parts of the town.

The increased demand for water, combined with insufficient investments in the maintenance and expansion of the water supply infrastructure, has led to significant inadequacies in the various components of the water supply systems within the town.

The main challenge of the water utility is the operation and maintenance of the water supply infrastructure. It was indicated in our discussion by the management of Hodman Company that the current tariff is not adequate to cover the cost of pumping and the staff cost. They get a top up from the Qardho local Government to cover the cost.

- The main challenges of the water supply are as follows;
- The pressure management – since there pipe network was laid without following any hydraulic analysis and the rapid expansion of the town most areas are receiving water with low pressure.
- Old pipe network – it was noted that the pipe network within the town is old and some of the pipes are blocked due to the salinity of the water.
- Pipe network layouts -it was noted that the pipe network was not mapped therefore difficult to establish the extend of the water coverage.
- High operation and maintenance costs necessitated the private operator to inject in funds from other sources especially when there is a breakdown of the pumps.
- Need for a new elevated tanks to enhance more pumping and thus more storage during daytime which utilizes solar energy compared to the grid power and generator sets which is expensive to run.

- g) Estimation of water demand and compare it with Production

3.7 Existing water Service Provision

3.7.1 The Ministry of Energy and Water 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.

3.7.2 The Ministry of Energy, Minerals and Water (MoEMW), Puntland state

The Ministry is in-charge of the protection and preservation of surface and ground water resources, including rivers.

3.7.3 Municipal Authority of Qardho District

Municipal authority of Qardho district is headed by Mayor who is the political wing. The leader at this level of local administration is closer to residents and therefore important in effective community engagement, sensitization and dispute resolution given that the borehole project will serve communities

3.7.4 Puntland Water Development Agency (PWDA)

Sole institution responsible for water, energy and minerals and was established as an autonomous agency under the Office of the President. The current mandate of the agency is to report on the water situation, plan locations for service delivery in collaboration with implementing partners, and put into operation projects funded by partners through private companies or local NGOs

3.7.5 Qardho Water Company (HODMAN Co.)

It's a Public private partnership water company established in 2006 with the mandate to provide safe drinking water and expand water services to all Qardho town population and nomads living in the surroundings of the town and their cattle through operating, managing and connecting the water supply system to the customers of the city of Qardho and distributing the waters to the nomads. HODMAN Co. operates under a 10-year lease agreement of the State-owned infrastructures under the close supervision of PWDA. This entity is responsible for operation and maintenances for water supply systems

3.8 Income, Livelihoods and Expenditure

In Qardho town a significant portion of the population has completed primary education, with about 61.7% having received that level of education. While literacy rates are high, particularly among mothers, maternal education levels still have room for improvement, despite notable increases. The county also boasts a substantial number of educational institutions, including ECD centers, primary schools, and secondary schools, as well as institutions for adult and vocational training.

3.9 Health

The health status in Qardho, Somalia, is marked by a fragile healthcare system and significant public health challenges. The region faces a high prevalence of communicable diseases, including water-borne illnesses like cholera, as well as malaria and acute respiratory infections. Maternal and child health is a major concern, with high rates of mortality and widespread malnutrition.

Healthcare Access and Challenges

Access to healthcare is severely limited due to a lack of infrastructure, with most services provided by NGOs and international aid agencies. The public system is under-resourced, and the private sector is often too expensive for the general population. Geographic and financial barriers, coupled with a lack of access to safe water and sanitation, further complicate efforts to provide adequate care.

Key Issues

- Communicable diseases: Outbreaks of cholera and other waterborne illnesses are common.
- Maternal and child health: High rates of mortality and malnutrition persist.
- Limited infrastructure: The public health system is weak, relying heavily on NGOs.
- Access barriers: Poverty, long distances, and inadequate water and sanitation are major challenges.

3.10 Security

The security baseline for Qardho town is one of moderate stability, but with persistent underlying risks from terrorism and local conflicts that could impact infrastructure projects.

General Context

- Qardho (Puntland) is more stable than much of southern Somalia but remains part of a fragile, high-risk environment.
- Risks include: inter-clan tensions, petty crime, weak institutional capacity, and spillover from militant groups (ISIS-Somalia, Al-Shabaab).
- Regional counter-terror operations occur intermittently.
- Humanitarian pressures (IDPs, drought, floods) heighten tensions and resource competition.

Qardho Town – Security Profile

- Overall- the town relatively calm but unpredictable; localized disputes and occasional criminal incidents are common.
- Threats could include theft, vandalism, inter-clan violence, displacement-related unrest, sporadic militant activity in surrounding areas.
- Puntland maintains security forces and has response capacity, but law enforcement and emergency response remain limited.

Threat Scenarios (Likelihood) around the project sites

- Petty crime/asset theft - High probability without security measures.
- Community protests/access disruption - Moderate probability.
- Militant incidents - Low-to-moderate probability (mainly regional, not town-centre).
- Displacement or inter-clan violence impacts: Moderate probability in wider area.

Qardho benefits from relative stability within Puntland, reports indicates significant contextual vulnerabilities – episodic militant operations in the region, drought-driven resource stress, and documented incidents of theft and abandonment of water infrastructure across northern Somalia. For the pipeline project, these factors translate into tangible risks such as theft and vandalism of pipes and equipment, illicit tapping, access disruption during security operations or local disputes, and potential community tensions over routing and water allocation.

4. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK FRAMEWORKS

4.1 National Regulatory and Policy Framework

4.1.1 The Provisional Constitution of the Federal Republic of Somalia

Institutional

The key legal instrument for the management of environmental and social risks in Somalia is the Provisional Constitution, and especially Article 25 ("Environment"), Article 43 ("Land"), Article 44 ("Natural Resources") and Article 45 ("Environment"). Article 25 of the Constitution states that "[every Somali] has the right to an environment that is not harmful to their health and well-being, and to be protected from pollution and harmful materials." The article proceeds to declare that "[every Somali] has the right to have a share of the natural resources of the country, whilst being protected from excessive and damaging exploitation of these natural resources."

Article 45 (in Chapter 3 - "Land, Property and Environment") exhorts "all people in ... Somalia" to "participate in the development, execution, management, conservation and protection of the natural resources and environment." Article 43, on its part, provides guidelines on environmental and social risk management that can be observed. However, there is a dearth of sufficient environmental or social safeguards in terms of legislated and or drafted regulations. The Article also affirms that the federal government shall give priority to the protection, conservation, and preservation of the environment against anything that may cause harm to natural biodiversity and the ecosystem.

Additionally, Article 12 of the Constitution addresses issues of application of fundamental rights. Further, the Provisional Constitution has made commitments on women's empowerment and gender mainstreaming. Article 15 (1, 2, 4) together with Article 24(5) of the Constitution provides for the protection of women against all forms of violence and provides for protection from sexual abuse, segregation, and discrimination. Article 15 prohibits Female Genital Mutilation (FGM).

Article 11 (1) together with sub article (3) respectively provides that all citizens have equal rights regardless of sex, religion, social or economic status, political opinion, clan, disability, occupation, birth or dialect shall have equal rights and duties before the law, and that the State must not discriminate against any person on the basis of age, race, colour, tribe, ethnicity, culture, dialect, gender, birth, disability, religion, political opinion, occupation, or wealth. Article 14 stipulates that a person may not be subjected to slavery, servitude, trafficking, or forced labor for any purpose, while Article 24 (5) prohibits sexual abuse in the workplace. The Puntland Sexual Offences Act 2016 prohibits sexual harassment.

Article 24 – Labor Relations: Every person has the right to fair labor relations. All workers, particularly women, have a special right of protection from sexual abuse, segregation and discrimination in the workplace. And, every labor law and practice shall comply with gender equality in the workplace.

Article 111J – The Office of the Ombudsman: The office is protected against interference from any other person or entity. As such, independence, integrity and effective service delivery are also maintained. The Ombudsman shall: (i) Investigate complaints against government workers regarding: allegations/ outright violations concerning basic rights and freedom, abuse of power, unfair behavior, mercilessness, lack of clemency, indiscipline or disrespect, corruptive act, illegal behavior, or those that could lead to mischief or injustice; (ii) Investigate complaints in relation to the activities of the Public Service Commission and other administrative institutions of the government, including defense and police forces that could lead to unequal services, unfair recruitment, or administration; (iii) Take appropriate steps to rectify or change items mentioned in earlier clauses through a fair, and appropriate process of consultations and sacrifices among the people concerned; (iv) Report on the complaints and issues raised and submit to the head of the offender; (v) Forward cases to the Attorney General and bring them before a court, as appropriate.

Trigger: Article 25 of the Constitution guarantees the right to a clean and healthy environment, while Article 43 emphasizes that land and natural resources must be managed in the public interest.

Relevance to Project: The proposed project directly contributes to the realization of these constitutional rights by improving sanitation and water management systems, thereby enhancing public health and environmental protection.

Compliance Measures: To align with constitutional requirements, land for project facilities must be acquired transparently and without forced displacement. In addition, environmental safeguards, including the preparation and implementation of Environmental and Social Impact Assessments (ESIA) and Environmental and Social Management Plans (ESMP), must be applied to protect ecosystems and ensure community health.

4.1.2 Legislation and Policies on the Environment and Social Sectors

Somalia National Environment Policy: The Somali Cabinet, on February 13, 2020, approved the National Environmental Policy. The stated goal of environmental policy is to improve the health and quality of life of the Somali people. The development of this policy was backstopped by the Global Environment Facility (GEF) and the United Nations Development Program (UNDP). This is the first time that an environmental policy has been developed and taken to Cabinet level for approval, since the collapse of the previous central administration in 1991.

In November 2020, an Environmental Impact Assessment Bill was approved by the Somali cabinet and sent to parliament for ratification. The Directorate is also the operational focal point for multilateral environmental agreements and funds, such as GEF, and Green Climate Fund (GCF). It is also tasked with conducting Sectoral Environmental Assessments, Environmental and Social Impact Assessments (ESIAs) and EAs, although at present there is no enabling legislation or regulations in place, other than the aforementioned Impact Assessment Bill.

Environmental and Social Impact Assessment Regulations of 2021 (draft). The Somali authorities have since moved to give effect to the aforementioned Environmental Assessment Bill of 2020. As of March 2021, the Directorate of Environment and Climate Change has published draft environmental and social impact assessment (ESIA) regulations.

Occupational Safety and Health. Legislation on OSH in Somalia is limited, with the labor code known as Act No. 31 of 2004: Private Sector Act¹ as the main reference on OHS issues. This law addresses hours of work, holidays and rest periods, employees' pay and emoluments, contracts, recruitment procedures, etc., but does not directly address OHS concerns. Instead, the Labor Code establishes the general rights, duties and responsibilities of the parties of labor relations, as well as conditions for ensuring the safety and health of workers.

The revised draft Somalia Labor Code² has more emphasis on OSH requirements. It makes the Director of OSH responsible for the registration of hazards and risks, regulation and supervision of all workplaces and monitoring or enforcing compliance with the Labor Code and any other labor law to the extent that they regulate safety, health and welfare in the workplaces. Part VI of the Revised Draft Labor Code covers the administration of occupational accidents, injury and disease provisions at workplace, employer's general duties towards to OSH, insurance requirements, employees' general duties, medical support, compensations, offenses, and penalties, etc.

The Labor Code covers protection against risks to workers, notification procedures in occupational accidents, medical requirements at site and conveyance of injured workers to hospitals, among others. Below is the list of relevant provisions of the Labor Code with regard to OHS.

Trigger: The project is subject to the provisions of the National Environmental Policy (2017), the Environmental Protection and Management Act (2024), and the Draft Environmental Impact Assessment and Audit Regulations.

Relevance to Project: In line with these instruments, the project must undergo a full Environmental and Social Impact Assessment (ESIA) prior to implementation. It is also required to integrate principles of climate resilience, waste reuse and recycling, and pollution prevention and control into its design and operation.

Compliance Measures: The ESIA report must be submitted for review and approval to Puntland's Ministry of Environment, Climate Change and Wildlife. Mitigation measures will include dust suppression, safe waste disposal, and routine water quality monitoring. Furthermore, stakeholder consultations must be conducted to ensure community participation and alignment with the guidelines of the National Environmental Policy.

4.1.3 The Somali Labor Code

The *Labor Code of 1972* stipulates that all employment contracts must include provisions on: a) the nature and duration of the contract; b) the hours and place of work; c) the remuneration payable to the worker; and d) the procedure for suspension or termination of contract. Furthermore, all contracts must be submitted to the competent Labor Inspector for pre-approval. With regards to OHS standards, the employer is obligated to provide adequate measures for health and safety, protecting staff against related risks, including provision of a safe and clean work environment and of well-equipped, constructed and managed workplaces that provide

¹ Referred to in Somali as “Wax ka Bedelka iyo Kaabista Xeerka Shaqaalaha Rayidka (Xeer Lam 32/2004)”

² Under development in a process that includes the International Labor Organisation

sanitary facilities, water and other basic tools and appliances ensuring workers' health and safety.

The Code further stipulates that the workers have the right to submit complaints and the employer must give the complaints due consideration. Remuneration must be adequate in view of the quality and quantity of the work delivered, and must be non-discriminatory with regard to age, gender and other aspects. Maximum number of working hours per week are 8 hours per day and 6 days per week. Some work is considered dangerous and unhealthy, and forbidden for women and youth (defined as 15-18 years of age). This includes the carrying of heavy weights or working at night. More details on the labor code are provided in the updated LMP for this Project.

The Labor Code further forbids work for children below the age of 12 but allows employment of children between the ages of 12-15, but employment has to be compatible with proper protection, health and the moral of children. The Code also recognizes freedom of association. Employers are prohibited from engaging in any kind of discrimination or restriction of the right of freedom of association. Workers are allowed to join trade unions. Further, the Labor Code stipulates the right to equal pay for the same work and women are entitled to 14 weeks of maternity leave at half pay.

The *Somali Penal Code of 1962* criminalizes rape and other forms of sexual violence as well as forced prostitution. Articles 398-9 provide that 'carnal intercourse' and 'acts of lust committed with violence' are punishable with 5-15 years and 1-5 years of imprisonment, respectively. Abduction for the purpose of lust or marriage is prohibited under Art 401. The *Family Code of 1975* sets the minimum age for marriage at 18 years for males and females. Females between the age of 16 and 18 can marry with their guardian's consent. Marriage is based on equal rights and duties.

Trigger: National labor laws provide for worker safety, employment rights, regulated working hours, and fair compensation.

Relevance to Project: The construction phase will involve both local and possibly migrant laborers, exposing the workforce to occupational health and safety (OHS) risks, potential accidents, and social impacts associated with labor influx.

Compliance Measures: All contractors must provide written contracts, fair wages, personal protective equipment (PPE), and insurance coverage for workers. Site safety protocols, including toolbox talks, first aid availability, and regular emergency drills, must be implemented. The project will also strictly prohibit child labor and forced labor in compliance with national labor standards and international safeguards.

4.1.4 Legislation and Policies for the Health Sector

Somalia also developed Immunization Policy 2020 – which provides strategic guidance on vaccine quality, target population, administration of vaccines, ensuring safe injections, immunization service delivery strategies, cold chain and vaccine management, roles and responsibilities of health workers and vaccinators, social mobilization, immunization data management, among others.

The *National Health Sector Strategic Plan (HSSP-II 2017-2021)*: The Strategy is based on nine building blocks. It prioritizes governance and leadership, followed by human resources, services delivery, health financing, pharmaceuticals and medical technology, health intelligence and information system, social determinants of health, emergency preparedness and response, and health infrastructure. The project will also apply the strategic guidance of the third phase of the health sector strategic plan (*HSSP-III 2022-2026*).

The HSSP II takes a pragmatic approach to the provision of Essential Package of Health Services (EPHS) including community-based health services across the FMS/BRAs and Regions of Somalia. However, implementation is limited to some regions; due to funding limitations and insecurity. The package is largely implemented by NGOs with emergency support from humanitarian partners. It is also continuously updated, with the priority to consolidate and scale-up essential health services in all areas, where access and security permits.

The plan provides a framework for future health programs to work within, expanding access to quality services, encouraging better targeting of disease specific programs, in coordination with government's strategic priorities, and more effective use of external support. The HSSP-II has set a target of developing and/or adopting the following health sector policy and legal frameworks by 2021: Public Health Act; Drug Policy – already developed and endorsed; Drug Act – the draft bill has been submitted to the parliament – pending for approval; Health Policy – the last one developed was in 2014; Health Regulatory Framework: National Health Professional Act was developed and signed by the President – currently in force; WATSAN and Environmental Health Policy and Strategy – this has been developed and endorsed; as well as Community Health Strategy, which was developed in 2015.

Although poorly managed at the national level, the FMoH is currently revising the EPHS, with the aim of delivering health services through a five-tiered system: National/Regional hospitals; Referral Health Centers; Health Centers, Primary Health Units; and community-based health workers. Most services comprise of basic PHC and outpatient services and cater to women and children. Public sector service points are often managed, financed and at least partially staffed by employees of international and/or national NGOs and community-based organizations (CBOs).

- **Trigger:** Somalia's Essential Package of Health Services (EPHS) and the Public Health Regulations under the Puntland Ministry of Health provide the framework for safeguarding public health in relation to water supply and sanitation services.
- **Relevance to Project:** The establishment of clean water provision facilities directly contributes to reducing the prevalence of waterborne diseases such as cholera and diarrhea. At the same time, construction activities may introduce temporary risks, including dust, noise, poor sanitation, and workplace accidents, which could affect both workers and nearby communities.
- **Compliance Measures:** The project will integrate occupational health and safety measures for workers throughout construction, including proper sanitation facilities and health awareness. It will coordinate with local health authorities to ensure safe handling of any medical waste and to establish health surveillance mechanisms. Post-construction,

all treated effluent must comply with Somali water quality standards to protect community health and ensure safe, sustainable service delivery.

4.1.5 Legislation and Policies for the Water and Sanitation

The Somalia's Provisional Constitution (2012) guarantees the right to clean water, sanitation, and a healthy environment. The National Environmental Policy (2017) and Environmental Protection and Management Act (2024) require ESIA's and safeguards for all water and sanitation projects. The Water Resources Law and draft National Water Policy regulate water use, waste discharge, and pollution prevention. The Public Health Law links sanitation to disease control, ensuring protection against waterborne illnesses. The Climate Change Policy (2020) and National Adaptation Plan Framework emphasize climate-resilient WASH systems to address droughts, floods, and water scarcity.

The project is anchored in the Somali Constitution (2012), which guarantees the right to clean water, sanitation, and a healthy environment. It complies with key environmental and water sector regulations, including the National Environmental Policy (2017), the Environmental Protection Act (2024), and the Water Resources Law, through ESIA approval, pollution control, and safe water discharge practices. In addition, the project supports public health and climate resilience policies, such as the Public Health Law, the Climate Change Policy (2020), and the National Adaptation Programme (NAP) Framework, by reducing disease risks and integrating climate-smart design approaches. Finally, it adheres to the Somali Labor Code by ensuring worker safety, fair labor practices, and community safeguards during both construction and operation phases.

Relevance to the project

The construction of a new water pipeline falls under several key Somali legal and policy frameworks. The Environmental Protection and Management Act (2024) is the primary driver for compliance, requiring an environmental permitting process and an ESIA to manage the impacts of excavation, construction, and land use, while also governing pollution prevention to protect soils and habitats along the route. This Act works in concert with the Water Resources Law, which regulates the pipeline's impact on existing water sources (e.g., the borehole it connects to) and establishes the legal basis for rights-of-way regulations to secure the land corridor for the pipe. Finally, the Public Health Law directly applies to the pipeline's function of water conveyance, mandating that the infrastructure be designed and built in a way that protects water from contamination during transport, thus ensuring the delivery of safe water and preventing waterborne diseases.

4.1.6 Provisional Constitution of Somalia (2012) – Land & Natural Resources

Article 43 of the Somali Constitution requires that land and natural resources be managed in the public interest, with allocation guided by law. In the context of this project, the proposed borehole facilities will be located within public institutions such as schools and health centers. To ensure compliance, land allocation will follow transparent procedures through Qardho Municipality and Puntland State authorities, with safeguards in place to prevent displacement or encroachment on community and private land.

Relevance to the project

The Provisional Constitution of Somalia (2012) provides the foundational legal framework governing land and natural resources management in the country. It emphasizes equitable access, sustainable use, and environmental protection of natural resources. This is directly relevant to the Gender-Sensitive and Climate-Resilient City WASH Masterplans project, as it guides how land and water resources should be utilized and protected during project planning and implementation. Specifically, it ensures that land acquisition, water abstraction, and sanitation infrastructure development are undertaken in a manner that respects community rights, promotes environmental sustainability, and aligns with national principles of equitable resource distribution.

4.1.7 Puntland Land Policy (Draft, 2018)

The draft Puntland Land Policy aims to clarify urban land tenure, prevent conflicts, and strengthen municipal authority in land allocation. For this project, the trigger arises from the need to ensure that institutional land in Qardho is formally allocated and properly recorded to avoid future disputes. Compliance will require obtaining official land-use permits from Qardho Municipality and engaging community elders and stakeholders in the site selection process to prevent potential clan-based conflicts.

Relevance to the project

The Puntland Land Policy (Draft, 2018) is relevant to the project as it provides the guiding framework for land tenure, allocation, and management within Puntland State, where one of the project towns—Qardho—is located. The policy promotes equitable and transparent land use planning, safeguards community and public interests, and supports sustainable development through proper land administration. Its relevance lies in ensuring that the project's land acquisition, right-of-way demarcation, and infrastructure development are conducted lawfully, minimize displacement, and align with Puntland's spatial planning and environmental sustainability principles.

4.1.8 Customary Land Tenure (Xeer Somali)

Somali customary law plays a central role in governing land ownership and usage, particularly in peri-urban and rural areas. While the proposed project sites within public institutions are under municipal ownership, adjacent lands may still fall under clan-based customary tenure. To ensure compliance, the project will engage local elders and religious leaders to verify land boundaries, confirm community acceptance, and prevent overlapping claims or disputes.

Relevance to the project

The Customary Land Tenure system (Xeer Somali) is highly relevant to this project as it governs local land ownership, access, and use rights across Somalia, particularly in rural and peri-urban areas where formal land registration is limited. Under Xeer Somali, land and water resources are traditionally managed through clan-based agreements that emphasize communal access, conflict resolution, and equitable sharing. For the WASH Masterplan and Feasibility Studies, recognizing and aligning project activities with Xeer principles is essential to ensure community acceptance, prevent land disputes, and facilitate smooth acquisition or use of land for infrastructure development such as water points, pipelines, and sanitation facilities.

4.1.9 National Security & Safety Frameworks (Federal & Puntland Levels)

Provision: The Federal Government of Somalia and Puntland State are mandated to ensure security and public safety, including the protection of critical infrastructure.

Trigger in Project: Construction activities may attract risks such as theft, vandalism, or community tensions, while the presence of heavy equipment could create additional safety hazards.

Compliance: The project will coordinate with local police and Puntland security authorities to ensure site safety, provide on-site security guards during construction, and develop a Security Management Plan to safeguard workers, assets, and surrounding communities.

4.1.10 Urban Planning and Land Use Regulations (Municipal Guidelines, Puntland)

Provision: Municipal councils regulate urban planning, zoning, and building permits.

Trigger in Project: New facilities within institutions require compliance with local urban planning/zoning.

Compliance: Secure building permits from Qardho Municipality; comply with construction codes and institutional land-use restrictions.

4.1.11 Conflict Prevention & Social Cohesion Policies (Puntland Development Plan, 2020–2024)

Provision: Encourages inclusive governance, clan consensus, and conflict prevention in development projects.

Trigger in Project: Potential disputes over land use, employment opportunities, or resource allocation.

Compliance: Implement a Stakeholder Engagement Plan (SEP); prioritize local labor recruitment; establish a grievance redress mechanism (GRM).

Relevance to the project

The Conflict Prevention and Social Cohesion Policies outlined in the Puntland Development Plan (2020–2024) are highly relevant to this project as they promote inclusive governance, equitable resource distribution, and community participation—all essential for sustainable WASH service delivery. By integrating these principles, the project supports peacebuilding through improved access to safe water and sanitation, reduces competition over scarce resources, and strengthens social cohesion among host communities and internally displaced persons (IDPs). This alignment ensures that project implementation contributes to both environmental resilience and social stability in Puntland.

4.2 Institutional Capacity for Environmental Management in FGS

The institutional basis for improving the management of environmental risks in projects in Somalia is being established. The Environmental Management and Coordination Bill is currently being reviewed by the Somali Parliament. The House of the People approved the Bill

in March 2023 and further reviews by the Senate are expected in May 2023, during the next parliamentary session. Once enacted, the Environmental Management and Coordination Act is expected to improve environmental governance and intergovernmental cooperation, as well as lay a foundation for undertaking environmental and social impact assessments in the country. The procedures for environmental and social impact assessments have already been elaborated in regulations that have been issued by the Ministry of Environment and Climate Change (MoECC).

The MoECC has commenced negotiations with departments and ministries in charge of the environment from the various Federal Member States, with a view of sharing responsibilities for managing environmental issues, including licensing procedures for development projects. Furthermore, an institutional capacity and structural assessment of the MoECC is underway with the support of the World Bank and the United Nations Environment Program. The statutory mandate for national environmental management in lies with the Ministry of Environment and Climate Change (MoECC). It is mandated to draft relevant policies and legislation, including establishing of the Environmental Quality Standards, and Sectoral Environmental Assessments, Environmental and Social Impact Assessments (ESIA).

Laws on environmental governance in South West Somalia (SWS), Jubaland and Hirshabelle are at infancy stages and environmental impact assessment capacity are nascent. Environmental decision-making arrangements includes the FGS signing international conventions, and parliament approving Environmental Acts and Laws. However, necessary laws have not been formulated yet.

Ministries have passed regulations on Environmental and Social Impact Assessments (ESIAs). The State Ministries of Environment are to be consulted before any infrastructure activities in their respective state with potential environmental and social risks and impacts. The Ministries are mandated to supervise all matters relating to the environment. They are mandated to review and approve ESIAs and RAPs. Some States, such as South West State and Jubaland, have Land Authorities, which are responsible for land adjudication matters. For the project implementation, this project will rely fully on AfDB ISS.

4.3 Institutional and Stakeholder Framework for Environmental & Social Management in Somalia

1. Federal-Level Institutions

- **Federal Ministry of Environment & Climate Change (MoECC):** Provides national policy guidance on environment and climate change. Influences project compliance with environmental protection frameworks (e.g., 2024 Environmental Protection & Management Act).
- **Federal Ministry of Energy & Water Resources (MoEWR):** Oversees water policy, water allocation, and water regulation. Influences project design standards on water reuse and water quality.
- **Federal Ministry of Health (MoH):** Ensures sanitation projects reduce public health risks. Influences monitoring of hygiene and disease prevention outcomes.

- **Federal Ministry of Labor & Social Affairs (MoLSA):** Oversees occupational health and safety. Influences worker protection, fair labor, and OHS enforcement in construction.

2. State-Level Institutions (Puntland)

- **Puntland Ministry of Environment, Climate Change & Wildlife:** Main authority for ESIA approval, environmental monitoring, and compliance in Qardho. Direct regulator of project's environmental safeguards.
- **Puntland Ministry of Health:** Oversees sanitation and health linkages at institutional level. Influences operational health standards at schools and health centers.
- **Puntland Ministry of Public Works & Transport:** Provides building permits and urban planning approvals. Influences land allocation and compliance with municipal building codes.
- **Puntland Ministry of Planning & International Cooperation (MoPIC):** Coordinates development projects and donor-funded initiatives. Influences alignment of project with regional development priorities.

3. Local-Level Institutions

- **Qardho Municipality (Local Government):** Controls land use, zoning, and building permits for institutional sites. Directly influences site selection, land allocation, and local oversight.
- **Traditional Authorities (Clan Elders, Religious Leaders):** Manage customary land tenure and community acceptance. Influence conflict prevention, grievance resolution, and community buy-in.
- **Community-Based Organizations (CBOs) & School Management Committees:** Ensure community participation and O&M support. Influence sustainability and ownership of sanitation systems.

4. Private Sector Actors

- **Local Contractors/Construction Companies:** Responsible for facility construction. Influence quality, safety, and timely delivery of infrastructure.
- **Waste Management Service Providers:** Potentially engaged for sludge management or solid waste disposal. Influence long-term sustainability of treatment operations.
- **Suppliers (Equipment, Materials):** Provide construction and treatment system components. Influence cost and technical reliability.

5. Development Partners & NGOs

- **African Development Bank (AfDB):** Project financier and safeguard enforcer. Influences categorization, ESIA compliance, and monitoring.
- **UNICEF Somalia:** Active in Puntland WASH programs. Influences technical support, standards for WASH in schools/health facilities, and possible co-financing.
- **NGOs/INGOs (e.g., CARE, NRC, Save the Children):** Implement WASH and community health interventions. Influence awareness campaigns, hygiene promotion, and community acceptance.

4.4 Key International Instruments Ratified or Acceded to by Somalia:

Federal government of Somalia has ratified below listed Conventions

- (i) **Universal Declaration of Human Rights (UDHR)** – Affirms the equal rights of men and women and the right to non-discrimination, dignity, and freedom for all individuals.
 - Triggered through the right to health and a clean environment. The project complies by improving sanitation and reducing disease risks in the community.
- (ii) **Convention on the Rights of the Child (CRC)** – Ratified by Somalia in 2015, it emphasizes the protection of children’s rights, including those of girls, and calls for the elimination of harmful practices like early marriage and FGM.
 - Triggered as the project targets communities directly. Compliance is ensured by providing safe water and sanitation facilities that protect children’s dignity and health
- (iii) **Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)** – Somalia has **not yet ratified CEDAW**, which significantly limits formal international obligations on women’s rights protection. However, civil society and international partners continue to advocate for its ratification and domestication.
 - Triggered through gender-sensitive sanitation needs. The project complies by providing separate, safe water provision facilities for women and girls.
- (iv) **African Charter on Human and Peoples’ Rights** – Somalia is a party to the Charter, which supports gender equality and women's rights within the African human rights system.
 - Triggered through the right to a healthy environment and protection from harmful waste. Compliance is achieved through ESIA, pollution control, and sustainable water management.
- (v) **African Charter on the Rights and Welfare of the Child (ACRWC)** – Ratified by Somalia, reinforcing children’s rights, including protection from early and forced marriage, discrimination, and abuse.
 - Triggered by the project’s direct benefits to children in the community. Compliance is ensured by providing safe, accessible WASH services for children.

- (vi) **Sustainable Development Goals (SDGs)** – Somalia has committed to the 2030 Agenda, with SDG 5 specifically focusing on achieving gender equality and empowering all women and girls, especially in access to education, health, water and sanitation, and economic opportunities.
- Triggered mainly SDG 6 (Clean Water & Sanitation), SDG 3 (Good Health), SDG 13 (Climate Action), and SDG 11 (Sustainable Cities). The project contributes by expanding access to improved sanitation and climate-resilient systems.
- (vii) **Kyoto Protocol (2005)**: Aim at reducing greenhouse gas emissions and combat climate change by setting binding emission reduction targets for developed countries.
- Triggered as water treatment reduces methane and other GHG emissions from unmanaged waste. Compliance is supported through climate-smart, low-carbon designs.
- (viii) **Bamako Convention on (1991)**: It ensures ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (1991)
- Triggered through control of hazardous waste imports and management. Compliance is ensured by safely handling and avoiding hazardous waste transfer.
- (ix) **Basel Convention on the (1989)**: It seeks to control Transboundary Movement of Hazardous Wastes and their Disposal.
- Triggered in relation to transboundary movement of hazardous waste. While the project is local, compliance means ensuring that no hazardous material is exported improperly.
- (x) **Rotterdam Convention (1998)**: It stipulates the prior informed consent procedure for certain hazardous chemicals and pesticides
- Triggered for chemicals and pesticides. Compliance is ensured by avoiding banned chemicals in construction/operation (e.g., avoiding asbestos pipes, toxic disinfectants).
- (xi) **Convention on Oil Pollution Preparedness, Response, and Co-operation (1990)**: It aims to ensure that countries develop and maintain adequate measures for dealing with oil pollution incidents
- Triggered by construction machinery and fuel storage risks. Compliance includes site-specific spill prevention and emergency response plans.
- (xii) **International Energy Charter (2015)**: It aims to enhance energy security, encourage open and competitive energy markets, support sustainable energy development, and promote energy efficiency and environmental protection among member states
- Triggered through the project's potential use of renewable/efficient energy for treatment plants. Compliance is achieved by integrating energy-efficient systems (solar pumping, low-energy treatment technologies).

4.5 Relevant International Labour Organization (ILO) and Human Rights Instruments

- Convention concerning Safety in the use of Chemicals at Work (Entry into force: 04 Nov 1993) Adoption: Geneva, 77th ILC session (25 Jun 1990) - Status: Up-to-date instrument (Technical Convention);
 - ✓ Triggered during construction/operation where chemicals (e.g., disinfectants, treatment reagents, fuels) are handled.
 - ✓ Compliance → Safe storage, PPE, training for workers, and spill management protocols
- Occupational Safety and Health Convention (1981) and its Protocol of (2002);
 - ✓ Triggered in ensuring safe working conditions at construction sites.
 - ✓ Compliance → Risk assessments, OHS plans, PPE provision, and accident reporting procedures.
- Promotional Framework for Occupational Safety and Health Convention, (2006) (No. 187);
 - ✓ Triggered in establishing a safety culture across the project.
 - ✓ Compliance → Integration of OHS policies into contractor management and routine safety training.
- Convention concerning the Prohibition and Immediate Action for the Elimination of the worst forms of Child Labour (2002);
 - ✓ Triggered due to risks of child labor in construction supply chains.
 - ✓ Compliance → Strict contractor clauses against child labor, verification of worker age, and engagement of labor inspectors.
- International Convention on the Elimination of All Forms of Racial Discrimination (CERD) (1976);
 - ✓ Triggered in hiring and community engagement.
 - ✓ Compliance → Non-discriminatory hiring, equal access to project benefits, and inclusive community participation.
- Optional Protocol to the Convention on the Rights of Persons with Disabilities (2007);
 - ✓ Triggered by the need to ensure accessibility in public institutions.
 - ✓ Compliance → Designing sanitation facilities with ramps, handrails, and inclusive toilets.
- The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (1985);
 - ✓ Triggered in gender-sensitive WASH provision.
 - ✓ Compliance → Separate, safe toilets for women and girls; women's involvement in decision-making committees.
- The Convention on the Rights of Persons with Disabilities (CRPD) (2012);
 - ✓ Triggered in ensuring equitable access to sanitation.

- ✓ Compliance → Universal design standards integrated into facility construction.
- The International Covenant on Civil and Political Rights (ICCPR) (2004);
 - ✓ Triggered by the project's obligation to respect community rights (participation, consultation, grievance redress).
 - ✓ Compliance → Transparent consultations, stakeholder engagement, and functioning GRM.
- The International Covenant on Economic, Social and Cultural Rights (ICESCR) (2004).
 - ✓ Triggered by the right to water, sanitation, health, and safe work.
 - ✓ Compliance → Expanding access to WASH, protecting worker welfare, and reducing disease risks.

4.6 Regional Treaties Relevant to GBV, SEA, VAC and Persons Living with Disability (PLWD)

- African Charter on Human and Peoples' Rights (1981);
- Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (Maputo Protocol) (2003);
- Violence and Harassment Convention (2019) No.190;
- AU Disability Protocol (Protocol to the African Charter on Human and Peoples' Rights on the Rights of Persons with Disabilities in Africa) (2018);
- Economic Community of West African States (ECOWAS) Gender Policy (2005, revised 2020);
- COWAS Plan of Action to Address Gender-Based Violence (2020–2030);
- Convention Against Torture & other Cruel, Inhuman or Degrading Treatment or Punishment (CAT) (2001);
- Convention on the Rights of Persons with Disabilities (2007);
- The Convention on the Rights of the Child (CRC) (1990);
- The National Action Plan for the Implementation of United Nations Security Council Resolution 1325 (2009);
- The Protocol to the ACHPR on the Rights of Women in Africa (the "Maputo Protocol") (2007).

4.7 African Development Bank Integrated Safeguards System)

In 2013, the African Development Bank adopted an Integrated Safeguards System (ISS) (also referred to as the "2013 ISS"), which established the Bank Group's commitment to sustainable development, consolidating and building on the Environment (2004) and Involuntary Resettlement (2003) safeguard policies, as well as cross-cutting policies and strategies on gender (Gender Strategy for 2021–2025, "Investing in Africa's Women to Accelerate Inclusive Growth"), and then the Civil Society Engagement Framework (2012).

1. The updated ISS improves the consistency of the Bank's approach to key thematic issues, Environmental and Social Assessment (ESA), and stakeholder engagement activities by adopting 10nr Oss. The 10nr E&S OSs set out the requirements for Borrowers relating to

the identification and assessment of E&S risks and impacts associated with operations supported by the Bank.

2. The ten E&S OSs establish the standards that Borrowers shall meet, as appropriate, in projects, activities, and initiatives supported through Bank financing throughout the life cycle of operations, the OS are summarized in the table sub sections below.

Environmental and Social Operational Safeguard (OS) provisions and Applicability to the Project

Table 4.1: Social operation safeguards provision

#	OS	Provisions	Project Applicability
1	Environmental and Social Operational Safeguard 1: Assessment and Management of Environmental and Social Risk and Impact.	<p>Environmental and Social Operational Safeguard 1: Assessment and Management of Environmental and Social Risk and Impact. The aim of this overarching Operational Safeguard (OS), together with the OSs that complement it, is to mainstream environmental and social (E&S) considerations, including those related to climate change vulnerability. into Bank operations and thereby contribute to sustainable development in the continent.</p> <p>The objectives of OS1 are to Identify and assess the E&S risks and impacts including those related to gender inequalities, climate change, and vulnerability of Bank lending, investment, and grant-supported operations, in their areas of influence in a manner consistent with the Oss among others</p>	<p>Conduct an Environment and Social Assessment (ESA) of the proposed project, including stakeholder engagement;</p> <p>Undertake stakeholder engagement and disclose appropriate information in accordance with OS10;</p> <p>Develop an Environmental and Social Plan (ESMP) and implement all measures and actions set out in the financing agreement including the ESMP; and Conduct monitoring and reporting on the E&S performance of the project against the OSs.</p>
2	Environmental and Social Operational Safeguard 2: Labour and Working Conditions	<p>The objectives of OS2 are as follows: To protect workers' rights., To promote safety and health in the workplace and to promote the fair treatment, non-discrimination, and equal opportunity of project workers among others. The categories of workers include;</p> <p>People employed or engaged through third parties to perform work related to the core functions¹⁰⁹ of the project, regardless of location (contracted workers). People employed or engaged by the Borrower's primary suppliers¹¹⁰ (primary supply workers); People employed or engaged in providing community labour (community workers).</p>	<p>The borrowers shall undertake below listed prior to implementation of the Project</p> <p>Labour Management Procedures (LMPs) that will detail Working conditions and management of worker relationships Preparation of Occupational Health and Safety Management Plan prior to commencement of works Registration with applicable occupational health and safety</p>

3	Environmental and Social Operational Safeguard 3: Resources Efficiency and Pollution Prevention and Management	This Operational Safeguard (OS) recognizes that economic activities often cause air, water, and land pollution, and The OS provides that the Borrower shall implement technically and financially feasible measures for improving the efficient consumption of energy, water, and raw materials, as well as other resources. The Borrower shall apply pollution prevention and control measures consistent with national legislation and standards, applicable international conventions, and internationally recognized standards and good practice, particularly the Environment Health and Safety Guidelines (EHSGs)	The BORROWER at design Stage shall; Implement Resources efficiency technologies that supports efficient consumption of energy, water, and raw materials, as well as other resources Prepare Pollution Management Plans such as E-Waste Management Plan, Solid and Liquid Waste Management Plan
4	Environmental and Social Operational Safeguard 4: Community Health, Safety and Security	OS4 addresses the health, safety, and security risks to and impacts on project-affected communities and the corresponding responsibility of the Borrower to avoid or minimize them, with particular attention to people who, due to their particular circumstances, may be vulnerable. This OS addresses potential risks to and impacts on communities that may be affected by project activities. Occupational health and safety (OHS) requirements for project workers are set out in OS2, and measures to avoid or minimize impacts on human health and the environment due to existing or potential pollution are set out in OS3	The BORROWER will prepare Community health and safety Management Plan Ensure Worker Sign Code of Conduct Prepare and Implement Traffic Management Plan Prepare and implement labour Influx Management Plan Emergency preparedness and response Plan Prepare Security Management Plan
5	Environmental and Social Operational Safeguard 7: Vulnerable Groups	This OS recognizes that some cultural groups, due to their lifestyle, culture, and strong dependence on the natural environment, have identities and aspirations that are distinct from mainstream groups in national societies and are often disadvantaged by traditional models of development. In many instances, they are among the most economically marginalized and vulnerable segments of the population The objectives of OS7 is to ensure that vulnerable groups and individuals are identified as early as possible in Bank Group operations and that engagement is meaningful, taking into account individuals' and communities' specificities, and delivered in an appropriate form	If the cable interphase with such communities, the BORROWER will undertake below listed Early identification of vulnerable groups Social assessment Special considerations related to highly vulnerable rural minorities Adequate Public consultation and participation Vulnerable groups and broader development planning Timely address of Grievances from such communities

6	Environmental and Social Operational Safeguard 9: Financial Intermediaries	<p>This OS addresses the environmental and social (E&S) requirements associated with intermediated financing through financial and non-financial institutions</p> <p>FIs will put in place and maintain an ESMS to identify, assess, manage, and monitor the E&S risks and impacts of FI subprojects on an ongoing basis. The ESMS will be commensurate with the nature and magnitude of E&S risks and impacts of FI subprojects, the types of financing, and the overall risk aggregated at the portfolio level</p>	<p>The OS provides for below listed</p> <p>Preparation of Environmental and Social Management System</p> <p>Adequate Stakeholder engagement</p>
7	Environmental and Social Operational Safeguard 10: Stakeholder Engagement and Information Disclosure	<p>The OS provides that Borrowers shall engage with stakeholders throughout the project life cycle, commencing as early as possible in the project development process and in a time frame that enables meaningful consultations with stakeholders on project design. The nature, scope, and frequency of stakeholder engagement will be proportionate to the nature and scale of the project, and its potential risks and impacts</p> <p>The objectives of OS10 is to establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders, and build and maintain a constructive relationship and channels of communication with them, in particular project-affected parties among other objectives</p>	<p>The OS requires below listed with respect to the Project Engagement during project preparation</p> <p>Preparation of The Stakeholder Engagement Plan</p> <p>Establishing a functioning Grievance mechanisms</p> <p>. Engagement during project implementation and external reporting</p> <p>Organizational capacity and commitment</p>

4.8 Comparison between the FGS Frameworks and other international standards

Table 4.2 Comparison of the FGS Frameworks vs other international standards adopted in this project

Thematic Area	FGS Frameworks	AfDB ISS (2013) Safeguards	Other International Standards	Relevance to the Project
Environmental Protection & ESIA	Environmental Protection & Management Act (2024); ESIA & Audit Regulations	OS 1: Environmental & Social Assessment – comprehensive ESIA required	Basel Convention (1989), Bamako Convention (1991)	Project requires ESIA approval, mitigation of borehole drilling impacts, and safe waste management.
Water & Sanitation	Water Resources Law; National Environmental Policy (2017)	OS 4: Pollution Prevention and Control – efficient resource use & pollution prevention	SDG 6 (Water & Sanitation), ICESCR (Right to Water)	Ensures sustainable water use, borehole construction standards, and safe sanitation facilities.
Climate Change & Resilience	Climate Change Policy (2020); NAP Framework	OS 2: Climate Change – low-carbon, climate-resilient development	Kyoto Protocol, Paris Agreement, SDG 13	Design integrates climate resilience (e.g., solar pumping, flood-resistant structures).
Land & Natural Resources	Constitution (2012) on land ownership; Land Tenure (customary + municipal laws)	OS 3: Biodiversity & Ecosystem Services – protect ecosystems	African Charter on Human & Peoples’ Rights (Right to Environment)	Facility siting must respect land tenure, avoid riparian damage, and maintain Wadi Qardho ecology.
Biodiversity & Ecology	Forests & Wildlife Law; Fisheries Law (1985)	OS 3: Biodiversity Conservation	Ramsar Convention, CBD (Biodiversity)	Water systems must prevent disruption of seasonal Wadi Qardho aquatic life.
Gender & Social Inclusion	Constitution (2012) guarantees equality; Gender Policy mainstreaming	Cross-cutting Safeguard – gender mainstreaming & inclusion	CEDAW, CRC, CRPD	Separate facilities for women/girls, inclusion of persons with disabilities, child-sensitive designs.
Community Engagement	NEP (2017) requires public participation; Local Government Act	OS 1 & OS 2: Stakeholder Engagement, Disclosure, Grievance Mechanisms	UDHR, ICCPR (Civil Rights), ICESCR (Social Rights)	Community consultations, GRM, and stakeholder engagement must be central to planning.

5. STAKEHOLDER CONSULTATIONS

The Stakeholder Engagement Strategy for this water and sanitation project is designed to ensure inclusive participation and ownership at all levels, particularly among those who are directly or indirectly affected by sub-project activities. It aims to identify and address stakeholder needs, expectations, concerns, and grievances through proactive engagement and feedback mechanisms. By doing so, the strategy seeks to promote transparency, collaboration, and accountability throughout the project's lifecycle, fostering trust between stakeholders and implementers. Ultimately, this approach will strengthen the social license to operate, helping to reduce the risks of resistance or conflict and ensuring smoother implementation and sustainable outcomes.

5.1 Identified stakeholders and their roles

The Qardho WASH Project involves a wide range of stakeholders drawn from government institutions, development partners, local authorities, traditional leaders, and community organizations, each playing a key role in ensuring the project's successful implementation and sustainability.

- **Government Ministries:**

The Ministry of Energy, Minerals and Water Resources leads implementation, design approval, and supervision, while the Ministry of Environment, Agriculture and Climate Change oversees ESIA approval, compliance, and climate safeguards. The Ministry of Health ensures water quality, hygiene, and disease control.

- **Local Authorities:**

Qardho Municipality and District Administration manage land allocation, permits, and community engagement. Community Water and Sanitation Committees oversee local water points, maintenance, and equitable access, while local elders mediate land issues and support social acceptance.

- **Development Partners:**

UNICEF and AfDB (through AWF) provide financial and technical support, enforce safeguard standards, and strengthen institutional capacity. FAO (via SWALIM) offers hydrological data and groundwater monitoring. The Ministry of Planning ensures project alignment with national frameworks.

- **Private Sector and Beneficiaries:**

Contractors and consultants handle design, construction, and rehabilitation under PMU supervision for quality and compliance. Local communities and IDPs participate in consultations and benefit from improved water access.

- **Civil Society and Security:**

CSOs and NGOs promote hygiene, gender inclusion, and capacity building. Security agencies ensure safety at project sites and protect personnel and assets.

5.2 Methodology of stakeholder engagement

Stakeholder engagement was conducted in the following ways;

- a) **Key informant interviews (KIIs)** with local authorities, WASH service providers, women's groups, and elders. Focus was to establish for any existing UNICEF gender programmatic review (if one has been conducted), especially if WASH programming was reviewed.
- b)
- c) **Focus group discussions (FGDs)** disaggregated by sex and age to capture diverse perspectives; (i) The first FGD was held with a government official from the department of physical planning about the interventions they would require help with in terms of WASH from the project. (ii) The other FGD was held with CISP an NGO dealing with Gender issues in Somalia and specifically Qardho and (iii) The last one was held at Qardho Hospital with the General Manager to understand the gaps and challenges they face in terms of providing services especially with focus on WASH activities.

Table 5.1 Stakeholder Engagement Matrix

Stakeholder	Category / Level	Interest in Project	Influence	Roles and Responsibilities
Puntland Ministry of Energy, Minerals & Water Resources (MoEMWR)	Government / Lead Implementing Agency	High - responsible for water sector policy, coordination, and infrastructure development	High	Lead implementing agency; oversight of design and construction; ensures project aligns with Puntland Water Policy and national WASH objectives.
Puntland Ministry of Environment, Agriculture & Climate Change (MoEACC)	Government / Regulator	High - ensures environmental protection and sustainability	High	Reviews and approves ESIA; issues Environmental Compliance Certificates; monitors environmental safeguards and climate resilience measures.
Puntland Ministry of Health (MoH)	Government / Health Authority	High - focuses on public health and sanitation outcomes	Medium	Oversees water quality monitoring and health risk management; coordinates with project on hygiene promotion and disease surveillance.
Qardho Municipality / District Administration	Local Government	High - manages land, permits, and community coordination	High	Facilitates land allocation and construction permits; coordinates urban planning and community engagement; supports local conflict resolution.
Community Water and Sanitation Committees (CWSCs)	Community / Local Governance	High - directly manage and maintain water facilities	Medium	Oversee local water points and treatment plants; ensure equitable access and community participation in operation and maintenance.
Local Elders and Clan Leaders	Traditional Authority	High - influence social acceptance and land access	Medium-High	Confirm land ownership and boundaries; mediate disputes; facilitate community buy-in and peaceful coexistence.
UNICEF	Development Partner / Financier	High - provides funding and technical support	High	Finances and supports project implementation; ensures adherence to UNICEF Environmental and Social Standards (ESS); monitors social and gender impacts.
African Development Bank (AfDB) / African Water Facility (AWF)	Development Partner / Financier	High - co-funding and safeguard oversight	High	Provides financing, ensures compliance with AfDB Integrated Safeguards System (ISS), and monitors environmental and social performance.
FAO - Somalia Water and Land Information Management (SWALIM)	Technical Partner / Research Institution	Medium - supports data collection and water resource management	Medium	Provides hydrological data, groundwater monitoring, and technical inputs for sustainable water resource management.

Ministry of Planning, Investment, and Economic Development (MoPIED)	Government / Coordination	Medium - ensures national alignment and donor coordination	High	Ensures project aligns with national plans; coordinates with donors and oversees reporting.
Contractors and Consultants	Private Sector / Service Providers	High - responsible for design and construction	High	Execute construction, rehabilitation, and installation of water infrastructure; adhere to EHS standards; implement ESMP measures.
Supervising Engineer / Project Management Unit (PMU)	Technical Oversight	High - ensures quality and compliance	High	Supervises works, ensures adherence to specifications and safeguards, and prepares progress and compliance reports.
Local Communities and IDPs	Beneficiaries	Very High - direct users of improved WASH services	Low-Medium	Participate in consultations; provide local knowledge; benefit from improved access to safe water and sanitation.
Civil Society Organizations (CSOs) / NGOs	Development / Advocacy	Medium - promote community empowerment and inclusion	Medium	Support community sensitization, gender inclusion, hygiene promotion, and grievance redress.
Security Agencies (Police, Local Administration)	Public Safety / Law Enforcement	Medium - responsible for protection of assets and personnel	Medium-High	Provide site security, protect equipment and workers, and respond to safety or conflict incidents.

5.3 Stakeholder Consultation Summary

A total of 5 key informant interviews and 6 Focused Group Discussions (FGD) were conducted with representatives from the following sectors. Additionally, Public participation forums were held on 3rd September 2025 at Mayor Office Qardho.

5.3.1 Key Informant Interviews

A total of 5 KIIs have been conducted with representatives from the following sectors:

Table 5.2 Key Informant Interviews

Date	Stakeholder/Office Visited	Key Issues Discussed
12 th June 2025	Ministry of Women Development and Family Affairs (MOWDAFA) – Qardho-Social Department	Women's representation in WASH planning, lack of menstrual hygiene services, need for gender mainstreaming in local development plans.
11 th June 2025	Qardho Municipality (Mayor's Office & Public Works Dept.)	Infrastructure gaps, urban sanitation planning, challenges in maintaining public toilets.
9 th June 2025	Ministry of Water and Environment – Hoodman Water Management Company	Access to clean water, distance to water points, maintenance issues, low women involvement in user committees.
12 th June 2025	Ministry of Health – Shabeellee Health Centre	WASH-related health concerns, diarrhoea outbreaks, link between sanitation and maternal health.
13 th June 2025	Local NGOs (including women's associations)	Gender-based violence risks at water points, lack of sanitary pads, women's limited access to funding.

5.3.2 Focus Group Discussions

Table 5.3: Focus Group Discussions

Date	Group Composition	Key Themes
12 th June 2025	Women from IDP camps (5 participants)	Long distances to water points, lack of safety and privacy at latrines, stigma around menstruation.
11 th June 2025	Waste services provider	Poor school sanitation, need for capacity building, establishment of recycling facilities
16 May 2025	Men and male youth (community leaders)	Limited awareness of gender-specific needs in WASH, support for improved community hygiene.
12 th June 2025	Mixed group: nurses, CHWs	Importance of inclusive WASH education, role of schools and health centers, capacity-building needs.

5.4 Government and Institutional Visits

In addition to interviews, visits were made to:

- District Administration Office: Discussed governance and coordination of basic services.
- Water Service providers and Boreholes: Observed operation, tariff practices, and community usage patterns.
- Health Centers and IDP Camps: Inspected hygiene facilities, water availability, and MHM provisions.
- Women's Centers and Safe Spaces: Engaged with service providers supporting GBV survivors and awareness programs.

Outcomes of Stakeholder Visits

1. District Administration Office

- Gained insights into the governance structures responsible for coordination of water, sanitation, and hygiene (WASH) services.
- Identified gaps in capacity and resources, highlighting the need for stronger institutional support and better alignment between district authorities and service providers.
- Confirmed willingness of the administration to collaborate with development partners on WASH infrastructure and service delivery.

2. Water Service Providers and Boreholes

- Observed that operations are functional but constrained by aging equipment, high maintenance costs, and irregular supply.
- Tariff practices revealed inconsistencies, with affordability challenges for vulnerable households.
- Community reliance on boreholes underscored the urgency of upgrading infrastructure and ensuring fair pricing mechanisms.

3. Health Centers and IDP Camps

- Inspections showed inadequate hygiene and sanitation facilities, with limited or intermittent water availability.
- Menstrual hygiene management (MHM) materials and private facilities were insufficient, contributing to reduced dignity and poor health outcomes, especially for women and girls.
- The findings emphasized the need to integrate WASH improvements into health centers and IDP settlements to reduce disease risks and improve well-being.

4. Women's Centers and Safe Spaces

- Discussions revealed ongoing support for gender-based violence (GBV) survivors, but facilities were under-resourced.
- Awareness and advocacy programs were ongoing, yet limited in reach due to funding and staffing constraints.
- Consultations highlighted the importance of embedding gender-sensitive WASH solutions and linking them with GBV awareness initiatives to strengthen protection and empowerment.

5.5 Planned Stakeholder Engagement Activities

5.5.1 Stakeholder Engagement Plan (SEP)

1. Introduction

The SEP outlines how stakeholders will be identified, consulted, informed, and engaged throughout the project lifecycle. It ensures compliance with AfDB ISS Guidance Note 10 and Somali regulatory frameworks on community engagement.

2. Objectives of the SEP

- Identify and analyze stakeholders (interest, influence, and vulnerability).
- Provide a framework for transparent and culturally appropriate engagement.
- Ensure timely disclosure of information to all stakeholders.
- Establish a functional grievance redress mechanism (GRM).
- Build ownership and support for sustainable project operation.

3. Stakeholder Identification and Analysis

Table 5.4 Stakeholder Mapping Matrix

Stakeholder	Role / Interest	Influence / Power	Engagement Needs / Approach
UNICEF	Project financier and technical support	High	Strategic guidance, monitoring, reporting; regular project meetings and technical reviews
African Development Bank (AfDB)	Funding oversight, safeguards compliance	High	Ensure compliance with environmental and social safeguards; quarterly progress updates
Ministry of Water, Puntland / Qardho District Water Authority	Regulatory oversight, approvals, technical supervision	High	Early involvement in site selection, permits, technical approvals; continuous coordination
Local Authorities / District Administration	Local governance, facilitation, security	High	Continuous engagement, coordination for permits and community mobilization
Public Institutions (Schools, Hospitals, Health Centers)	Hosts of boreholes; direct beneficiaries	Medium	Site access agreements, regular consultations, maintenance cooperation
Community Water and Sanitation Committees	Borehole management,	Medium	Capacity building, training, active participation in planning and

(WSCs)	operation & maintenance		monitoring
Community Leaders / Elders	Influence over community acceptance, conflict resolution	Medium	Consultations, involvement in grievance resolution, decision-making
Local Residents / Users	Beneficiaries of water services	Medium	Awareness campaigns, feedback mechanisms, participation in borehole siting discussions
Women and Vulnerable Groups	Primary users, responsible for water collection	Medium	Targeted consultations to ensure access and gender-sensitive design; training on hygiene and management
Contractors / Drilling Companies	Borehole drilling, rehabilitation, civil works	Medium	Regular supervision, adherence to ESMP, health & safety compliance
Health Authorities / NGOs	Support hygiene promotion, water quality monitoring	Medium	Collaborate in training and monitoring programs, data sharing
Media / Local Information Channels	Awareness and dissemination of project progress	Low	Periodic updates to public, awareness campaigns for community engagement
Environmental Authorities (Ministry of Environment / Puntland)	Environmental monitoring, compliance enforcement	Medium	Ensure ESMP implementation, site inspections, approvals

4. Stakeholder Engagement Activities

- **Preparation & Design Phase:** Public consultations, ESIA disclosure, validation of site selection.
- **Construction Phase:** Continuous community updates, safety briefings, OHS monitoring, job opportunities.
- **Operation Phase:** Hygiene promotion, capacity building of school/health staff, periodic community outreach.

5. Information Disclosure

- **What:** ESIA/ESMP summaries, project timelines, OHS measures, GRM procedures.
- **How:** Flyers in Somali language, public noticeboards at schools/health centers, radio programs, AfDB website.
- **Principle:** Timely, accessible, culturally sensitive disclosure.

5. Grievance Redress Mechanism (GRM)

- **Community-level complaint desks** at borehole sites.
- **Escalation** to Qardho Municipality and Puntland Environment Ministry.
- **Final appeal** through AfDB safeguard focal points.
- Free, accessible, and inclusive for all groups, including women and children.

7. Feedback Mechanisms

- Biannual community meetings to share project updates.
- Publicly displayed summaries of resolved grievances.
- AfDB and Puntland government disclosure of monitoring results.

8. Budget for SEP Implementation

Activity	Estimated Cost (USD)
Consultations & Meetings	2,500
Information Disclosure (media, flyers, translation)	2,500
Grievance Mechanism (training, staff, desks)	3,000
Monitoring & Reporting	1,500
Contingency	500
→ Total Estimated SEP Budget:	10,000 USD

9. Monitoring and Reporting

- **Indicators:** Number of consultations held, % of vulnerable groups consulted, grievances resolved, community satisfaction rate.
- **Frequency:** Quarterly monitoring reports; annual review with AfDB.

5.5.2 Project implementation phase

OS 10 (Stakeholder Engagement and Information Disclosure) ensures that the SEP will remain fully operational throughout construction. During the construction Phase the stakeholders will be engaged and key activities will include:

- Regular information updates to communities on construction schedules, traffic management, safety protocols, and anticipated disruptions, to mitigate rumors and opposition.

- Real-time impact monitoring through community feedback channels to track and adaptively manage dust, noise, labour influx, and other construction-related effect.
- Ongoing grievance-redress support, ensuring new or evolving concerns particularly those affecting local livelihoods are addressed before escalation.

5.5.3 Project closure phase

During the completion stage the stakeholders will be involved in activities encompassing final inspections, ex-post RAP evaluation, and commissioning. The following engagement activities will be conducted to secure sustainable handover-

- Validation of compensation and restoration outcomes, co-verified with affected persons to confirm delivery of agreed entitlements
- Lessons-learned workshops with stakeholders to capture effective practices and areas for improvement, informing future projects.
- Transition planning sessions with communities and local authorities to formalize long term monitoring and maintenance responsibilities.

Table 5.5: Summary of planned stakeholder engagement in project implementation phase

Engagement Type	Purpose
Pre-Construction Sensitization	Meetings Ensures early disclosure of construction plans, timelines, and risks to promote informed stakeholder participation.
Construction Kick-Off Meeting	Promotes coordination and clear communication of roles/responsibilities, aligned with inclusive engagement principles.
Monthly Community Feedback	Forums Fulfils OS 10's requirement for continuous consultation to manage emerging issues and maintain social license.
Grievance Redress Meetings	Provides access to an effective GRM as required by OS 10 to address construction-related complaints in real-time.
Environmental & Social Risk	Monitoring Sessions Ensures that construction risks (dust, waste, labour influx) are monitored with stakeholder involvement, as required.
Labour Engagement Meetings	Promotes non-discriminatory employment practices, working conditions, and grievance channels for workers.
Traffic and Public Safety Meetings	Informs stakeholders of potential access disruptions and ensures inclusion of vulnerable road users (per OS 10)
Women and Vulnerable Group	Dialogues Supports equitable participation, safeguards vulnerable populations, and captures gender-specific concerns.
Emergency Response and	Preparedness Meetings Ensures communities are informed and prepared to respond to construction-related incidents or health risks.

Decommissioning meeting	A decommissioning meeting will be convened to formally mark the closure of project activities and to ensure a transparent, inclusive, and accountable handover process. The meeting will bring together key stakeholders, including representatives from the implementing agency, local government officials, community leaders, project-affected persons (PAPs), and the project team.
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5.5.4 Process to be followed for arranging engagement activities

- Engagement planning & scheduling: This will involve drafting of an engagement calendar aligned with project timelines, selection of venues based on accessibility and security considerations.
- Notification & mobilization: This will involve issuing of formal invitations or public notices (radio, posters, local leaders), and mobilization at least 5 working days in advance.
- Logistics and resource preparation: This will include securing venues, arranging refreshments, transport support for vulnerable group, prepare communication materials (presentations, banners, feedback forms), setting up the venue etc.
- Conduct of engagements: This will be the recording of proceedings and gathering feedback systematically.
- Post-engagement follow-up: This will involve compiling of meeting minutes and sharing with participants, integration of feedback into project planning.

5.5.5 Engagement protocols

During engagement, the following protocols shall be applied; -

- Respect and Inclusivity: Ensure respectful, inclusive participation with attention to gender, age, and disability considerations.
- Free, Prior and Informed Consent (FPIC): Engagements must be voluntary, based on complete and timely information.
- Language and Communication: Use local languages and culturally appropriate methods to ensure understanding.
- Documentation and Transparency: Maintain detailed minutes, attendance records, and audio/visual documentation (if permitted).
- Feedback and Grievance Mechanism: Inform stakeholders of grievance procedures and encourage constructive feedback.
- Security and Ethics: Ensure safe environments and adhere to ethical standards of engagement.

6. ANALYSIS OF ALTERNATIVES

6.1 Alternative Materials for Water

6.2 Pipes

The choice of water supply material is influenced various factors as summarized below:

- Capacity to withstand internal and external pressure
- Resistance to soil corrosively
- Internal surface smoothness
- Thrust restraining requirements at bends and tees
- Pipe jointing methods
- Future expansion and maintenance needs
- Expected pipeline lifespan
- Availability, procurement origin and cost

6.2.1 Water Supply Pipes

Taking these factors into account, HDPE (High-Density Polyethylene) pipes is preferred for the proposed works. From a safeguard's perspective, HDPE is a suitable material due to its corrosion and chemical resistance, and overall durability and subsequently its sustainability. It does not pose environmental or health hazards under normal operating conditions. When assessed against other available materials, there is no clear justification for selecting an alternative that would offer significantly better environmental or social performance within the context of this project and the defined design requirements. For this project in particular, the safeguards approach prioritized minimizing population displacement and avoiding the use of hazardous materials. The adoption of HDPE aligns with these objectives and supports compliance with applicable environmental and social standards.

For a pipeline extension and rehabilitation project in Qardho, the choice of materials should balance cost, durability, availability, ease of installation, and resistance to local conditions (heat, saline water, limited maintenance capacity). Below is a structured list of alternative materials with their pros and cons:

1. Plastic-Based Pipes

PVC (Polyvinyl Chloride / uPVC)

Pro: Low-cost, lightweight, easy to install, widely available in Somalia.

Con: Limited resistance to very high pressure; can become brittle under prolonged UV exposure if not buried.

HDPE (High-Density Polyethylene)

Pro: Very durable, flexible (good for rocky ground), resistant to corrosion and chemicals.

Con: More expensive than PVC, may require skilled welding or special fittings.

PE (Polyethylene, Medium/Low Density)

Pro: Flexible, suitable for small-diameter distribution lines.

Con: Less pressure-resistant, best for short extensions or household connections.

2. Metal-Based Pipes

Galvanized Steel (GI pipes)

Pro: Strong, durable under pressure, good for short sections or exposed lines.

Con: Prone to rust/corrosion (especially with saline water); heavy and costly.

Ductile Iron

Pro: Very strong, long lifespan, good for main lines under pressure.

Con: Expensive, heavy, requires special handling/equipment.

3. Concrete & Clay Pipes

Reinforced Concrete Pipes (RCPs)

Pro: Very strong, durable, suitable for gravity pipeline drains.

Con: Heavy, costly to transport/install, cracks if poorly handled.

Clay Pipes (Vitrified Clay)

Pro: Excellent chemical resistance, long-lasting if well made.

Con: Brittle, difficult to install, less available in Somalia.

4. Composite / Alternative Options

Ferrocement (cement + wire mesh)

Pro: Locally fabricable, cheaper than precast concrete, durable if well plastered.

Con: Labor-intensive, prone to cracking if poorly built.

Plastic-lined concrete pipes

Pro: Combines strength of concrete with corrosion resistance of plastic.

Con: Higher cost, not commonly available locally.

6.2.2 Summary for Qardho pipeline alternatives

For main water distribution pipelines: HDPE (if budget allows) or uPVC (cost-effective and widely available).

For short exposed sections: Galvanized steel or ductile iron (stronger against damage).

For drainage/pipeline channels: Reinforced concrete or ferrocement (low-cost, locally built).

6.2.3 Design Alternatives (Pipe Material)

- **Alternative 1: uPVC (Unplasticized Polyvinyl Chloride) Pipes.** A common, rigid pipe material that is relatively low-cost and easy to install. However, it can be brittle and susceptible to breaking with ground movement.

- **Alternative 2: Ductile Iron (DI) Pipes.** Extremely strong and durable, but very heavy, expensive, and difficult to transport and install. They are also prone to corrosion if not properly lined and protected.
- **Alternative 3: HDPE (High-Density Polyethylene) Pipes (Selected).** A flexible and highly durable plastic pipe that is resistant to corrosion and abrasion. It can be supplied in long coils and joined by heat fusion to create a leak-free system.

Justification for Selected Alternative

While uPVC is a viable option, its rigidity poses a risk in terrain with potential ground settlement. DI pipes were rejected as being prohibitively expensive and logistically challenging for this context.

HDPE was selected as the most suitable material. The main trade-off is the need for specialized heat-fusion equipment and trained technicians for jointing. However, this is justified by the significant long-term benefits: its flexibility makes it resilient to ground movement, and its fused joints create a fully sealed system, **minimizing water loss** – a critical factor in an arid environment. The durability and low maintenance needs of HDPE ensure the long-term sustainability of the pipeline.

6.2.4 Location/Pipeline Routing Alternatives

- **Alternative 1: Direct Cross-Country Routing.** This route would create the shortest possible path from the wellfields (Horyale, Aada) to the town reservoirs, cutting across open land.
- **Alternative 2: Routing Along Existing Road Corridors (Selected).** This route involves burying the pipeline within the public Right of Way (ROW) of existing roads and streets.

Justification for Selected Alternative

A direct cross-country route, while shorter, would require **significant land acquisition**, potentially leading to complex compensation issues and disputes with local land users, particularly pastoralists. This would create major social risks and project delays.

The project **selected the route along existing road corridors** to avoid these issues entirely. The primary trade-off is a potentially longer pipeline length and the temporary disruption of local traffic during construction. However, these impacts are temporary and manageable. This approach eliminates the need for land acquisition and resettlement, making it the most socially responsible, financially prudent, and timely option.

6.2.5 Operating Conditions Alternatives

- **Alternative 1: Intermittent Supply.** Operating the system for only a few hours a day. This conserves energy but leads to low pressure, a high risk of contamination entering the pipes when they are empty, and increased pipe bursts due to pressure fluctuations.
- **Alternative 2: Continuous Supply (22-hour operation) (Selected).** Operating the system nearly continuously to keep the pipelines pressurized, ensuring a reliable and safe water supply to consumers.

Justification for Selected Alternative

The project aims to operate boreholes for

22 hours per day. To deliver this water effectively, a continuous supply model for the pipeline network is necessary. An intermittent supply model would fail to deliver the full volume of water produced and would compromise water quality, defeating the project's purpose.

The **continuous supply model was selected** to ensure a high level of service, improve public health by maintaining water quality, and reduce long-term maintenance costs by minimizing stress on the pipes. The trade-off is higher energy consumption. The project has addressed this by investing heavily in a **hybrid power system (solar with generator backup)**, which makes the continuous operation model both financially and environmentally sustainable.

6.2.6 'No-Action' Option

- **Description:** This alternative involves not implementing the pipeline project. No new transmission main would be built, and the old, leaking distribution pipes would remain in service.

Justification for Project Implementation

The no-action option is considered unacceptable. The existing distribution network is inefficient, leading to significant water losses. Without a new transmission main, the full output from the new and rehabilitated boreholes cannot be delivered to the town's reservoirs. This would render the investment in the water sources ineffective.

The **project is essential** because it provides the critical link between the water sources and the beneficiaries. The trade-off of the no-action option is zero immediate financial cost, but the consequence is the continued waste of precious water resources, inequitable supply, and a failure to improve the health and resilience of the Qardho community.

7. ASSESSMENT OF ENVIRONMENT AND SOCIAL IMPACTS

7.1 Introduction

This chapter identifies the potential environmental impacts resulting from the proposed project activities. The nature of impacts on the identified resources and receptors are categorized as either positive or negative, direct or indirect, long term or short term. The purpose of this assessment is to identify the significant impacts and to determine the appropriate measures to mitigate the negative impacts and to enhance the positive impacts. Significant impacts are defined as being those that:

- Relate to protected areas or to historically and culturally important areas
- Area of public concern and importance
- Trigger subsequent secondary impacts
- Elevate the risk of life-threatening situations

7.2 Project Positive Impacts

Project positive impacts during construction phase are summarized below.

- **Employment Creation:** At construction stage workers will be deployed to help in construction and land preparation activities. This will include both skilled and unskilled personnel especially from the local population with approximately 200 direct and indirect jobs.
- **Income/Revenue to Government:** Income to government will be realized in terms of taxes generated during the acquisition of relevant statutory licenses such as Environmental and Social Impact Assessment (ESIA) Approval / Environmental Clearance Certificate, Water Abstraction and Use Permit, Construction / Excavation Permit, Land Use Consent / Wayleave Permit, Occupational Health and Safety (OHS) Compliance Permit, Waste Management and Disposal Permit.

Materials to be used during construction will also be taxable. Through revenues generated, the government will be capable of financing its responsibility to her citizens.

- **Income to Other Businesses:** During implementation of the project, there will be need for transporters, suppliers of raw materials and other service providers, who will benefit from the proposed development.

7.2.1 Water Supply - Operation phase positive impacts

- **Availability of water for domestic use,** the project will ensure a reduction in the distance between the various households and the water collection points as compared to the long distances initially covered from the homesteads to water points.

- **Reduction in poverty levels of many households**, this will be as a result of the availability of reliable water for domestic use, households will therefore engage more time in other income streams.
- Employment opportunities will be created both to those working directly along the pipeline route under the water and sanitation department.
- **Improved public hygiene and sanitation** and at home because of water availability.

7.3 Construction Phase Negative Impacts

7.3.1 Impacts on Water Resources

The construction phase of the Qardho New Pipeline Extension and Rehabilitation Project is likely to have several negative impacts on water resources if not well managed. The most significant risk is the potential contamination of groundwater from drilling mud, slurry, and lubricants, which may infiltrate shallow aquifers if not properly contained. Inadequate sealing of boreholes could further allow surface contaminants to enter the groundwater, undermining water quality.

During water pipeline development and test pumping, the discharge of sediment-laden water also poses a threat to nearby drainage channels and low-lying areas, particularly in flood-prone parts of Qardho. In addition, improper handling of runoff containing drilling residues, fuel, or oils could pollute seasonal streams and surface depressions.

While these impacts are mostly localized and temporary, they present a medium-to-high risk if preventive measures are not applied. In the longer term, unregulated abstraction from new and rehabilitated boreholes may also contribute to lowering the water table, which could stress groundwater availability for other users. Overall, without adequate controls, construction activities carry the risk of both short-term water quality deterioration and longer-term resource depletion.

Pre- Mitigation Impact Assessment is presented in the table below

Table 7.1: Pre-Mitigation Impact Assessment

Impact	Siltation and pollution of Surface Waters Resources			
Nature of Impact	Negative	Positive	Neutral	
	Eroded soil and leaked oils and fuels entering groundwater-fed boreholes and shallow wells			
Type of Impact	Direct	Indirect	Induced	
	Impact is a result as a direct interaction between Project activities and the environment along the footprint of the water alignments.			
Duration of Impact	Temporal	Short term	Long term	Permanent
	The impact is expected to be short term, however in the case of serious erosion			

	the impacts of siltation of surface water may be experienced long term (into the operational phase).				
Impact Extend	Local	Regional		International	
	The impact will be limited to the footprint of the Water alignment and immediate surrounds. The dilution of sediments in the river will render this impact negligible at the regional scale				
Impact scale	The impact is considered as small (local) scale.				
Frequency	Continuous				
Livelihood	Possible				
Impact magnitude	Positive	Negligible	Small	Medium	Large
	Based on the above the impact magnitude is considered small.				
Resource / receptor sensitivity	Low	Medium		High	
	The sensitivity of the rivers along the proposed Water Lines to Siltation and pollution is considered to be medium to low.				
Impact significance	Negligible	Minor	Moderate	Major	
	Considering the impact magnitude is small and the sensitivity is medium to low, the overall significance is considered to be minor				

Mitigation

The following mitigation measures will be implemented to minimize the potential for siltation and sedimentation of surface water by soils eroded from construction sites

- Activities shall be conducted > 100 m away from water bodies, except where crossings are required.
- All waste water which may be contaminated with oily substances must be managed in accordance with an appropriate Waste Management Plan (WMP).
- No hydrocarbon-contaminated water may be discharged to the environment.
- At construction stage, the contractor will prepare Specific Construction Environment and Social Management Plan (C-ESMP) which included among other; *Soil and Sedimentation Control Plan, Spoil Management Control Plan and Waste Management Plan.*

Residual Impact

The implementation of the proposed mitigation measures reduces the significance of the residual impact to negligible from minor within water bodies identified. The table below presents residual impact significance following mitigation measures

Table 7.2: Residual Impact Significance

Impact	Project Phase	Significance (Pre-mitigation)	Residual Impact Significance (Post-mitigation)
Availability and Quality of Water Resources	Construction	Minor	Negligible

(groundwater-fed boreholes and shallow wells)			
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7.3.2 Impacts on Soil Resources

Baseline

The dominant soil type in Qardho is shallow sandy and/or stony soils and deeper calcareous soils, with the central part of Somalia also having moderately deep loamy soils high in calcium carbonate or gypsum. The region features Vertosols on clay plains and is subject to moisture stress, low fertility, and potential salinity

Potential Impacts

The excavation of soil for the construction of water lines will disrupt the soil cohesion and also may result in surplus soil due to the installation of water pipes within the same excavated trenches. If not properly restored or managed, such soils may be eroded off. Temporary soil stockpiles established during construction of infrastructure will be at risk of erosion from wind and rainfall. Soil contamination as a result of possible oil and fuel leaks from un-services plant and equipment on site is also a potential impact.

Impact Assessment

The table presents Pre- Mitigation Impact Assessment.

Table 7.3: Pre-Mitigation Impact Assessment

Impact	Soil Erosion during Construction				
Nature of Impact	Negative		Positive	Neutral	
	Loss of soil cohesion contributing to erosion.				
Type of Impact	Direct	Indirect		Induced	
	Impact is a result as a direct interaction between project activities and the environment along the footprint of the project.				
Duration of Impact	Temporal	Short term	Long term	Permanent	
	The impact is expected to be short term, however in the case of serious erosion the impacts may be experienced long term.				
Impact Extend	Local	Regional		International	
	The impact will be limited to the footprint of the project and immediate surrounds.				
Impact scale	The impact is considered as small (local) scale.				
Frequency	Continuous				
Livelihood	Possible				
Impact magnitude	Positive	Negligible	Small	Medium	Large
	Based on the above the impact magnitude is considered small.				
Resource / receptor	Low		Medium	High	

sensitivity	The sensitivity of the rivers along the proposed Water Lines to erosion is considered to be medium to low.			
Impact significance	Negligible	Minor	Moderate	Major
	Considering the impact magnitude is small and the sensitivity is medium to low, the overall significance is considered to be minor			

Mitigation

The following mitigation measures will be implemented to minimize the potential for soil erosion:

- Vegetation clearing and topsoil disturbance will be minimised.
- Contour temporary and permanent access roads / laydown areas so as to minimise surface water runoff and erosion.
- Sheet and rill erosion of soil shall be prevented where necessary through the use of sand bags, diversion berms, culverts, or other physical means.
- Topsoil shall be stockpiled separate from subsoil. Stockpiles shall not exceed 2 m height, shall be located away from drainage lines, shall be protected from rain and wind erosion, and shall not be contaminated.
- Wherever possible construction work will take place during the dry season.
- Topsoil shall be evenly spread across the cleared areas when reinstated.
- Accelerated erosion from storm events during construction shall be minimised through managing storm water runoff (e.g. velocity control measures).
- Soil backfilled into excavations shall be replaced in the order of removal in order to preserve the soil profile.
- Spread mulch generated from indigenous cleared vegetation across exposed soils after construction
- At construction stage, the contractor will prepare Specific Construction Environment and Social Management Plan (C-ESMP) which included among other; *Soil and Sedimentation Control Plan, Spoil Management Control Plan and Waste Management Plan.*

Residual Impact

The implementation of the proposed mitigation measures reduces the significance of the residual impact to negligible from minor along the entire water lines alignment. The table below presents residual impact significance following mitigation measures

Table 7.4: Residual Impact Significance

Impact	Project Phase	Significance (Pre-mitigation)	Residual Impact Significance (Post-mitigation)
Loss of soil resources due to erosion	Construction	Minor	Negligible

7.3.3 Impact on Air quality within the Air – Shed.

Baseline

As provided by Air quality index (AQI⁺) and PM_{2.5} air pollution in Somalia, the ambient air quality status of South Qardho is summarized in the tables below.

Table 7.5: Ambient Particulate Matter (PM_{2.5} and PM₁₀)

Peri Urban Centers in Somalia	Parameter	Concentration (µg/m ³)	Guideline (µg/m ³) ³
	Particulate matter ≤2.5 (pm _{2.5})	15 to 20	35
	Particulate matter ≤10 (pm ₁₀) ⁴	20 to 35	100

Table 7.6: Ambient NO_x SO_x, CO₂ and O₃

Peri Urban Centers in Somalia	NO ₂		SO ₂		CO		O ₃	
	Conc. (ppm)	EMC AQR guide 2014 (ppm)	Conc. (ppm)	EMC AQR guide 2014 (ppm)	Conc. (mg/m ³)	EMC AQR guide 2014 (mg/m ³)	Conc. (ppm)	EMC AQR guide 2014 (ppm)
	<0.01	0.5	0.011	0.191	0.07	10.0	0.015	0.12

Activities associated with the Project including machineries and equipment's are not anticipated to generate significant volumes of gases emissions to warrant this impact assessed as significant

Potential Impacts

The following would be expected during construction.

- Emissions of oxides of nitrogen (NO₂ in particular) mainly from construction-related vehicles (and to a lesser degree from construction generators and other hydrocarbon powered equipment); and
- Dust and particulate matter (as PM₁₀) created by construction-related vehicle traffic on unpaved roads.

Impact Assessment

The assessment identified a list of receptors including mosques, schools, markets and health facilities that could be affected by polluted air as a result of Project Activities that release SO_x, NO_x Co and O₃ and PM₁₀ and PM_{2.5}

³ Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS)

⁴ EMCA 1999 Air Quality Regulation of 2014

Pre- Mitigation Impact Assessment in the table below

Table 7.7: Pre-Mitigation Impact Assessment

Impact	Degradation of the Air-shed during Construction				
Nature of Impact	Negative	Positive	Neutral		
	Increase in airborne pollution.				
Type of Impact	Direct	Indirect	Induced		
	Impact is a result as a direct interaction between project activities				
Duration of Impact	Temporal	Short term	Long term	Permanent	
	The impact is expected to be temporary as emissions arise throughout the construction phase.				
Impact Extend	Local	Regional	International		
	The impact will be limited to the footprint of the project and immediate surrounds.				
Impact scale	The impact is considered as small (local) scale.				
Frequency	Intermittent – impacts will typically only arise during working hours				
Livelihood	Inevitable				
Impact magnitude	Positive	Negligible	Small	Medium	Large
	Based on the above the impact magnitude is considered medium.				
Resource / receptor sensitivity	Low	Medium	High		
	The sensitivity of human receptors is Medium in dwellings and settlements				
Impact significance	Negligible	Minor	Moderate	Major	
	Dust emissions have the potentially to have Moderate significant impacts at nearby sensitive human receptors.				

Mitigation

As general measures for all locations:

- Regular dust suppression through water spraying on dusty roads and worksites
- Undertake monitoring close to dusty activities, noting that this may be daily visual inspections, or passive/active monitoring as parameter
- Undertake inspections to ensure compliance with the Dust Management Plan;
- Plan potentially dusty activities so that these are located as far from receptors as feasible;
- Erect solid screens if feasible around stockpiles and concrete batching;
- Avoid run off of mud and water and maintain drains in a clean state;
- Remove dusty materials form site as soon as possible if not being re-used. If being re-used, cover or vegetate if possible;
- Impose speed limits on haul routes and in construction compounds to reduce dust generation;
- Minimise drop heights when loading stockpiles or transferring materials; and

- Expose the minimum area required for the works, and undertake; and exposure on a staged basis to minimise dust blow.

Residual Impact

With the implementation of suitable mitigation and with adequate monitoring, residual impacts associated with dust and PM₁₀ from construction activities are **Negligible** as presented in the table below

Table 7.8: Residual Impact Significance

Impact	Project Phase	Significance (Pre-mitigation)	Residual Impact Significance (Post-mitigation)
Road Traffic Exhaust Emissions	Construction	Negligible	Negligible
Dust and PM from construction activities	Construction	Moderate	Negligible

7.3.4 Impacts related to Noise and Vibration

Baseline

World Bank Group General EHS Guidelines provide guidance on acceptable noise levels based on WHO standards and these are set out in the table below.

Table 7.9. World Bank Group Noise Level Guidelines

	Maximum Allowable Ambient Noise Levels, LAeq,1hr, dBA Free field	
	Daytime	Night-time
	07:00 – 22:00	22:00 – 07:00
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Impact Assessment

Potential Impact

The assessment identified a list of receptors including mosques, schools, markets and health facilities that could be affected by excessive noise beyond recommended MoEACC Guidelines.

Pre mitigation Impact Assessment is presented in the table below

Table 7.10: Pre-Mitigation Impact Assessment

Impact	Noise during Construction		
Nature of Impact	Negative	Positive	Neutral
	Elevated noise levels from operation of construction equipment.		

Type of Impact	Direct	Indirect		Induced	
	Impact is a result of noise generated by construction activities.				
Duration of Impact	Temporal	Short term	Long term	Permanent	
	Impacts are expected to be short term (up to one month) at any individual water line within each of the target drainage area.				
Impact Extend	Local	Regional		International	
	The impact will be limited to the footprint of the project and immediate surrounds.				
Impact scale	The impact is considered as small (local) scale.				
Frequency	Impacts may occur during daytime periods over a short-term duration at each water line alignment.				
Livelihood	Inevitable				
Impact magnitude	Positive	Negligible	Small	Medium	Large
	Based on the above the impact magnitude is considered negligible to small.				
Resource / receptor sensitivity	Low		Medium		High
	Dwellings are considered to have a high sensitivity to noise				
Impact significance	Negligible	Minor	Moderate	Major	
	Considering the impact magnitude is small to negligible and the sensitivity is high, the overall significance is considered to be minor				

Mitigation

The following standard mitigation measures will be employed

- Siting noisy plant and equipment as far away as possible from human settlement, and use of barriers (e.g., site huts, acoustic sheds or partitions) to reduce the level of construction noise at receptors wherever practicable;
- Where practicable noisy equipment will be orientated to face away from the nearest Human settlement and other receptors;
- Working hours for significant noise generating construction work (including works required to upgrade existing access roads or create new ones), will be daytime only;
- Alternatives to diesel and petrol engines and pneumatic units, such as hydraulic or electric-controlled units, will be used, where practicable;
- Where practicable, stationary equipment will be located in an acoustically treated enclosure;
- For machines with fitted enclosures, doors and door seals will be checked to ensure they are in good working order; also, that the doors close properly against the seals;
- Throttle settings will be reduced and equipment and plant turned off, when not being used;
- Equipment will be regularly inspected and maintained to ensure it is in good working order. The condition of mufflers will also be checked; and fitting of mufflers or silencers of the type recommended by manufacturers.

Residual Impact

Residual Impact Significance is presented in the table below.

Table 7.11: Residual Impact Significance

Impact	Project Phase	Significance (Pre-mitigation)	Residual Impact Significance (Post-mitigation)
Noise from construction activities affecting nearby dwellings	Construction	Minor	Negligible

7.3.5 Impacts on Flora

Baseline

Qardho falls within Arid and Semi-Arid (ASALs) zone within ecological zone V-VI. Zone V receives rainfall between 300mm-600mm annually and is characterized by low trees, grass and shrubs while zone VI receives annual rainfall of 200mm to 400mm. The project footprint, where the pipelines will run is approximately 8-16 ha, while the project area as a polygon enclosing all activity zones (Horyale → Qardho → Aada → extensions), the coverage area is:

- Roughly **10 km (north-south) × 6-7 km (east-west)**
- Equivalent to **60-70 km²** (6,000-7,000 ha)

The Project area receives an average of 240mm of rainfall per year, the rainfall is erratic and short making it unfavorable for vegetation growth. However, the area was once covered exhibits arid characterizes with dominant species noted as cactus family and Acacia sp including; Acacia species (*A. mellifera*, *A. tortilis*), Commiphora spp., Dobera glabra, Boscia coriacea.

Potential Impact

There are **not** protected vegetation cover within the water alignment routes that is considered a fragile ecosystem, sensitive to changes to its components. Pre mitigation Impact Assessment is presented in the table below.

Table 7.12: Pre-Mitigation Impact Assessment

Impact	Flora and Vegetation during Construction				
Nature of Impact	Negative	Positive	Neutral		
	Disturbance to vegetation cover along the Water alignment.				
Type of Impact	Direct	Indirect	Induced		
	Impact is as a result of a direct interaction between the project (i.e. Construction activities) and the existing vegetation along the water and sewer lines				
Duration of Impact	Temporal	Short term	Long term	Permanent	
	The effect is considered permanent as the areas where vegetation will be removed for the construction of the line will have to be permanently kept with vegetation for maintenance purposes during the operational phase				
Impact Extend	Local	Regional	International		
	The impact will be limited to the footprint of the project and immediate surrounds.				
Impact scale	The impact is considered as small (local) scale.				
Frequency	Once off				
Livelihood	Inevitable				
Impact magnitude	Positive	Negligible	Small	Medium	Large
	Based on the above the impact magnitude is considered negligible				
Resource / receptor sensitivity	Low	Medium	High		
	The Water Lines will be constructed with disturbed or modified environment therefore the sensitivity is considered low.				
Impact significance	Negligible	Minor	Moderate	Major	
	Considering the impact magnitude is negligible and the sensitivity is low, the overall significance is considered to be negligible				

Mitigation

The following standard mitigation measures will be employed.

- Avoidance of impacts should be prioritised. However, if not possible then compensatory planting of trees that will be cut by the contractor during excavation of water pipeline trenches will be undertaken.
- Vegetation shall only be cleared along the Water alignment only if the vegetation and will interfere with Project construction and/or present a hazard.
- Areas to be cleared shall be agreed and demarcated before the start of the clearing operations to minimize exposure.
- Stage vegetation clearance is also recommended so as not to clear the entire corridor all at once.
- The use of existing cleared or disturbed areas for the Contractor's Camp, stockpiling of materials etc. shall be encouraged.
- Whenever possible, all damaged areas shall be reinstated and rehabilitated upon

- completion of the contract to as near pre-construction conditions as possible.
- Rehabilitation of temporary construction sites and pioneer camps (if needed) should be done as swiftly as possible and always with suitable native grasses and other plants

Residual Impact

Residual Impact Significance is presented in the table below

Table 7.13: Residual Impact Significance

Impact	Project Phase	Significance (Pre-mitigation)	Residual Impact Significance (Post-mitigation)
Disturbance to vegetation cover	Construction	Negligible to Minor	Negligible

7.3.6 Impact Ranking

Impact Area	Impact Characteristics	Significance Ranking	Alternatives Considered	Mitigation Measures
Water Resources	Risk of groundwater contamination from slurry/drilling mud; over-abstraction may reduce recharge	High (Most Adverse)	Rotary drilling with controlled mud use is safer than uncontrolled manual drilling	Lined slurry pits, water quality testing before use, regulate abstraction rates
Soil Resources	Localized erosion, compaction, and improper disposal of cuttings may degrade land	Medium-High	Institutional sites on stable land reduce risks compared to open communal/flood-prone areas	Limit clearing, erosion control (silt fences, berms), site restoration post-construction
Air Quality	Dust from site works and emissions from diesel rigs/generators	Medium	Solar pumping preferred over diesel for long-term operation	Regular equipment maintenance, dust suppression (water spraying), PPE for workers
Noise & Vibration	Temporary disturbance from drilling machinery affecting schools/hospitals nearby	Medium-Low	Daytime drilling preferred over 24-hour operations	Restrict work to daylight, maintain rigs to reduce excessive noise
Flora	Minor vegetation clearance, mostly shrubs and acacia	Low (Least Adverse)	Institutional land requires minimal clearance compared to rangelands	Retain mature trees, replant native vegetation post-construction

7.4 Traffic Management on Site

Although borehole drilling and rehabilitation works generally have localized and low traffic impacts, especially when implemented within institutional compounds or designated community spaces, proper traffic management is necessary to ensure safety for workers, residents, and vulnerable groups such as schoolchildren and patients.

1. Traffic Assessment

- Assess existing traffic conditions near the borehole sites, including pedestrian activity and institutional access roads.

- Identify sensitive areas such as schools, health centers, and IDP camps where traffic safety is critical.

2. Work Zone Identification

- Clearly demarcate drilling and equipment storage areas to prevent overlap with vehicle and pedestrian pathways.
- Avoid blocking main community access routes or institutional entry points.

3. Signage and Road Markings

- Place warning signs (“Drilling Ahead,” “Slow Down,” “Pedestrian Crossing”) at approach roads to the site.
- Use reflective cones and barricades for visibility during both day and night.

4. Lane Closure and Access Planning

- Where borehole sites are near busy community roads, schedule material deliveries during **off-peak hours**.
- Maintain at least one access route for emergency and service vehicles at all times.

5. Pedestrian Safety

- Provide clear and safe passage for pedestrians, particularly around schools and hospitals.
- Use flaggers or temporary walkways where drilling operations interfere with normal pedestrian routes.

6. Temporary Traffic Control Devices

- Deploy cones, barriers, and delineators to separate work areas from traffic flows.
- Ensure clear signage for detours if institutional gates or access routes are temporarily obstructed.

7. Communication and Public Awareness

- Inform surrounding communities, institutions, and camp managers in advance about the work schedule and any expected disruptions.
- Use community meetings, local radio, and notices posted at schools and health centers for awareness.

8. Emergency Response Access

- Coordinate with local authorities to ensure ambulances, fire trucks, and security vehicles can pass through the work area without obstruction.

9. Monitoring and Adjustments

- Continuously monitor traffic conditions around drilling sites.
- Adjust traffic control measures in response to congestion, complaints, or safety concerns.

7.5 Waste Management on Site

Wastes on Site will include both liquid and solid wastes, such wastes will be managed as summarized below

- The contractor shall develop a comprehensive Waste Management Plan (WMP) prior to commencement of works
- Properly labelled and strategically placed waste disposal containers shall be provided at all places of work
- Litter bins should have secured lids to prevent animals and birds from scavenging
- All personnel shall be instructed to dispose of all waste in a proper manner
- Recycling of construction material shall be practiced where feasible e.g., containers and cartons
- Earth spoils shall be disposed of in pre identified sites
- The contractor shall develop a comprehensive Waste Management Plan (WMP) prior to commencement of works
- Properly labelled and strategically placed waste disposal containers shall be provided at all places of work
- Litter bins should have secured lids to prevent animals and birds from scavenging
- All personnel shall be instructed to dispose of all waste in a proper manner
- Recycling of construction material shall be practiced where feasible e.g. containers and cartons
- Earth spoils shall be disposed of in pre identified sites
- Water containing pollutants such as concrete or chemicals should be directed to a conservancy tank for removal from the site where applicable
- Potential pollutants of any kind and form shall be kept, stored and used in a manner that ensures no escape
- In case of any form of pollution, the contractor should notify the Resident Engineer
- Wash areas shall be placed and constructed in a manner that ensures the surrounding areas including groundwater are not polluted
- No grey water, runoff or uncontrolled discharges from the site or working areas to any adjacent Storm water channels.

Solid Wastes associated with the project

1. Drilling Cuttings and Rock Fragments – excavated soil, sand, gravel, and rock chips brought to the surface during drilling.
2. Packaging Materials – plastic, paper, and cardboard from drilling consumables, cement, bentonite, and chemical additives.
3. Worn-out Drilling Materials – broken drill bits, used casings, and other metallic scraps.
4. General Domestic Waste – food wrappers, plastic bottles, and other refuse generated by workers on-site.
5. Construction Debris – excess sand, cement bags, and concrete rubble from pump installation and well-head construction.
6. Worn PPE and Consumables – gloves, masks, and other disposable protective equipment used during drilling operations.

Liquid Wastes associated with the project

1. Drilling Mud and Slurry – a mixture of water, bentonite, and fine soil particles generated during borehole drilling.
2. Wastewater from Drilling Operations – water mixed with additives, lubricants, or cleaning agents used to cool and lubricate drilling equipment.
3. Oil and Grease Contaminated Water – small volumes from equipment maintenance and accidental spillages.
4. Domestic Wastewater (Greywater) – wastewater from site camps, handwashing, and cooking areas used by workers.
5. Test-Pumping Discharge Water – water extracted during borehole yield testing, sometimes with suspended sediments.

7.6 Social Resources and Receptors

7.6.1 Workers, Community Health Safety and Security

Baseline

The Assessment recorded receptors that could be exposed due to Project activities. The risks will be to both; (i) Project Workers, (ii) School Children and Students and (iii) General Community Members

1. Receptors for the Pipeline projects

Based on the project's geographically dispersed nature, the typical receptors and their proximity vary depending on the specific project component and its location.

2. Water Supply Points (Boreholes)

The borehole sites are located in three distinct types of areas, each with different receptors:

- **Sites Within Qardho Town:** This includes rehabilitation sites like Kuleejka and Warshada.
 - **Receptors:** Residents, local businesses, schools, and mosques.
 - **Distance:** Immediately adjacent, typically ranging from 0 to 100 meters.
- **Sites in Peripheral Settlements:** This covers the cluster of new and existing boreholes in areas like Aada and the Qardho IDPS site.
 - **Receptors:** Densely packed households, including vulnerable Internally Displaced Persons (IDPs).
 - **Distance:** Very close, with homes and community facilities located 0 to 200 meters from the borehole sites.
- **Sites in Remote Fringe Areas:** This includes proposed new boreholes in Horyale (north) and New Qardho (south).
 - **Receptors:** The primary human receptors are nomadic pastoralist communities. The immediate receptor is the natural environment (grazing land and scrubland).
 - **Distance:** Human settlements are often transient and located several hundred meters or more away. The environmental receptors are immediate, at 0 meters.

3. Wastewater Treatment & Sanitation Facilities

- **Decentralized Treatment Facilities (DTFs):**
 - **Receptors:** At institutional sites (e.g., a school), the receptors are the students and staff within the compound, at a distance of 0 meters. At sites near the airport, receptors are airport staff and the natural environment, with distances ranging from 0 to 500 meters.
- **Raised Emergency Toilets:**
 - **Receptors:** These are constructed in high-density or flood-prone zones, such as IDP camps. The receptors are the households in the immediate vicinity.
 - **Distance:** Immediately adjacent, 0 to 50 meters from residences.

Potential Impact

The presence of the Project could affect the health, safety and wellbeing of the communities along the proposed water alignment routes including increased project-related traffic during site preparation including site clearance and excavation works and inappropriate waste handling or disposal, and accidental leaks and spills could result to be below listed risks.

- Accidents associated with plant and equipment movement within the drilling site or

open barricaded trenches or without warning tapes.

- Air pollution beyond thresholds provided by national legislations
- Noise and excessive vibrations beyond the levels provided by national legislations
- Drowning risks to school children and community Members who might trip and fall into trenches that have percolated runoff water.
- Cave-Ins- The greatest danger in trenching and excavation is cave-ins. Unstable soil and inadequate shoring or sloping can lead to sudden collapses, burying workers and causing serious injuries or fatalities to workers
- Falls and Falling Loads: Workers or equipment near the edge of a trench can fall in, leading to injuries. Additionally, tools, machinery, or materials can fall into the trench, posing risks to those working inside.
- Utility Strikes; Contact with underground utilities, such as electrical cables, internet, or water mains, can cause severe injuries or disrupt services leading to community unrest and grievances
- Equipment-Related Accidents, heavy machinery used for digging or transporting materials can create additional risks, such as accidental contact with workers or trench edges

Impact Assessment

Pre mitigation Impact Assessment is presented in the table below.

Table 7.14: Pre-Mitigation Impact Assessment

Impact	Community Safety and Environment Health			
Nature of Impact	Negative		Positive	Neutral
	ESHS risks to Community and Workers			
Type of Impact	Direct	Indirect		Induced
	Impact that result from a direct interaction between the Project (i.e. increased plant and equipment traffic) and the local population along the water lines.			
Duration of Impact	Temporal	Short term	Long term	Permanent
	The increased traffic effect and risks to injuries is temporary, as construction activities will take place in a sequential manner during the length of the construction period			
Impact Extend	Local	Regional		International
	The impact will be limited to the footprint of the project and immediate surrounds.			
Impact scale	The impact is considered as small (local) scale.			
Frequency	The frequency is considered to be occasional or one time at each temporary along the Water Lines over the duration of the construction phase.			
Livelihood	Inevitable			
Impact magnitude	Positive	Negligible	Small	Medium
	Based on the above the impact magnitude is considered negligible to small.			
Resource /	Low	Medium		High

receptor sensitivity	The sensitivity of the receptors (local population along the Water Lines and road users including vehicle users, pedestrians and cyclists) is considered medium.			
Impact significance	Negligible	Minor	Moderate	Major
	Considering the magnitude and sensitivity are medium, the impact on the community safety during construction activities is considered to be of moderate significance.			

Mitigation

- Conduct a Pre-Work Assessment, assess the soil type, weather conditions, and proximity to structures or utilities. Identify potential hazards and plan the excavation accordingly.
- Use Protective Systems, implement appropriate protective systems, such as: (i) Shoring: Positioning supports to prevent soil movement. (ii) Shielding: Creating interior trench boxes to protect workers and (iii) Sloping: Cutting back trench walls at an angle to reduce collapse risk.
- Inspect Trenches Daily, a competent person should inspect trenches daily and after events like rainstorms or vibrations to ensure continued stability.
- Maintain Safe Access and Egress, provide ladders, ramps, or other safe means of entry and exit in trenches that are four feet or deeper. Always place these within twenty-five feet of workers, for deep cut provide reinforced cage for workers.
- Stay Aware of Utility Locations: Use "Call Before You Dig" services to locate and mark underground utilities before excavation begins.
- Monitor Hazardous Atmosphere, test the air quality inside trenches over four feet deep for oxygen levels, toxic gases, and flammable atmospheres. Use ventilation if necessary.
- Control Water Accumulation, use pumps or diversion systems to keep water out of the trench. Avoid working in trenches with standing water unless proper precautions are taken.
- Secure the Site, keep heavy equipment and materials away from trench edges. Install barriers and warning signs to protect workers and prevent accidental falls.
- Train Workers, ensure all workers are trained in trench safety, recognizing hazards, and responding to emergencies.
- Ensure that work sites are fenced and that signs are put up around work fronts and construction sites advising people of the risks associated with trespass. When work fronts are less than 10 metres from a community or house, employ security guards from the local community to prevent trespass.

Residual Impact

The significance of the residual impacts on community health and safety after the implementation of mitigation measures is presented in the table below.

Table 7.15: Residual Impact Significance

Impact	Project Phase	Significance (Pre-mitigation)	Residual Impact Significance (Post-mitigation)
ESHS risks to Community and Workers	Construction	Moderate	Minor

7.6.2 Children Protection

The possibility of contractor children abuse is through hiring of child labour, also labour force on site might abuse children within the Project area through sexual advances that could lead to early pregnancies and school dropout, including exposure to communicable diseases such as HIV and AIDS. The contractor will undertake the below listed mitigation measures.

Mitigation Measures

- The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project including SEA.
- All staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour
- Wherever possible, ensure that another adult is present when working in the proximity of children.
- Not invite unaccompanied children to workers home, unless they are at immediate risk of injury or in physical danger.
- Refrain from physical punishment or discipline of children
- Refrain from hiring children for domestic or other labor, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
- Comply with all relevant local legislation, including labor laws in relation to child labor specifically provisions of Somalia's Employment Act Cap 226 of 2007 Part VII on protection of children against exploitation

7.6.3 Sexual Exploitation and Abuse (SEA)

This impact refers to sexual exploitation and abuse committed by Project staff against communities and represents a risk at all stages of the Project, especially when employees and community members are not clear about prohibitions against SEA in the Project.

Mitigation Measures

- Develop and implement a SEA action plan with an Accountability and Response

Framework as part of the C-ESMP. The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).

- Prevention of SEA: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials;
- Response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management;
- Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of Sexual Exploitation and Abuse (SEA) awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their SEA-related rights;
- Management and Coordination: including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.

7.7 Operation Phases Negative Impacts

Waterlines Operational Impacts

The most significant challenges currently facing water distribution systems are aging infrastructure, increasing demand for potable water, maintaining potable water quality, weakened infrastructure as a result of system inefficiencies, Microbial Growth, Biofilms and Sediments, Disinfectants and Disinfection Byproducts, Nitrification, Corrosion, Permeation and Leaching and Water Losses and Main Breaks which will be addressed by the water and sanitation departments at the operation stage of the Project.

Mitigation Measures

- The water and sanitation departments will ensure proper and periodic maintenance of pipelines.
- The water and sanitation departments will activate a community watch group for information sharing on the status of the pipelines.
- Regular cleaning of grit chambers to remove grease, grit, and other debris that may

lead to pipeline breakups

- Development of an inventory of system components, with information including age, construction materials, and drainage areas served
- Design manhole covers to withstand anticipated loads and ensure that the covers can be readily replaced if broken to minimize entry of garbage and silt into the pipeline and water system
- Ensure sufficient hydraulic capacity to accommodate peak flows and adequate slope in gravity mains to prevent build-up of solids and hydrogen sulphide generation
- Regular inspection of the system to ensure performance is maintained at high levels
- Blockages should be detected and promptly replaced
- Regular monitoring and sampling of the wastewater at influent and effluent points as well as in the receiving water bodies

8. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMP)

8.1 C-ESMPs and Sub Plans

The contractor upon signing of civil works contract will prepare Construction Environmental and Social Management Plans (C-ESMPs) and Sub Plans for review and approval. The table below presents details of Sub plans

Table 8.1: C-ESMPs and Sub plans

#	C-ESMPs and Sub Plans	Preparation Stage	Responsibility	Estimated Cost (USD)
1	C-ESMP	After signing of Works Contract	Contractor	
2	GBV/SH/SEA	After signing of Works Contract	Contractor	
3	Campsites Management Plan	After signing of Works Contract	Contractor	
4	Labor Management Plan	After signing of Works Contract	Contractor	
5	Labor Influx Management Plan	After signing of Works Contract	Contractor	
6	Water Resources Protection Plan	After signing of Works Contract	Contractor	
7	Waste Management Plan	After signing of Works Contract	Contractor	
8	Traffic Management Plan	After signing of Works Contract	Contractor	
9	Drug Abuse and Substance Awareness Plan	After signing of Works Contract	Contractor	
#	Approximate Cost			1500

8.2 Licenses and Permits (Occupational Health and Safety Related)

The contractor will be required to comply to below listed provisions as required by Occupational Health and safety provisions as detailed in the table below

Table 8.2: Permits and Licenses

#	Permits and Licenses	Preparation Stage	Responsibility	Estimated Cost (USD)
1	Workplace registration certificates from DOSH	After signing of Works Contract	Contractor	
2	Fire clearance certificates from DOSH - Ministry of Labor and Social Services	After signing of Works Contract	Contractor	

	Somalia			
3	Additional Statutory requirements, as per OSHA Act <ul style="list-style-type: none"> • Risk Assessment • Safety and Health Audit • Fire Safety Audit 	Within the 1 st Quarter of Works	Contractor	
4	Development and implementation of Policies required at the Work place <ul style="list-style-type: none"> • Safety & Health Policy • Fire Safety Policy • Environment Policy 	Within the 1 st Quarter of Works	Contractor	
5	Personnel Trainings Required <ul style="list-style-type: none"> • Fire marshal training • Statutory: First Aid Training • Statutory: Safety and Health Committee 	After signing of Works Contract	Contractor	
6	Occupational Health Programmes at Workplace <ul style="list-style-type: none"> • Statutory Medical Examinations. • Pre-employment • Periodical • post-employment (exit medical checkup) 	After signing of Works Contract	Contractor	
7	Operations Safety: <ul style="list-style-type: none"> • All plants, lifting equipment and machinery inspected • Inspection of ladders / scaffoldings 	Monthly	Contractor	
8	Permit to Works (PTW) are required for non-routine hazardous work.	Whenever required	Contractor	
9	Fire Safety Requirements: <ul style="list-style-type: none"> • Fire drill • firefighting equipment • Fire escapes 	Bi Annually	Contractor	
10	Emergency Response Plan Required: <ul style="list-style-type: none"> • Injury emergency response; • Non entry rescue mission to persons in confined space; • Fire emergency response; 	One off	Contractor	
	Approximate Cost			2000

8.3 Purpose and Objectives of ESMP

The specific objectives of the ESMP are to:

- **Screen and categorize the project** according to the significance of its potential environmental and social impacts, in line with the AfDB's Operational Safeguard 1 (OS 1) classification system.
- **Define the scope of assessment (scoping)** to identify key environmental and social issues, areas of influence, and project components requiring detailed study.
- **Establish baseline environmental and social conditions** to provide a factual reference for assessing potential changes and for future monitoring.
- **Identify and assess potential environmental and social impacts** (positive and negative, direct and indirect, cumulative, and transboundary) associated with all project phases – design, construction, operation, and decommissioning.
- **Integrate environmental and social considerations** into the project planning, design, and decision-making processes to enhance sustainability, resilience, and long-term benefits.
- **Develop feasible mitigation and enhancement measures**, and consolidate these into a practical **Environmental and Social Management Plan (ESMP)** with clear roles, responsibilities, timelines, and budget provisions.
- **Ensure compliance with applicable national environmental and social legislation**, as well as AfDB's safeguard requirements
- **Facilitate inclusive stakeholder participation** through effective consultation, information disclosure, and a culturally sensitive, gender-responsive approach.
- **Promote transparency and accountability** by establishing mechanisms for documentation, disclosure, and grievance redress throughout the project cycle.
- **Provide a decision-support framework** for the Government of Somalia, the AfDB, and other stakeholders to ensure environmentally and socially responsible project implementation.

The Environmental, Social Management and Monitoring Plan (ESMP) is summarized in the table below

Table 8.3: Environment and Social Management Monitoring Plan – Construction Phase Pipeline extension and Rehabilitation

Risk Category & Potential Risk	Anticipated Impact	Mitigation Measures	Responsibility	Monitoring Parameter	Budget (USD)
1. Community Health & Safety					
Public access to open trenches and traffic disruption along pipeline routes.	- High risk of falls and injuries, especially for children. - Traffic congestion, accidents, and blocked access for emergency vehicles.	- Securely fence or barricade all open trenches at all times. - Provide safe, clearly marked pedestrian and vehicle crossing points. - Implement a Traffic Management Plan with trained flag persons. - Backfill trenches as soon as work is completed in a section.	Contractor	- Daily inspection of fencing, signage, and crossing points. - Traffic flow monitoring. - Community complaints log regarding access and safety.	8,000
2. Occupational Health & Safety (OHS)					
Trench collapse during excavation and pipe laying.	- Severe injury or fatality for workers.	- Use shoring or benching for all trenches deeper than 1.5 meters. - Conduct daily inspections of trench stability before entry. - Ensure mandatory use of PPE (hard hats, boots). - Keep excavated soil at least 1 meter from the edge of the trench.	Contractor / PIU E&S Officer	- Daily checks for trench safety measures (shoring). - Records of daily safety briefings. - Incident/accident logbook.	7,000
3. Soil & Land Management					
Improper backfilling and surface reinstatement after pipe installation.	- Land subsidence, causing damage to roads and property. - Soil erosion and poor vegetation regrowth.	- Segregate topsoil from subsoil during excavation. - Backfill the trench in layers (lifts) with proper mechanical compaction. - Reinstatement the surface (e.g., road base, topsoil) to its original or better condition.	Contractor	- Compaction test results. - Weekly photographic documentation of reinstatement progress. - Final site inspection reports.	4,000
4. Air Quality & Noise					
Dust and noise from excavation, machinery, and vehicles along linear routes close to homes.	- Respiratory issues and nuisance from dust. - Disturbance to residents, schools, and businesses.	- Use water spraying on excavation areas and access roads to suppress dust. - Limit work hours to daylight hours (e.g., 7 AM - 6 PM). - Ensure all equipment has functional mufflers.	Contractor	- Daily visual monitoring of dust levels. - Adherence to specified work hours. - Community complaints log for noise.	3,500
5. Waste Management					
Improper disposal of	- Contamination and illegal	- Identify and secure approval for a designated	Contractor	- Waste disposal receipts and	5,000

excavated spoil and old pipes from rehabilitation.	dumping on public or private land. - Aesthetic damage to the local environment.	disposal site for excess spoil. - Transport all old/scrap pipes to a designated scrap yard or disposal site. - (Note: If asbestos-cement pipes are found, a specialized handling and disposal plan is required).		records. - Visual inspection of the construction corridor to ensure no waste is left behind.	
6. Socio-Economic					
Temporary blockage of access to residences and commercial properties.	- Loss of income for local businesses. - Significant inconvenience for residents.	- Notify all affected households and businesses at least 48 hours in advance of work starting. - Provide temporary access (e.g., steel plates, wooden ramps) where feasible. - Phase the work to minimize the duration of blockage for any single property.	Contractor / PIU	- Records of community notifications. - Log of complaints related to access disruption. - Visual checks for provision of temporary access.	2,500
TOTAL ESTIMATED BUDGET					\$30,000

Table 8.4: Environment and Social Management Monitoring Plan – Operation of water supply related Works

Issue	Action required	Responsibility	Provisional Budget
Pollution of Water Resources by raw pollutants from blocked pipes and Manholes.	<ul style="list-style-type: none"> HODMAN Co will ensure proper and periodic maintenance of sewers and treatment plants HODMAN Co will activate a community watch group for information sharing on the status of the pipelines. Regular cleaning of grit chambers to remove grease, grit, and other debris that may lead to breakups Development of an inventory of system components, with information including age, construction materials, and drainage areas served Design manhole covers to withstand anticipated loads and ensure that the covers can be readily replaced if broken to minimize entry of garbage and silt into the pipeline water system Ensure sufficient hydraulic capacity to accommodate peak flows and adequate slope in gravity mains to prevent build-up of solids and hydrogen sulphide generation Regular inspection of the system to ensure performance is maintained at high levels Blockages should be detected and promptly replaced 	Hodman Water Management (HODMAN Co.)	To be established at Operation Phase and included in the operation of the Project

Odour Menace from Water Treatment Works	<ul style="list-style-type: none"> • HODMAN Co will ensure appropriate covering/ventilation of the pre-treatment unit • HODMAN Co will ensure appropriate handling and removal of grit/grease • HODMAN Co will ensure scum is appropriately disposed of or properly stabilized • HODMAN Co will ensure that the pond series have adequate water flow and aeration to reduce the potential of odour formation • The perimeter of the proposed site should be vegetated with trees and plants of varying heights thereby forming windbreaker and reduce dispersion of odour • Repairing of dilapidated the roofs of the sludge drying beds to ensure quick drying of sludge and appropriate disposal to reduce odour emanating from wet sludge. 	HODMAN Co	To be established at Operation Phase and included in the operation of the Project
Risks Associated with Sludge from the Waste Water treatment sites	<ul style="list-style-type: none"> • HODMAN Co will dry sludge on the drying beds before disposing it off • Dried sludge could be used to make briquettes as a charcoal substitute or be sold to farmers as fertilizers • Excess sludge can be disposed in a designated landfill which shall only be for disposing dry doorless sludge. • Preparation and enforcement of operational guidelines for sludge management 	HODMAN Co	To be established at Operation Phase and included in the operation of the Project
Inversion of Birds and Reptiles to the WWTP	<ul style="list-style-type: none"> • The sewage treatment plants should be protected from wildlife encroachments by providing secure barriers to keep off the animals from interfering with the plant operations and safety • In the event of larger wildlife e.g. hippos, HODMAN Co will ensure appropriate consultations with the Somalia Wildlife Services on appropriate management actions. • The quality of effluent discharged into the river will be an important parameter on the regional control of the river eutrophication that attracts insects that reptiles feed on 	HODMAN Co	To be established at Operation Phase and included in the operation of the Project

8.4 Decommissioning Plan

The Project has been designed to operate effectively for over 30 years. In the event that the infrastructure will be required to be overhauled, then the following steps should be considered in order to undertake the procedure in a structured manner with minimum impact to both human and natural environment.

Table 8.5: Decommissioning Flow Chart

#	Action	Actor
Step 1	Initiation Development of an Objective Worksheet and checklist incorporating references, legal, stakeholder engagement and policies Undertake decommissioning audit	Proponent
Step 2	Prepare Road Map for Decommissioning Design Conduct design review to validate elements of the design and ensure design features are incorporated in the decommissioning design. Public consultations	Proponent
Step 3	Prepare and Award Contract Prepare a contract that incorporates validated project information and award to a contractor as per the Procurement rules.	Proponent
Step 4	Execute Decommission Works Implement design elements and criteria on the Project in accordance with specifications and drawings. Inspect during decommissioning and at Project completion to ensure that all design elements are implemented according to design specifications.	Contractor
Step 5	Non-Conformance, Corrective/Preventive Action Determine root cause Propose corrective measures Propose future preventive measures	Proponent

8.5 Monitoring Plan

The final stage in the impact assessment process is the development of a Management Plan for implementing controls and mitigation and monitoring the effectiveness. Monitoring is done to verify that: a) impacts or their associated Project components remain in conformance with applicable standards; and b) mitigation measures are effectively addressing impacts and compensatory measures and offsets are reducing effects to the extent predicted.

All the activities to be financed under the Project will follow the AfDB ISS provisions, Ministry of water and Environment will make sure that all bid documents and contracts include the ESMP and require compliance with it. Environmental and social monitoring seeks to check the effectiveness and relevance of mitigation measures through the implementation/operation phase. Environment and Social focal points shall monitor Project activities as detailed in the table below

Table 8.6: Monitoring Plan – During Construction Phase

MATERIAL MEASURES AND ACTIONS		TIMEFRAME	RESPONSIBLE ENTITY
MONITORING AND REPORTING			
A	REGULAR REPORTING Prepare and submit to AfDB regular monitoring reports on the environmental, social, health and safety (ESHS) performance of the Project, status of preparation and implementation of E&S instruments required, stakeholder engagement activities, and functioning of the grievance mechanisms.	Submit quarterly E&S reports to the AfDB throughout the first year of Project implementation commencing after the Effective Date and biannually thereafter throughout Project implementation.	HODMAN Co
B	INCIDENTS AND ACCIDENTS Promptly notify the AfDB of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers, including, inter alia, cases of sexual exploitation and abuse (SEA), sexual harassment (SH), and accidents that result in death, serious or multiple injuries. Provide sufficient details regarding the scope, severity, and possible causes of the incident or accident, indicating immediate measures taken or that are planned to be taken to address it, and any information provided by any contractor and/or supervising entity, as appropriate	Notify the Association within 48 hours after learning of the incident or accident using such reporting formats as the Association may specify. A detailed report of the incident shall be provided within fifteen (15) days of notifying the Association of the incident or accident, unless a different timeline is agreed with the Association.	HODMAN Co
C	CONTRACTORS MONTHLY REPORTS Require contractors and supervising firms to provide monthly monitoring reports on ESHS performance in accordance with the metrics specified in the respective bidding documents and contracts and submit such reports to the Association.	Submit the monthly reports to the Association as annexes to the reports to be submitted under action A above.	Contractor and Supervising Engineer
ESS 1: ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS			

1.1	ORGANIZATIONAL STRUCTURE Establish and maintain an organizational structure within the MOECC with qualified staff and resources to support management of ESHS risks and impacts of the Project including one full-time environmental and social specialist.	Establish and maintain E&S staff no later than four weeks after the Effective Date and maintain throughout Project implementation.	HODMAN Co
1.2	ENVIRONMENTAL AND SOCIAL INSTRUMENTS Prepare, disclose, consult upon, adopt Stakeholder Engagement Plan (SEP) Prepare, disclose, consult upon, adopt and implement site-specific Environmental and Social Impact Assessments (ESIAs), Environmental and Social Management Plans (ESMPs)	ESIA and SEP shall be prepared, disclosed, consulted upon and adopted before Effective Date, and thereafter implemented throughout Project implementation.	HODMAN Co
ESS 2: LABOUR AND WORKING CONDITIONS			
2.2	GRIEVANCE MECHANISM FOR PROJECT WORKERS Establish, maintain, and operate a grievance mechanism for Project workers, as described in the LMP and consistent with OS 10.	Establish grievance mechanism prior to engaging Project workers, and thereafter maintain and operate it throughout Project implementation.	HODMAN Co
2.3	OCCUPATIONAL HEALTH AND SAFETY (OHS) MEASURES Develop and implement occupational, health and safety (OHS) measures, based on World Bank EHS Guidelines, as part of the ESMF and ESMPs including through, <i>inter alia</i> , implementing adequate OHS measures and incorporating LMP and SRAMF and SEA/SH requirements into the ESHS specifications of the procurement documents and contracts with contractors and supervising firms.	Measures to be operational prior to engaging Project workers.	HODMAN Co
ESS 3: RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT			
3.2	RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT Resource efficiency and pollution prevention and management measures shall be incorporated in the ESMPs to be prepared under the project	Prepare Construction Specific Environmental and Social Management Plans	Contractor
ESS 4: COMMUNITY HEALTH AND SAFETY			
4.1	TRAFFIC AND ROAD SAFETY Incorporate measures to manage traffic and road safety risks as required in the ESMPs to be prepared	Prior to commencement of civil works	Contractor

4.2	COMMUNITY HEALTH AND SAFETY Assess and manage specific risks and impacts to the community arising from Project activities [including, inter alia,] [specify any areas of risks that may require emphasis, e.g., behaviour of Project workers, risks of labor influx, response to emergency situations], and include mitigation measures in the ESMPs	Prior to commencement of civil works	Contractor
4.3	SEA AND SH RISKS Adopt and implement a SEA/SH as part of the C-ESMP, to assess and manage the risks of SEA and SH.	Prior to commencement of Project Activities	Contractor
ESS 8: CULTURAL HERITAGE			
8.1	CHANCE FINDS Describe and implement the requirements Chance Finds procedures in ESMF and site-specific ESMPs. This procedure shall be followed if cultural heritage is encountered during Project activities. Ensure relevant workers shall be trained in the requirements of the procedure prior to ground disturbance during actual construction work.	Prior to commencement of Project Activities	Contractor
ESS 10: STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE			
10.1	STAKEHOLDER ENGAGEMENT PLAN (SEP) PREPARATION AND IMPLEMENTATION Prepare a Stakeholder Engagement Plan (SEP) for the Project, consistent with OS10, which includes measures to, inter alia, provide stakeholders with timely, relevant, understandable and accessible information, and consult with them in a culturally appropriate manner, which is free of manipulation, interference, coercion, discrimination and intimidation. The Recipient shall conduct additional stakeholder consultations targeting communities and other disadvantaged groups and update the SEP and thereafter implement the SEP throughout project implementation.	SEP prepared, disclosed, and adopted. .	HODMAN Co

9. GRIEVANCE REDRESS MECHANISM

9.1 Introduction

The Grievance Redress Mechanism (GRM) for the Qardho New borehole drilling and rehabilitation project is designed to provide a transparent, accessible, and culturally appropriate channel for addressing concerns, complaints, or disputes that may arise during project preparation, construction, and operation.

It ensures compliance with:

- AfDB ISS (2013), OS1 & GN10 (Stakeholder Engagement & Information Disclosure).
- Somali Constitution (2012) – Right to participation and access to justice.
- Public participation in ESIA.

9.2 Purpose of GRM

9.2.1 Purpose of Grievance Redress Mechanism (GRM)

The purpose of the Grievance Redress Mechanism (GRM) is to offer project stakeholders an opportunity to seek and receive grievance redress and strengthen project's team to identify, track, resolve and refer eligible grievances thereby enhancing project's efficiency and development results and outcomes. The GRM further provides guidance, guidelines and modalities for managing and addressing grievances that may emerge from SERP implementation process. The GRM framework provides modalities for raising awareness, visibility, and understanding of the project interventions and providing feedback on its implementation

The AfDB Integrated Safeguards System (ISS) require that bank supported projects facilitate mechanisms that address concerns and grievances that arise in connection with a project. The ISS 10 (Stakeholder Engagement and Information Disclosure) provides under one of the objectives that project-affected parties are provided with accessible and inclusive means to raise issues and grievances, and allow borrowers to respond and manage such grievances.

As good practices, this GRM makes the following distinctions:

- **Project-related complaints and grievances:** it focuses on Project-related complaints and grievances and defines the different steps of handling such;
- **GBV/SEA/SH related complaints and grievances:** complaints and grievances relating to Gender-Based Violence (GBV) / Sexual Exploitation and Abuse (SEA) / Sexual Harassment (SH), given their sensitivities and considerations related to a survivor-based approach, are reported to the available GRM grievance recipients, but the grievances follow a different process.

- **Labor-related complaints and grievances:** Complaints from project workers raising workplace concerns, terms of employment and other related concerns will be registered through the Workers' GRM, which is a separate GRM elaborated in this document;
- **Second tier / escalated complaints and grievances:** This concerns complaints and grievances that cannot be solved by the first tiers (Project-wide and workers' complaints and grievances) or have been escalated by users dissatisfied with the resolutions from the first tiers. This GRM describes procedures how these grievances shall be addressed through an appeals mechanism.

9.3 Objectives of GRM

The primary purpose of the GRM is to ensure the collect and address the complaints or the concerns of aggrieved parties to a fair extent and on time. Dissatisfaction can cause an aggrieved party to act beyond expectations, which would culminate in some unforeseen repercussions that would negatively affect project implementations and stall project progression. Consequently, the Project's GRM will seek to achieve the following objectives:

- Encourage registration, acknowledgment, and recording of all concerns or issues raised by aggrieved;
- Ensure that complaints are properly registered, tracked and documented, with due regard for confidentiality;
- Address the composition of a committee that would handle all grievances; Inform people of the public information center establishment and access;
- Establish procedures for the GRM to enhance easy access, transparency and accountability, and tackle escalation of grievances beyond expectations;
- Manage the concerns raised by aggrieved parties to achieve a win-win situation within a reasonable time frame that would comply with national and international best practices; and
- Record all resolutions agreed upon by all parties involved and ensure that aggrieved persons are satisfied with every outcome of remedial resolution to foster harmony during project implementation.

The GRM is expected to contribute to continuous improvement in performance of the SERP through an analysis of trends and lessons learned. The GRM does not prevent access to judicial and administrative remedies. It is designed in a culturally appropriate way and is able to respond to all needs and concerns of project-affected parties

9.4 GRM Core Principles

The GRM is based on six core principles summarized below:

- **Fairness:** Grievances are treated confidentially, assessed impartially, and handled transparently.
- **Objectiveness and independence:** The GRM operates independently of all interested parties in order to guarantee fair, objective, and impartial treatment in each case. GRM officials have adequate means and powers to investigate grievances (e.g., interview witnesses, access records).
- **Simplicity and accessibility:** Procedures to file grievances and seek action are simple enough that PAPs can easily understand them. Project PAPs have a range of contact options including, at a minimum, a telephone number. The GRM is accessible to all stakeholders, irrespective of the remoteness of the area they live in, and their level of education or income. The GRM does not use complex processes that create confusion or anxiety.
- **Responsiveness and efficiency:** The GRM is designed to be responsive to the needs of all complainants. Accordingly, staff handling grievances are trained to take effective action, and respond quickly to grievances and suggestions.
- **Speed and proportionality:** All grievances, simple or complex, are addressed and resolved as quickly as possible. The action taken is swift, decisive, and constructive.
- **Participation and social inclusion:** A wide range of PAPs, including community members, members of vulnerable groups, project implementers, civil society, and the media, are encouraged to bring grievances and comments to the attention of the Project staff. Special attention is given to ensure that marginalized or vulnerable groups, including those with special needs, are able to access the GRM

9.5 GRM Framework

9.5.1 Grievance Category

Grievances will be categorized using the guidance summarized below, including basic information communication; public administration ethics and conduct; governance; human rights; environmental compliance; corruption and economic crimes. Grievances outside the SERP mandate will be referred to the appropriate statutory institution. The table below summarized

Table 9.1 Categories of Grievances

#	Categories of Grievances	Federal Republic of Somalia Provisional Constitution 2012 Provisions
1	Basic information	Article 32
	Access to information	

2	Ethics and conduct	Article 115 to 119
	Government entities and staff	
	Implementing Partner staff	
3	Violation and breach of codes of ethics	Article 115 to 119
	Violation of codes of ethics;	
4	Breach of the code of ethics by government officers:	Article 115 to 119
	Breach of Code of Conduct and Ethics by staff of Implementing Partners	
5	Violation of human rights and fundamental freedoms	Article 111B
	Gender equality and general equality matters.	
	Equality and freedom from discrimination (Equality -every person; Equality of men and women to opportunities in political, economic, cultural and social)	
	Economic and Social Rights (health, sanitation, freedom from hunger, adequate and quality food, clean safe and adequate water, social security, education, emergency medical treatment)	
	Non-discrimination of special needs groups	
6	Corruption and Economic crimes	Article 111C
	Unethical conduct	
7	Labor and working conditions	Article 24
	Termination/Summary Dismissal,	
	Breach of Employment Contract Terms	
	Conflicts with Trade Unions	
	Work Injury	
	Discrimination	
	Sexual Harassment	

Figure 9.1 Categories of Grievances

9.5.2 GRM Provisions

All project affected persons will be informed of their rights to raise grievances pertaining to national GRM frameworks. Mechanisms are put in place to ensure that grievances are recorded and considered fairly and appropriately. Project management will issue and publicize a grievance redress policy that clearly states that management embraces grievance reports and views them as opportunities for project improvement and identified a guiding principle;

defining the scope and types of grievances to be addressed; setting out a user- friendly procedure for lodging grievances; outlining a grievance redress structure; describing performance standards; and spelling grievance review mechanisms.

The GRM will be a project wide GRM and will work inter-connectedly with local level actors at the FMS, community, District, and municipal levels. This is to ensure that all measures are taken to address the grievance. The GRM will be housed at both Ministry of Finance (MoF) at Federal Government of Somalia (FGS) and provide access to SERP stakeholders and contractors to register complaints received at sub-project level or the field.

At the project level, a Grievance Redress Committee (GRC) will be established and will comprise, legal advisor, gender specialist, environmental and social safeguard specialists of the project. Local, state and municipality level GRC that consists of local leaders, municipal representatives, community-based organizations, Legal advisor and law enforcement will be established after the first of the project or once the construction activities start. This GRC will be headed through a consensual appointment done with affected communities, and steps will be taken to ensure that all grievances are properly documented and transferred to the digital platform for tracking of resolution.

The project shall explore and collaborate with existing network of service providers to setup and ethically manage SEA/SH complaints as documented in the separate GBV and SEAH Action Plan. Detailed structure of the GRM for the project workers will be finalized and described in the LMP and project implementation manual.

9.6 GRM Implementation Steps

The GRM structure provides multiple channels to aggrieved parties to file their grievances and receive feedback with regards to the project. The aggrieved party must be able to select the most efficient institution, the most accessible means of filing a grievance, and must be able to circumvent partial stakeholders in the Project, which may be implicated in the complaint. He or she must further be able to bypass some grievance channels that are perceived as potentially not responsive or biased.

STEP 1: Identification of Focal Person

The SERP management will identify experienced (Focal Points) at all levels of their projects and assign them responsibility for handling (receiving and registering) grievances. GRMs can have multiple focal points to receive and register grievances. This GRM is designed to give the aggrieved parties access to seek redress to their perceived or actual grievance using this mechanism or other existing mechanisms such as the National legal system (i.e. Courts), mediation boards (elders), GRCs and traditional systems (village courts). It is equally important

to have someone who has overall responsibility for tracking and following up on issues and complaints raised. The descriptions of the GRM functions should clearly stipulate the official designations and the roles of the focal points so that they can really be held accountable for performing their functions. The GRM for the SERP will have identified the focal point persons from community to national level and their tasks have been formulated.

At community level, the project grievance redress structure will be linked and interface to the existing traditional authority structure as this already provides for resolving conflicts in the communities. This will ensure accessibility to the GRM as the traditional structures are close to the people. The Focal Person will be someone with knowledge of the local and/or official language of communication and should be able to record the grievances where need be.

The Project will implement training program to teach staff, Focal Points, community members and other stakeholders how to handle grievances and why the GRM is important to the project's success. This training should include information about interacting with beneficiaries about grievances, the organization's internal policies and procedures in relation to grievance redress. It will also be useful to establish or build on local and community based GRMs by providing grievance redress training for stakeholders at the local level. This greatly reduces GRM costs while enhancing beneficiary satisfaction with, and ownership of, the grievance redress process.

STEP 2: Registration of Grievances:

A register of grievances which will be held by the GRM Officer or any other appointed person by the project. The Aggrieved Party (AP) must register their grievances with the GRM focal point.

To register the grievance, the contractors and suppliers will provide information to the GRM focal point to be captured in the Grievances Registration Form as presented in the annex. The GRM will accept complaints from the APs submitted through verbal, email, phone, Facebook, WhatsApp, meeting or letter to the office of the GRM, in English or local language. The focal point persons handling grievances will transcribe verbal submissions. Receipt of grievances shall be acknowledged as soon as possible, by letter or by verbal means.

When a complaint is made, the GRM will acknowledge its receipt in a communication that outlines the grievance process; provides contact details and, if possible, the name of the GRM officer who is responsible for handling the grievance; and notes how long it is likely to take to resolve the grievance. Complainants will receive periodic updates on the status of their grievances. This GRM has established clearly defined timetables for acknowledgment and follow-up activities. And to enhance accountability, these timetables will be disseminated widely to various stakeholders, including communities, civil society, and the media.

Means of Filing a Grievance

Diverse methods for reporting grievances that are culturally appropriate are to be used and they should permit for self-identified, confidential, or anonymous procedures (professional letter writers, suggestion boxes, Email, toll-free telephone etc).

Avenues for verbal complaints are:

- Complaints to members of the local Grievance Redress Committee (GRC)
- Social Safeguards & Communications desks at the SERP -PCU
- Open community mediation sessions
- Operators' Customer Care Unit
- Town hall meetings

Avenues for written complaints are:

- Complaint Boxes in the community, operator's office or by hand
- Letters or Email to the SERP-PCU
- Dedicated telephone lines shall include:
- SERP -PCU hotlines
- Operator Costumer Care hotlines

STEP 3: Assessment and Investigation:

This step involves gathering information about the grievance to determine its validity and resolving the grievance. The merit of grievances should be judged objectively against clearly defined standards. Grievances that are straight forward (such as queries and suggestions) can often be resolved quickly by contacting the complainant.

Having received and registered a complaint, the next step in the complaint-handling process is for the focal points to establish the eligibility of the complaint received. The Grievances Registration Officer once a complaint or grievance is registered shall within 5 days assess the registered complaint or grievances to determine its validity and relevance i.e. is it within the scope of the SERP-GRM as defined in this document. The following criteria can be used to assess and verify eligibility:

- The complainant is affected by the project.
- The complaint has a direct relationship to the project.

- The issues raised in the complaint fall within the scope of the issues that the GRM is mandated to address.

Having completed the complaint assessment, a response can be formulated on how to proceed with the complaint. This response should be communicated to the complainant. The response should include the following elements:

- Acceptance or rejection of the complaint
- Reasons for acceptance or rejection
- Next steps – where to forward the complaint
- If accepted, further documents and evidence required for investigation e.g. field investigations

Once the registered grievance or complaint has been determined as falling within the scope of this GRM, the focal point shall investigate the complaint. Investigation of the complaint may include the following:

- On site visit and verification.
- Focus Group discussions and interviews with key informers.
- Review of secondary records (books, reports, public records); and
- Consultations with local government and traditional authorities.

The PCU GRM Committee will ensure that investigators are neutral and do not have any stake in the outcome of the investigation. At the end of the field investigation, the GRM officer shall compile a Grievance Investigation Report (GIR) using a standard template as provided in annex on the outcomes of the investigations and the specific recommendation to resolve the grievance or complaint.

STEP 4: Recommendation and Implementation of Remedies:

After the investigations, the GRM officer shall inform the AP of the outcome of the investigations and the recommended remedies if any. The AP shall be provided with written response clearly outlining the course of action the project shall undertake to redress the grievances and the specific terminal date by which the recommended remedies shall be completed. Potential actions will include responding to a query or comment, providing users with a status update, imposing sanctions, or referring the grievance to another level of the system for further action. The project will take some action on every grievance. If the recommended remedy involves monetary compensation, the GRM must then seek the approval of the Grievance Committee through the SERP project coordinator.

The Aggrieved Party shall, provide a response agreeing or disagreeing with the proposed course of action within a minimum reasonable period after receiving the recommended actions.

STEP 5: Referral to the State Office:

In the likely event that the AP is not satisfied with the recommended remedy. The GRM officer shall forward the copy of Grievance Registration Form (GRF) and the Grievances Investigation Report (GIR) to the State GRM focal point (SFP).

The SFP shall once has received the GRF and the GIR from the District must conduct own investigations and complete his own GIR and communicate to the AP within 30 working days (i.e. repeat stages 2-3). The SFP in his recommendation shall take into consideration the reasons why the AP rejected the remedies offered by the district GRM focal point. He may decide to offer the same remedies as the GRM officer or different and improved offer.

Once the SFP has concluded the investigations and communicated to the AP. The AP shall have 7 days or less to agree or disagree with the proposed remedies. If the AP is agreeable to the remedy the SFP shall ensure that the remedy is implemented within the agreed time frame. For a remedy that requires monetary compensation the SPF submit the information to the relevant government department(s).

STEP 6: Referral to the Grievances Committee:

When the AP disagrees with the recommendation of the SFP, the SFP shall within 7 days of receiving the notice of rejecting the offer from the AP compile all the necessary documents regarding the grievance from district and the province to the Grievance Committee through the grievance Chairperson who will be elected by the Committee.

The government implementing partners at the national level shall investigate the matter further and taking into consideration the recommendation of the coordinator and PCU. The Environmental and Social safeguards Officers shall compile the GIR and submit to the Grievance Committee for consideration. Once the Grievance Committee arrives at a decision it is the responsibility of the SERP to implement the remedies within the agreed time. If the AP disagrees with the remedy offered by the Grievance Committee, the AP reserves the right to appeal to other external GRMs outside SERP.

The above-described steps and timeframes will be followed to address grievances emanating from implementing of project activities. For grievances that need quick and urgent attention,

the described steps will be adhered to. However, in terms of timeframe, the grievances will be addressed in the shortest feasible period based on case-to-case basis.

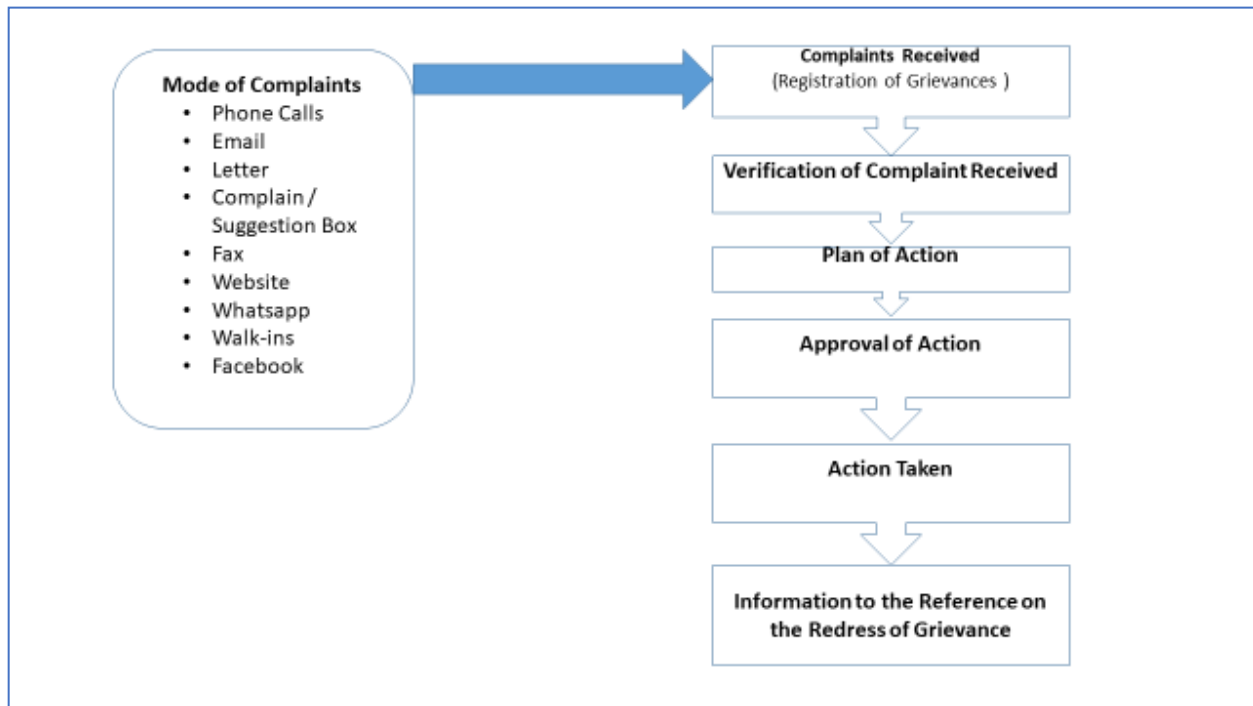


Figure 9.2 Grievance Flow in Basic GRM

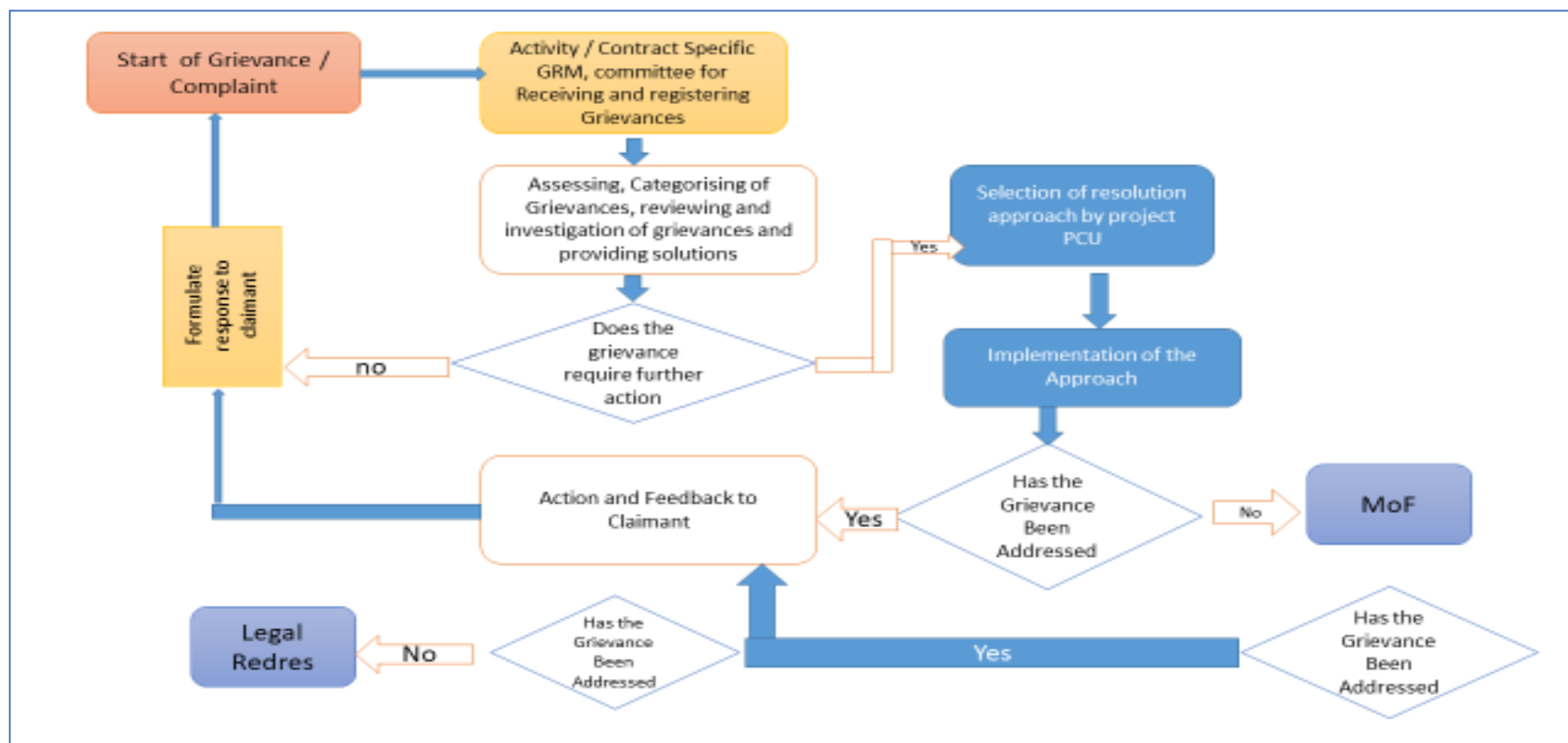


Figure 9.3 Detailed GRM Flow Chart

9.7 Institutional Responsibilities

- **Contractor:** First line of response for construction-related grievances (noise, dust, safety).
- **Qardho Municipality:** Coordination and oversight of local grievances.
- **Puntland Ministry of Environment:** Oversight of environmental and ESIA-related complaints.
- **AfDB:** Safeguard monitoring and final appeal body for unresolved grievances.

9.8 Monitoring and Reporting

- Quarterly reports on number of grievances received, resolved, and pending.
- Disaggregated data (by gender, age, vulnerable groups).
- Annual review of GRM effectiveness with AfDB and Puntland authorities.

9.9 Budget for GRM Implementation

Item	Estimated Cost (USD)
Establishment of complaint desks	500
Training of GRM focal points	1,000
Communication materials (posters, radio, leaflets)	1,000
Monitoring, reporting & community feedback sessions	500
Total GRM Budget:	3,000 USD

9.10 Conclusion

The GRM is a vital safeguard tool to ensure that the Qardho Borehole drilling and rehabilitation project is implemented in an inclusive, transparent, and accountable manner. It promotes community trust, prevents conflict, and ensures compliance with both Somali legal frameworks and AfDB's ISS (2023) requirements.

10.FINDINGS AND PROVISIONS

10.1 Assessment Recommendations:

- The Bid documents prepared for the Project incorporate the Environment, Social Health and Safety Provisions discussed under Chapter 7 of this report (Environment and Social Impact Assessment and Mitigation Measures).
- The contractors through the support of ESHS officer will ensure that all workers sign Code of Conduct (CoC) before site deployment
- The supervising and contractor will undertake training of personnel on Environment, Social, Health and Safety matters tailored to the Project Scope prior to commencement of works
- The contractor will through the ESHS officer apply the provision of Environment and Social Management Toolkit (ESIRT) in management of incidences and accident's during project implementation stage
- The contractor will prepare monthly and quarterly reports on status of implementation of Environment and social compliance measures discussed in this report.
- Contractor will be required to commit to implementing the Environment, Social Health and Safety (ESHS) Provisions by
 - i. Hiring ESHS officers,
 - ii. Developing site specific (C-ESHS) and Sub Plans as listed
 - iii. Implement Provisions of the Plans and Undertake Monthly and Quarterly reporting of ESHS compliance.

10.2 Pre-Construction Safeguards Readiness

10.2.1 Permits and Licenses

The Contractor shall ensure that all pertinent permits, certificates and licenses have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to

- Obtain the license in Department of Occupational Health and Safety Registration Department of Occupational Health and Safety domicile within Ministry of Labour and Social Affairs of the Federal Government of Somalia,
- Obtain Approval of Plans from Qardho County Government Physical Planning Department for any structures on site
- Acquire Permits from the State's Public Health Department of sanitation facilities installed on site
- The Contractor shall maintain a database of all pertinent permits and licenses required for the contract as a whole and for pertinent activities for the duration of the contract

10.2.2 Engage ESHS Officers

Prior to construction, the contractor will engage a qualified ESHS expert who will be responsible for below listed tasks

- Prepare and implement Construction Specific Environmental and Social Management Plan for the Project (CESMP)
- Train all staff on ESHS and ensure all staff sign Code of Conduct (CoC) prior to commencement of works.
- Report all accidents and incidents timely as required by World Bank Environment and Social Incident Reporting Tool kit (ESIRT)
- Audit of compliance with the environmental protection, and pollution prevention and control regulations;
- Monitor and report implementation of environmental mitigation measures;
- Monitor the compliance with the environmental protection clauses/specifications in the Contract;
- Investigate and evaluate complaints and identify corrective measures;
- Liaise with the Engineer on all environmental performance matters and timely submission of all relevant environmental monitoring reports;
- Advise the contractor on environmental improvement, awareness, enhancement matters, etc. on site; and
- Modify the ESMP and monitoring program in consultation with the Engineer, if necessary, throughout the period of works.

10.2.3 Preparation of C-ESMP and Sub Plan

The contractor upon signing of civil works contract will prepare Construction Environmental and Social Management Plans (C-ESMPs) and Sub Plans for review and approval by the project's Implementation body, a summary of the Sub Plans is presented below

- GBV/SH/SEA
- Labor Management Plan
- Labor Influx Management Plan
- Water Resources Protection Plan
- Drug Abuse and Substance Awareness Plan

10.2.4 ESHS Training

The supervising and contractor will undertake training of personnel on Environment, Social, Health and Safety matters tailored to the Project Scope prior to commencement of works

10.3 General Outcome of the Assessment

The assessment of the proposed pipeline extension and rehabilitation project in Qardho indicates that the intervention will bring significant socio-economic and public health benefits, though some medium to high environmental and social impacts may arise during the construction phase.

10.3.1 Positive Impacts Identified

- **Improved Access to Water:** Reliable water supply to households, health centers, schools, and IDP camps, reducing water scarcity.

- **Public Health Benefits:** Decreased waterborne diseases due to reduced reliance on unsafe water sources.
- **Time Savings:** Especially for women and children, who often bear the burden of water collection.
- **Livelihood Support:** Enhanced water availability for small-scale agriculture, livestock, and small businesses.
- **Employment Opportunities:** Short-term jobs created during construction and maintenance phases.
- **Resilience Building:** Strengthened capacity of Qardho to cope with climate variability and drought shocks.

Trade-offs

- **Temporary Disruptions:** Excavation and trenching for pipelines may disrupt traffic, pedestrian movement, and business operations.
- **Resource Use:** Consumption of water and construction materials (cement, sand, gravel) during works.
- **Environmental Stress:** Vegetation clearing and soil disturbance may affect local ecosystems.
- **Short-term Nuisances:** Dust, noise, and vibration during construction works may affect nearby residents.

10.3.2 Medium and High Impacts Identified

- **Water Resources (Medium):** Risk of leakage or accidental contamination during construction.
- **Soil Resources (Medium):** Disturbance and erosion in areas of excavation.
- **Air Quality (Medium):** Dust emissions and exhaust fumes from machinery.
- **Noise and Vibration (Medium to High):** Especially in densely populated sections and near sensitive receptors like schools and hospitals.
- **Traffic Disruption (High in urban centers):** Narrow roads in Qardho may worsen congestion during pipeline trenching.
- **Solid and Liquid Wastes (Medium):** Improper handling of drilling slurry, packaging materials, or oil leaks could pollute soil and water.

10.3.3 Mitigation to Ensure Sustainability

- **Traffic Management Plans:** Phased construction, signage, detours, and community awareness.
- **Dust and Noise Control:** Water sprinkling, use of mufflers, and limiting works to daytime hours.

- **Waste Management:** Segregation, safe disposal, and recycling of solid and liquid wastes.
- **Soil Stabilization:** Backfilling trenches and revegetation of disturbed areas.
- **Water Protection Measures:** Proper sealing of pipelines, prevention of leakages, and protection of boreholes from contamination.
- **Stakeholder Engagement:** Continuous dialogue with local communities, IDPs, businesses, and authorities to minimize disruptions.

10.3.4 Contrast: Positive vs. Negative Impacts

- **Positive Impacts** are **long-term, wide-reaching, and transformative**—ensuring access to clean water, improving health, supporting livelihoods, and enhancing resilience.
- **Negative Impacts** are **short-term, localized, and manageable**—mostly construction-related nuisances (dust, noise, traffic, waste) that can be mitigated with proper planning.

Conclusion: The **benefits outweigh the adverse impacts**, provided mitigation measures are effectively implemented. The project is therefore considered **environmentally and socially sustainable**, aligning with climate resilience and gender-sensitive development goals for Qardho.

11.APPENDIXES

- i. Stakeholder Consultation (Minutes, Reports, List of Attendance)**
- ii. Appendix 1: Meeting Photographs**
- iii. Attendance List – Qardho Meeting**
- iv. Schematic representation of pipeline area**

APPENDIX 1: STAKEHOLDER CONSULTATION

(Minutes, Reports, List of Attendance)

MINUTES OF PUBLIC PARTICIPATION MEETING – QARDHO WATER SUPPLY FACILITIES

Date: 23rd October 2025

Venue: Washington Borehole Site, Qardho

Time: 10:30 a.m. – 12:45 p.m.

Facilitator: Project Environmental and Social Safeguards Team

Participants: Local residents, elders, youth and women representatives and WASH Committee members.

Objective: To engage community members in discussions on the proposed water supply facilities under the Qardho WASH Project, including borehole rehabilitation, pipeline expansion, water tariffs, and community participation.

Minute Taker: Ibrahim Ahmed Raxooy

1. Opening and Introductions

The meeting commenced with a warm welcome, followed by introductions of the project team and community participants. The facilitator explained the objective of the session – to provide community members with detailed information about the proposed water supply interventions and to gather their feedback and concerns for inclusion in the project's design and environmental assessment.

2. Project Overview

The project team presented the scope of the **Qardho Water Supply Improvement Component**, including:

- Rehabilitation of **12 existing boreholes** and construction of **additional production wells** to increase water availability.
- **Expansion of water transmission pipelines** and construction of public water kiosks for IDP and low-income areas.
- **Installation of solar-powered pumping systems** to replace diesel use and reduce operational costs.
- Development of **water storage tanks and treatment systems** for quality assurance.

The community was encouraged to raise questions, share opinions, and make suggestions to ensure that the facilities reflect local needs and priorities.

3. Community Concerns and Responses

Issue/Concern Raised	Response / Clarification Provided	Responsible Party	Action / Follow-Up
1. Location of New Boreholes and Pipelines – Mr. Bile Aadan Yusuf inquired about where the new boreholes and pipeline routes would be located and whether any private land would be affected.	The team clarified that the new boreholes will mainly be developed within public or community land, prioritizing areas with poor access such as Kuleejka and Xingood zones. Pipeline routes will follow existing public easements and road reserves to avoid displacement.	Project Engineer / MoEMWR / Qardho Municipality	Conduct detailed site surveys and confirm final alignments with local leaders and landowners before construction.
2. Water Tariffs and Affordability – Ms. Caasho Maxamud asked how much the community will pay for water after the system is operational.	It was explained that water tariffs will be determined by the Hodman Water Company and the Qardho Municipality in consultation with the community, ensuring affordability and alignment with Puntland Water Pricing Guidelines. Vulnerable households and IDPs will receive subsidized rates.	Hodman Water Company / Municipality	Develop and disclose a transparent tariff framework before commissioning the system.
3. Pipeline Safety and	The project team assured that all	Contractor /	Include road

Issue/Concern Raised	Response / Clarification Provided	Responsible Party	Action / Follow-Up
Access – Mr. Calco Cah Dashir raised concerns about potential damage to roads and access routes during pipeline installation.	construction will follow approved utility corridors, and affected access routes will be restored immediately after pipe laying. Traffic and pedestrian safety measures will be implemented during construction.	Supervising Engineer	reinstatement and safety procedures in the construction method statement.
4. Employment of Local Workers – Ms. Mulki Xasan asked if local community members would be considered for construction jobs.	The project will prioritize local labor, including youth and women, for unskilled and semi-skilled works such as excavation, pipe laying, and site maintenance.	Contractor / Project Implementation Unit (PIU)	Include local recruitment requirements in contractor agreements.
5. Project Timeline and Implementation Schedule – Mr. Mahad Maxamud Raxooy asked when the construction would begin and how long it would take.	The project is expected to commence in early 2026, following ESIA approval and tendering. Construction is projected to last 9–12 months, depending on seasonal conditions.	MoEMWR / UNICEF / Municipality	Share detailed construction schedule and updates during subsequent community meetings.

4. Closing Remarks

The facilitator thanked all participants for their active engagement and valuable insights. Community members expressed appreciation for being consulted and urged the project team to ensure transparency in employment and fair access to water services. The meeting concluded at **12:45 p.m.** with a word of thanks from the community chairperson.

Attendance Register



PREPARATION OF GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) IMMEDIATE INTERVENTIONS- PUBLIC PARTICIPATION

ATTENDANCE LIST

Venue Kashington Borehole Date 23/10/2025

#	Name	Village	Tel	Sign
1	Ibrahim axmal raxooy	Qargacale	7737737	Cliff
2	Mahamed xasan Mahad	Xingood	7662853	Mahadi
3	Cah siid chak	Xargab	7697525	cah
4	Isle axad yuusuf	Qargacale	7231149	Isle
5	Claxay yacub yuusuf	Qargacale	6333450	Clax
6	Shahar Maxamed	Bayla Bayla	7735270	Shahar
7	Claxay axmal mulki	Xargab	7417065	Claxay
8	Shahar Cah	Qargacale	7431768	Shahar
9	Xalimo xusein maxamed	Qargacale	6526055	Xalimo
10	Xalimo Cah	Xingood	5098674	Xalimo
11	Mahamed Mahad	Qargacale	7617083	Mahadi
12	Mahamed Mahad	Qargacale	6785286	Mahadi
13	Xalimo Cah	Qargacale	6444132	Xalimo
14	Claxay axmal mulki	Qargacale	575203	Claxay
15	Claxay Cah	Qargacale	7172575	Claxay
16	Claxay Cah	Qargacale	741433	Claxay
17	Claxay Cah	Qargacale	7374797	Claxay
18	Mulki Xasan	Qargacale	5534081	Mulki
19	Claxay Cah	Qargacale	6990390	Claxay
20	Claxay Cah	Qargacale	7448138	Claxay
21	Mahad Maxamud Raxooy	Qargacale	7737737	Mahadi
22	Shahar Mahad	Qargacale	7736572	Shahar
23	Mahamed Mahad	Qargacale	7773454	Mahadi
24	Mahamed Mahad	Qargacale	6773457	Mahadi
25	Mahamed Mahad	Qargacale	7734191	Mahadi

Pictures



ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR WATER AND SANITATION SHORT-TERM INTERVENTIONS PROPOSED FOR QARDHO, SOMALI

MINUTES OF PUBLIC PARTICIPATION FORUM HELD ON THE 3rd September 2025 AT MAYOR OFFICE QARDHO

MINUTES

<u>Item</u>	<u>Minutes</u>	<u>Action By</u>
1.	<p><u>Introduction</u></p> <p>The meeting began with a warm welcome from Qardho's mayor, Mohamed Hayef. He explained that the meeting was called to thoroughly assess the social and environmental impacts of the city's new water and sanitation projects.</p> <p>He emphasized that the day's discussion was a critical opportunity to get feedback on both the positive and negative effects of the new infrastructure. The mayor stressed that the projects must not only work well but also be sustainable for the long-term benefit of the residents and the environment.</p> <p>The mayor finally welcomed the project consultants and gave them time to provide the community and stakeholders with detailed information about the project.</p>	Mayor Mohamed hayef
2.	<p><u>Project Information</u></p> <p>The Consultant representative Mr. Abdinasir Farah thanked stakeholders for creating time to come and participate in the ESIA public participation forum. He gave a brief of the proposed Project scope which include; Drilling of new boreholes, rehabilitation of existing, new pipeline extension, rehabilitation of existing network, replacing of solar panels, replacement of standby- generators, construction of water storage tanks, construction of water treatment plant, construction of quality monitoring laboratory, deploy mobile desludging unit, construction of latrines, construction of decentralized wastewater treatment unit, construction and rehabilitation of onsite wastewater facilities including septic tanks and soak pits.</p> <p>Mr Abdinasir Farah informed the meeting that the Government of Somalia received financing from the African Development Bank (AfDB) to support Somalia Sustainable Towns Water Supply and Sanitation Programme. The main objective of the Programme is to improve the access, availability and sustainability of water supply and wastewater management services in multiple towns including Qardho.</p>	Tertiary Consulting Engineer /Abdinasir Farah

	<p>To achieve this objective, Qardho Town has been prioritized as one of the Towns to benefit from the Program with the Increasing of water supply system of the town and establishment of water sanitation system. The Project Executing Agency (PEA) is UNICEF on behalf of Puntland Water Development Agency (PWDA). (PWDA) is state corporations under the Ministry of Energy, Minerals and Water responsible for development, maintenance and management of Water Infrastructure in their areas of jurisdiction.</p>	
3.	<p><u>Environment and Social Safeguard Reports</u></p> <p>Mr Abdinasir Farah informed the meeting that they were going to prepare a report that would eventually help with the final preparation of the final design of the project. The reports are <i>Environmental and Social Impact Assessment Report</i> (ESIA).</p> <p>He added that the ESIA would capture all the environmental and social impacts of the project and provide mitigation measures. They were assured that all their opinions and objections would be put in the report so as to ensure that the project would run smoothly.</p>	<p>Tertiary Consulting Engineer / Abdinasir Farah</p>
4.	<p><u>Project Positive Impacts</u></p> <p>Mr Abdinasir Farah pointed out to the meeting that water supply and sanitation improvement have enormous benefits as summarized below.</p> <ul style="list-style-type: none"> • The projects prioritize efficiency to reduce waste. By fixing leaks in pipelines and boreholes and using modern meters, less water is lost, which helps conserve this critical resource. • A key goal is to keep our water clean. The new pipeline system, along with better latrines and septic tanks, stops waste from contaminating groundwater and other local water sources. • The project is making the city more environmentally friendly. Switching to solar-powered pumps and using efficient generators means less reliance on fossil fuels, leading to cleaner air and a quieter community. • The project is built for the future. By improving existing infrastructure, like boreholes and water tanks, the community has a reliable, long-lasting water supply without the need for constant new construction. • By improving sanitation and ensuring a clean water supply, the project is directly protecting public health. Proper waste management and better facilities prevent the spread of diseases and create a safer, healthier place to live. 	<p>Tertiary Consulting Engineer / Abdinasir Farah</p>
5.	<p><u>Impacts to Environment (Natural and Social)</u></p> <p>Mr. Abdinasir Farah informed the meeting that negative impacts likely to be triggered by the Project to the environment are as indicated below.</p> <ul style="list-style-type: none"> • Construction activities, such as drilling boreholes and excavating for pipelines, can lead to soil erosion and the destruction of local vegetation and wildlife habitats. • The use of heavy machinery, construction vehicles, and 	<p>Tertiary Consulting Engineer / Abdinasir Farah</p>

	<p>desludging trucks creates noise and releases harmful emissions, impacting local air quality and disturbing communities.</p> <ul style="list-style-type: none">• There is a constant risk of polluting water sources through accidental spills, poorly managed drilling fluids, or leaks from pipelines and wastewater systems.• Over-pumping of water from new boreholes can cause the local water table to drop, which affects other wells and can harm ecosystems that rely on that water source.• Building large infrastructure like wastewater treatment plants requires significant land and can negatively impact the local area with unpleasant odours.• A major long-term risk is the improper handling of waste, whether it's the treated sludge from a plant or the raw waste from desludging, which can pollute the environment if not disposed of correctly.• Solar panels and batteries used at borehole sites have a limited lifespan and contain heavy metals, posing an environmental challenge for their safe disposal at the end of their use.• Despite being designed to be leak-proof, a pipe failure in the extension network could release water or, in the case of wastewater, contaminants into the environment. <p>He further added that all these impacts would be addressed comprehensively by the ESIA study report and appropriate mitigation measure provided.</p>							
6.	<p><u>Question and Answer Session</u></p> <p>After discussion summarized above, the community were invited to a question-and-answer session under the guidance of the chief. Detailed questions and suggestion of the plenary session are presented in Table 1 below</p> <p>Table 1: Plenary Session</p> <table><tr><th>Suggestion / Question</th><th>Response</th></tr><tr><td>Mr. Mohamed wanted to be informed How do you plan to mitigate the noise and air pollution from construction vehicles and drilling machinery, especially in residential areas, during the initial implementation phase?</td><td>Residents were informed that during implementation of the project there is a plan to limit and minimize noise. For air pollution, we will use modern, well-maintained vehicles and water down construction areas to control dust.</td></tr><tr><td>Mr. Abdirasak wanted to know What measures will be in place to prevent water contamination from accidental spills or improper waste disposal,</td><td>The residents were informed that All mobile desludging units will be equipped with sealed tanks and trained operators to prevent spills. We will also have a designated, secure off-site location for waste disposal, which will</td></tr></table>	Suggestion / Question	Response	Mr. Mohamed wanted to be informed How do you plan to mitigate the noise and air pollution from construction vehicles and drilling machinery, especially in residential areas, during the initial implementation phase?	Residents were informed that during implementation of the project there is a plan to limit and minimize noise. For air pollution, we will use modern, well-maintained vehicles and water down construction areas to control dust.	Mr. Abdirasak wanted to know What measures will be in place to prevent water contamination from accidental spills or improper waste disposal,	The residents were informed that All mobile desludging units will be equipped with sealed tanks and trained operators to prevent spills. We will also have a designated, secure off-site location for waste disposal, which will	<p>Tertiary Consulting Engineer /Abdinasir Farah</p> <p>Tertiary Consulting Engineer</p>
Suggestion / Question	Response							
Mr. Mohamed wanted to be informed How do you plan to mitigate the noise and air pollution from construction vehicles and drilling machinery, especially in residential areas, during the initial implementation phase?	Residents were informed that during implementation of the project there is a plan to limit and minimize noise. For air pollution, we will use modern, well-maintained vehicles and water down construction areas to control dust.							
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	especially from desludging units?	be regularly monitored.	/Abdinasir Farah
	Mrs. Xaliimo wanted to know If you Can you provide details on the long-term management of sludge from the new wastewater treatment plant to ensure safe and proper disposal.	The meeting was informed that the sludge will undergo a stabilization process at the plant. The program has a long-term plan to either use it as a soil amendment for non-edible crops or transport it to a designated sanitary landfill, depending on its quality.	Tertiary Consulting Engineer /Abdinasir Farah
	Mr. Bashiir wanted to know if youths in the area will get employment opportunities during project implantation.	Residents were informed that all unskilled labor and some skilled will be sourced from the local community. Youths were encouraged to organize themselves into groups and avail themselves for the job opportunities for consideration.	
	Mr. C.madoobe wanted to be informed when the Project will commence, and if they should proceed with their plans of digging pit latrines or they should stop now that the new emergency latrines that will come along the project.	Residents were informed that, at this stage, the program is dedicated to conducting feasibility studies. It was conveyed that the project's commencement is contingent upon the securing of funding by the donor. Subsequently, implementation will be initiated based on the most pressing emergency needs of the community. In light of the new emergency latrines planned for the project, residents are advised to suspend their individual plans for digging new pit latrines.	
7.	<p><u>Closing Remarks</u></p> <p>The meeting was brought to a close with final remarks from the Mayor of Qardho, Mr. Mohamed Hayef. He expressed deep gratitude to all the participants and stakeholders for their valuable input, acknowledging with pride the progress made in increasing the city's water supply and establishing sanitation systems.</p> <p>During the meeting, the social and environmental impacts of the projects were thoroughly assessed, and all concerns that were raised were carefully noted. The Mayor committed to diligently addressing and mitigating any negative impacts. He concluded by emphasizing that the project's long-term success would be defined not only by the new infrastructure, but also by the continued collaboration with the community and the sustainability of the solutions provided.</p>		Mayor Mohamed hayef

Minutes Prepared by:

Abdinasir Farah

Environment Consultant -Tertiary Consulting Engineer

Signed



For: Mayor Mohamed hayef

APPENDIX 2: MEETING PHOTOGRAPHS

SAMPLE PHOTOS OF THE MEETING



APPENDIX 3: ATTENDANCE LIST - QARDHO MEETING



PREPARATION OF GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) IMMEDIATE INTERVENTIONS- PUBLIC PARTICIPATION

ATTENDANCE LIST

#	Venue Name	Date Village	Tel	Sign
	Maxamed cisman Axmed	Kaladitir V.	7737215	
	Maxamed nuuse maxamed	W/Deegaa	7736226	
	Siciid Xaaslu Axmed	Hadiman	7733339	
	Mohamed Abdi yusuf	Xingtoed	7798454	
	Mohamed mohamed Yusuf	Kaambo	6793497	
	Mohamed Abdullahi Said	Wadalka	7725253	
	Cali Siciid nuuse	CBO	7737254	
	Martan Abdi Mohamed	Calander	7793350	
	Shadio Jaamac nuur	Xildhibaan	7738510	
	Deegoo Cismaan maxamed	Xanqood sare	7627310	
	Khadra Xuseen siciid	Xaasdo wadajir	7720135	
	Khadra Jaamac Cabdi	L-G	7624211	
	Marsan Shukh axmed	Xildhibaan	6776161	
	Caasha Siciid maxamed	Xafad qoryoqa	7653995	
	Maxamed nuuse maxamed	Isudkuwaha biyaha	7710477	





PREPARATION OF GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA


ENVIRONMENTAL IMPACT ASSESSMENT (EIA) IMMEDIATE INTERVENTIONS- PUBLIC PARTICIPATION

ATTENDANCE LIST

#	Venue	Name	Date	Village	Tel	Sign
		Mohamed Abdulah Said		Di. Maanor	50725253	
		Mohamed Mohamud Yusuf		Caasulaw	6793497	
		Abdirashid Maxamed Yusuf		Bulshada	7758618	
		Maxed said		Ganacsadada	7734171	
		Sharmarke Osman Yusuf		Ganacsadada	7736592	
		Mohamed Abdi Yusuf		LG	773454	
		Abdirazak Farah Kadi		LG	6736116	
		Abdirazak Maxamed Cilmi		Dhalinyarada	7735646	
		Bashir Ahmed Mohamed		Waxbarashada	7669746	
		Abdulleahi Said Murr		Dhalinyarada	7617039	
		Abdirazak Maxamed Cismaan		Dhalinyarada	7721920	
		Amadeebe Maxamed Cismaan		Kasa'a	7731561	
		Siyaad Cuse Faarax		Kaawanka	7231001	
		ibrahim Yacquub Adan		Kaawanka	7627767	
		Ali Muxamed Ali		Yuuq	7670765	
		Bashir Siyaad Xirsi		Local Council	7734488	
		Xaali Mo ci hili		Caasulaw	1785537	
		Xafso Omer Setai		Haweenka	7957948	
		Qorsho Maxed Cabdi		Haweenka	7734356	
		Siyaad Cuse Faarax		Haweenka	7620817	
		Sayid Maxamed Yusuf		Haweenka	7538541	



APPENDIX 4: Key Informant Interviews Forms


**GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT
MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO,
SOMALIA**

FOCUSED GROUP (FGD) DISCUSSION GUIDE
Qardho Town

1. Entity / Name of Group/ *Women from IDP camp (shabeelle)*
2. Date and Venue *18th June 2025 - main office*
3. Attendance / Representation
Women leaders (chairpersons) and the consultant
4. Topic of Discussion
Challenges faced in the camp.
5. Key Issues Discussed
 - *poor sanitation facilities*
 - *insecurity at night while going to the toilets*
 - *far distances to fetch water*
 - *not enough storage facilities*
 - *no ambulance at the local health centre*
 - *lack of gender sensitive toilets*
6. Way forward and Resolution
 - *training of better hygiene practices*
 - *women empowerment*
 - *more sanitation facilities*
7. Signature and Confirmation
[Signature]



GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA

FOCUSED GROUP (FGD) DISCUSSION GUIDE

Qardho Town

1. Entity / Name of Group/ Social Dept / Disaster Mngt
2. Date and Venue 11th June - Mayor's Office
3. Attendance / Representation workers from the department
4. Topic of Discussion general Women hygiene practices
5. Key Issues Discussed
 - Accessibility to the local Govt offices lacks disability access
 - No Sanitary pads disposal places
 - expensive and not accessible to many vulnerable homes
 - many women headed households lack income
 - flooding affects many small businesses
6. Way forward and Resolution
 - capacity building and training of entrepreneurs
 - gender sensitive washrooms
 - better hygiene services
7. Signature and Confirmation



GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA

FOCUSED GROUP (FGD) DISCUSSION GUIDE

Qardho Town

1. Entity / Name of Group/ ... Men from Shabellae IDP camp
2. Date and Venue... 12th June at the camp's offices
3. Attendance / Representation
... male leaders, religious elders
4. Topic of Discussion
... general safe WASH practices
5. Key Issues Discussed
 - better sanitation facilities for women & girls
 - improved access to clean and safe water
 - limited awareness in terms of better uses in hygiene
 - improved access to medicine at the Health Centre
6. Way forward and Resolution
 - the project to improve the existing facilities
 - more water points near the camp
 - gender sensitive toilets
 - solar lighting to camp
7. Signature and Confirmation



GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA

FOCUSED GROUP (FGD) DISCUSSION GUIDE

Qardho town

1. Entity / Name of Group/ Daryeel Waste Management Company
2. Date and Venue 11th June 2025 → Daryeel Waste Mngt
3. Attendance / Representation
Workers from the company and the consultant
4. Topic of Discussion
→ improvement of services
→ alternative land for waste disposal
5. Key Issues Discussed
→ more garbage trucks needed
→ solid waste segregation
→ solid waste handling
→ introduction of recycling
→ alternative land for solid waste treatment
6. Way forward and Resolution
→ more training to the people on reducing of waste
→ solid waste management practices
→ capacity building
7. Signature and Confirmation
[Signature]



GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA

KEY INFORMANT INTERVIEW (KII) DISCUSSION GUIDE

Qardho Town, Puntland

1. Entity / Organization / Department

Shabeelle Health Centre

2. Name of officer and Position / Individual Consulted

→ Medical Superintendent

3. Date and Venue 12th June 2025 → Shabeelle Health Centre

4. Topic of Discussion

Hospital challenges in terms of servicing IDPs (women & children)

5. Key Issues Discussed

- insufficient water in the camp or rather the distance from the water points to the household is far
- lack of ambulance in the hospital that can help in the emergencies
- disposal of hospital waste - small incinerary
- gender based violence among women

6. Way forward and Resolution

- capacity building to the local NGOs → TASS
- more programs especially in water and sanitation
- water points to be brought closer to the camps

7. Signature and Confirmation



GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT
MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO,
SOMALIA

KEY INFORMANT INTERVIEW (KII) DISCUSSION GUIDE

Qardho Town, Puntland

1. Entity / Organization / Department

Shabeelle Health Centre

2. Name of officer and Position / Individual Consulted

A Patient at Shabeelle Health Centre Mrs → Halima

3. Date and Venue 10th June 2025 → Shabeelle Health Centre

4. Topic of Discussion

Challenges in accessing good sanitation


5. Key Issues Discussed

→ lack of enough supplements for the kids
→ vaccinations for children sometimes is delayed
→ difficulty in getting water

6. Way forward and Resolution

→ NGO to help with sanitation facilities
→ the project should bring water close to the IDP
camps
→ the Govt Puntland to improve supplies of medicine

7. Signature and Confirmation



unicef

GENDER SENSITIVE AND CLIMATE-RESILIENT CITY WASH MASTERPLANS, MANAGEMENT MODALITIES AND TECHNICAL FEASIBILITY STUDIES FOR QARDHO AND SOUTH GALKAYO, SOMALIA

KEY INFORMANT INTERVIEW (KII) DISCUSSION GUIDE

Qardho Town, Puntland

1. Entity / Organization / Department

Hadman Water Mangonet

2. Name of officer and Position / Individual Consulted

MDRIS

3. Date and Venue

9th June → Hadman Water company

4. Topic of Discussion

Improved services


5. Key Issues Discussed

→ more accessible water points to camps
→ maintenance issues and rehabilitation of lines
→ Involvement of women in the water sector

6. Way forward and Resolution

→ increased women participation
→ for project to propose more places for boreholes

7. Signature and Confirmation



Schematic representation of pipeline area

