DAWLADA PUNTLAND
EE SOOMAALIYA

PUNTLAND STATE
OF SOMALIA

Ministry of Agriculture and Irrigation

Wasaaradda Beeraha iyo Waraabka.

Somalia Food Systems
Resilience Project "P177816

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

Activity Title:

Borokhle Water Rehabilitation Project, Carmo District, Bari Region

For:

Food Systems Resilience Project (FSRP) – Puntland Component

Date: July 2026

Project Coordinates:
10°31'25.0"N 49°14'39.2"E

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
CBD	Convention on Biological Diversity
CoC	Code of Conduct
Deyr (rainy season)	October–December rainy season
E&S	Environmental and Social
EHS	Environmental, Health, and Safety
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
FGS	Federal Government of Somalia
FSRP	Food Systems Resilience Project
GBV	Gender-Based Violence
GM	Grievance Mechanism
Gu (rainy season)	April–June rainy season
IDP	Internally Displaced Person
ILO	International Labour Organization
MoAI	Ministry of Agriculture and Irrigation
MoAI/MoERCC	Ministry of Environment, Range, and Climate Change
OHS	Occupational Health and Safety
PCU	Project Coordination Unit
PPE	Personal Protective Equipment
SEA/SH	Sexual Exploitation and Abuse / Sexual Harassment
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
VLD	Voluntary Land Donation

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1. Executive Summary

The Environmental and Social Management Plan (ESMP) for the Borokhle Water Rehabilitation has been prepared under the Somalia Food Systems Resilience Project (FSRP), financed by the World Bank and implemented by the Federal Government of Somalia and Puntland State. The project aims to improve reliable water supply for irrigation through the rehabilitation and upgrading of existing water infrastructure serving the Borokhle farming community. This ESMP has been developed in full alignment with the FSRP Environmental and Social Management Framework (ESMF), ensuring consistency with project safeguards procedures, screening requirements, and mitigation standards

The project involves the rehabilitation of existing shallow wells, installation of solar-powered pumping systems, and upgrading of associated water conveyance and distribution infrastructure. The proposed intervention will improve the efficiency and reliability of the existing irrigation system, reduce dependence on aging and inefficient pumping methods, strengthen sustainable groundwater utilization, and support increased agricultural productivity and household resilience.

The environmental and social assessment identified the project as having Moderate environmental and social risk, with impacts that are localized, temporary, and manageable through implementation of the mitigation measures presented in this ESMP. The principal risks include temporary dust and noise generation, excavation-related impacts, construction waste, occupational health and safety risks, community health and safety concerns, temporary interruption of irrigation water services during rehabilitation works, and labour-related risks. Appropriate mitigation measures consistent with the World Bank Environmental and Social Standards (ESS1–ESS10), the FSRP ESMF, and Puntland's Environmental Impact Assessment Act (2023) have been incorporated into the ESMP.

Key implementation risks include occupational health and safety hazards associated with excavation and construction activities, community safety risks resulting from movement of workers, vehicles, and equipment, and temporary disruption of water supply during rehabilitation. These risks will be effectively managed through implementation of occupational health and safety procedures, provision of personal protective equipment (PPE), community awareness programmes, traffic and site safety measures, and close coordination with local authorities and community representatives.

Stakeholder consultations involving community elders, local authorities, farmers, irrigation water users, women, youth representatives, and the Village Development Committee (VDC) demonstrated strong support for the project. Community members identified the rehabilitation of the existing wells as a priority intervention to improve reliable water supply during dry seasons and strengthen agricultural production. Stakeholders emphasized the importance of community

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participation in operation and maintenance of the rehabilitated infrastructure, practical training on the operation and maintenance of solar-powered pumping systems, and strengthening long-term sustainability of the project. Farmers also recommended that future agricultural support programmes consider improved seed varieties, basic farm tools, and agricultural extension services to maximize the benefits of the improved irrigation system. A functional Project Grievance Mechanism (GM), including Hotline 3060, has been established to receive and address community concerns throughout project implementation.

Implementation of the ESMP will require coordinated efforts between the Project Coordination Unit (PCU), the Ministry of Agriculture and Irrigation (MoAI), the supervising engineer, the contractor, Carmo District Administration, and the Borokhle community. The estimated ESMP implementation cost is USD 6,500, covering environmental and social mitigation measures, monitoring, occupational health and safety requirements, stakeholder engagement, and community awareness activities.

Overall, the ESMP concludes that the Borokhle Water Rehabilitation Project can be implemented safely and sustainably in compliance with Puntland environmental legislation, the World Bank Environmental and Social Standards (ESSs), and the FSRP Environmental and Social Management Framework (ESMF), Labour Management Procedures (LMP), and Stakeholder Engagement Plan (SEP). Successful implementation of the ESMP will restore the functionality of the existing water infrastructure, improve the reliability of irrigation water supply, promote renewable energy through solar-powered pumping systems, strengthen sustainable groundwater management, enhance agricultural productivity, and improve the resilience and livelihoods of the Borokhle farming community. The project's long-term sustainability will be reinforced through community ownership, routine maintenance of the rehabilitated facilities, and continued capacity building on efficient water management and operation of the solar-powered water supply system.

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2. Introduction

2.1 Project Overview

The Somalia Food Systems Resilience Project (FSRP) is a World Bank–funded project jointly implemented by the Federal Government of Somalia (FGS) and Federal Member States, including Puntland State of Somalia. The project seeks to strengthen the resilience of Somalia's food systems to climate shocks through climate-smart investments in agriculture, livestock and domestic water users, water management, and market infrastructure.

FSRP supports national and sub-national efforts to improve irrigation capacity and irrigation-supported crop yields, market access, and sustainable management of natural resources while addressing vulnerabilities caused by dry season water shortage, water access limitations, and weak value chains. The project aligns with Somalia's long-term vision of achieving food security and economic stability through sustainable and inclusive development.

The project's design draws from lessons learned in previous resilience and dry season water shortage recovery programs in the Horn of Africa and aims to promote climate-resilient production systems, improved market integration, and institutional coordination between key sectors.

In Puntland, under Component 2.1: Water Availability for Agriculture and Livestock, the project is implementing the Borokhle Water Rehabilitation Project in Carmo District, Bari Region. The intervention aims to improve reliable water supply for irrigation by rehabilitating existing water infrastructure and introducing solar-powered pumping systems. The project will enhance water availability for agricultural production and promote sustainable water resource management for farming communities.

Borokhle Village is located approximately 30 km south of Carmo and relies mainly on shallow groundwater wells for irrigation. Due to limited investment, aging infrastructure, and inadequate protection of the existing wells, water supply reliability and irrigation capacity have declined, affecting agricultural productivity and the livelihoods of farming households. The project will rehabilitate and upgrade the existing shallow wells and associated water infrastructure to improve sustainable and reliable water access for irrigation.

The subproject focuses on rehabilitation of inadequate water infrastructure at selected sites within the Borokhle agricultural area through rehabilitation of existing shallow wells, installation of solar-powered pumping systems, rehabilitation of water conveyance and distribution infrastructure, and associated water supply facilities. The intervention will improve water

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availability, increase irrigation efficiency, enhance agricultural productivity, and strengthen the resilience of farming communities to climate-related water stress.

The rehabilitation activities will be implemented within existing agricultural land and well sites in Borokhle Village. As the project involves rehabilitation and upgrading of existing water infrastructure, no new land will be required, and no land acquisition, physical displacement, economic displacement, or voluntary land donation is anticipated. Community consultations, including meetings with farmers, community elders, women, youth representatives, and local authorities, confirmed strong support for the intervention. The project is expected to improve reliable irrigation water supply, restore system functionality, enhance water-use efficiency, increase agricultural productivity, and strengthen the resilience of local farming communities through sustainable groundwater management.

2.2 Purpose of the Environmental and Social Management Plan (ESMP)

The purpose of this Environmental and Social Management Plan (ESMP) is to identify, evaluate, and manage the environmental and social risks associated with the implementation of the Borokhle Water Rehabilitation Project activities. The ESMP ensures compliance with the World Bank Environmental and Social Framework (ESF) particularly the Environmental and Social Standards (ESS1–ESS10) and with Puntland State environmental legislation, including the Environmental Impact Assessment Act (2023).

This ESMP serves as a guiding instrument for implementing entities, contractors, supervisory personnel, and relevant government agencies to:

- Minimize adverse environmental and social impacts during implementation and post-rehabilitation management phases;
- Promote safe, healthy, and inclusive working conditions;
- Ensure systematic monitoring and reporting of environmental and social performance;
- Establish clear institutional responsibilities for ESMP implementation;
- Enhance community engagement and provide accessible grievance mechanisms;

2.3 Scope of the ESMP

This ESMP applies to all phases of Borokhle Water Rehabilitation Project activities, including:

- Site preparation and limited excavation works associated with rehabilitation of existing shallow wells and water infrastructure

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- Rehabilitation of shallow wells, installation of solar-powered pumping systems, associated pipework, control valves, and water distribution infrastructure.
- Management of environmental risks such as dust, noise, waste, water supply system disturbance, and water distribution during implementation phase
- Occupational health and safety measures for workers and community members
- Operation and maintenance of rehabilitated wells, solar pumping systems, and water storage facilities, including sustainable groundwater management practices
- Stakeholder engagement, consultations, and GM mechanisms
- Monitoring, compliance, and institutional arrangements for long-term sustainability of the rehabilitated farm plots and well area

The ESMP is informed by field observations, technical assessments, community consultations, and environmental and social screening findings.

2.4 Methodology

The preparation of this ESMP followed a structured methodology aligned with the S-FSRP Environmental and Social Management Framework (ESMF), the World Bank ESF, and the Puntland EIA Act (2023). The following approaches were used:

a. Field Observations and Site Assessments

A technical team conducted site visits to assess the condition of the existing shallow wells, water supply infrastructure. The assessment also considered site accessibility, surrounding land use, and nearby sensitive receptors such as farms, livestock watering areas, and community settlements. GPS coordinates, photographs, and site measurements were collected for the proposed rehabilitation locations.

b. Desktop Review

A review of relevant documents, including:

- Project design and technical assessment reports
- Water Rehabilitation Project Description document (Borokhle Village)
- World Bank ESS1–ESS10
- Puntland environmental and labor legislation

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- The desktop review also confirmed that the rehabilitation activities will be implemented within existing well sites and agricultural areas, with no land acquisition, physical displacement, economic displacement, or voluntary land donation requirements

c. Environmental & Social Screening

- The S-FSRP screening checklist was applied to determine risk levels, ESS applicability, and required mitigation measures. The project was classified as **Moderate Risk**, considering potential impacts on well excavation disturbance, water supply system loss during implementation, OHS, and community access to water use areas. The ESMP builds directly on the screening outcome by elaborating measures for groundwater interaction, solid and hazardous waste, and fuel/oil spill prevention consistent with ESS3 and ESS4.

d. Stakeholder Consultations

Meetings with Borokhle Village community leaders, local authorities, farmers, and livestock, women's groups, and elders were conducted to:

- Identify priority water infrastructure rehabilitation needs
- Discuss environmental and social risks
- Share information on GM (FSRP Hotline 3060)
- Confirm community support for the proposed rehabilitation activities

2.5 Project Activity Description

The proposed Borokhle Water Rehabilitation Project aims to improve reliable water access for irrigation, livestock through the rehabilitation and upgrading of existing water infrastructure. The intervention is designed to enhance water availability, improve irrigation efficiency, and strengthen the resilience of local communities through sustainable groundwater management and solar-powered water supply systems

Key project components include:

- **Shallow Well Rehabilitation:**
  Rehabilitation of existing shallow wells including structural repairs to well heads, aprons, lining, and other associated infrastructure to improve water supply reliability and safety
- **Solar Pumping Systems:**
  Installation of solar-powered submersible pumps, control panels, valves, rising mains,

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and associated pipework to replace or supplement existing water abstraction methods and improve operational efficiency

- **Water Supply System Improvement:**
  Rehabilitation and upgrading of existing water conveyance and distribution systems to improve water delivery, reduce losses, and enhance irrigation capacity within the project area.
- **System Commissioning and Handover:**
  Testing and commissioning of rehabilitated wells, pumping systems, to ensure functionality and performance before handover.

Water Rehabilitation – Workforce Composition

The implementation of the Borokhle Water Rehabilitation Project activities will engage an estimated 22 workers during peak periods. The workforce composition is as follows

- **Total workers:** 22
- **Skilled workers:** 10
- **Unskilled workers:** 10
- **Engineers and site management team:** 2

In terms of origin:

- **Local community workers:** 20 (mainly unskilled and semi-skilled labor)
- **Workers from outside the project area:** 2 (engineers and site management staff only)

The project will prioritize recruitment from the local community, particularly for unskilled and semi-skilled positions, to minimize labor influx and associated social risks, including GBV/SEA/SH, in line with ESS2 and ESS10.

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3. Policy, Legal, and Administrative Framework

3.1 Introduction

This section outlines the national policies, legal instruments, institutional mandates, and international frameworks relevant to the environmental and social management of the Borokhle Water Rehabilitation Project activities. The project must comply with Puntland State regulations, Federal Government policies, and the World Bank Environmental and Social Framework (ESF). The objective is to ensure that all project activities are implemented in an environmentally responsible, socially inclusive, and legally compliant manner.

3.2 National Legal and Regulatory Framework

a. Puntland Environmental Management Law, 2023

This law provides a comprehensive framework for:

- Conservation of natural resources;
- Pollution prevention;
- Waste management practices;
- Protection of soil, water supply system, and water resources;
- Enforcement of environmental standards.

The project supports this Act by restoring water supply reliability and expanding irrigated agricultural capacity

b. Puntland Labour Law, 2004

This law sets minimum requirements for:

- Safe and healthy working conditions;
- Worker rights and responsibilities;
- Prohibition of forced and child labor;
- Provision of appropriate PPE and medical care for workers.

It aligns closely with World Bank ESS2 (Labor and Working Conditions) and informs the contractors on Labor Management Procedures (LMP) to all project workers including prohibition of child and

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forced labor, non-discrimination, OHS provisions, worker's rights and a dedicated Worker's GM separate from the community GM.

c. Puntland Water Resources Act, 2003

This Act regulates:

- Sustainable use of piped and groundwater resources;
- Protection of water infrastructure;
- Prevention of contamination from waste disposal.

The project supports this Act by restoring water supply reliability and expanding irrigated agricultural capacity

d. Puntland Public Health Law, 2007

This law supports:

- Prevention of disease transmission.
- Protection of community health and safety.
- Environmental sanitation practices.

The project contributes to this law through improved water supply, reduced contamination risks, and safer access to clean water for communities

e. Puntland Disaster Risk Management Policy, 2024

This policy emphasizes:

- Integration of climate resilience and disaster preparedness into development projects;
- Community-based early warning systems;
- Strengthening of institutional capacity for hazard mitigation.

The project supports these objectives by reducing water table depletion, controlling water abstraction.

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3.4 World Bank Environmental and Social Framework (ESF)

The ESF comprises ten Environmental and Social Standards (ESSs). The following ESSs are applicable to the Borokhle Water Rehabilitation Project Village, Carmo District

Table 1: WB ESSs

ESS	Title	Relevance to the Project
ESS1	Assessment and Management of Environmental and Social Risks and Impacts	Provides the overarching framework for ESMP preparation.
ESS2	Labor and Working Conditions	Applies to all workers; governs OHS, fair treatment, and labor rights.
ESS3	Resource Efficiency and Pollution Prevention	Relevant for waste management, energy use, water distribution, and soil protection.
ESS4	Community Health and Safety	Applies to manage community and livestock and domestic water users safety risks from open work areas, dust, noise, and worker-community interaction during implementation
ESS5	Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement	The project involves the rehabilitation and upgrading of existing shallow wells, pumping systems, and associated water infrastructure within existing farm areas and well sites. No new land will be required, and no land acquisition, restrictions on land use, physical displacement, economic displacement, or voluntary land donation are anticipated. Therefore, ESS5 is not applicable to this subproject
ESS6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Rehabilitation will be confined to existing well and water infrastructure footprints, with no significant vegetation clearance or conversion of natural habitats anticipated. Potential minor disturbance to vegetation or fauna during works will be avoided or minimized
ESS8	Cultural heritage, protection of assets chance finds procedures	No known cultural heritage sites are expected to be affected because works will occur within existing rehabilitation sites. However, minor excavation may result in accidental discovery of archaeological or cultural materials. Therefore, the Chance Finds Procedure will apply and will be included in the ESMP annexes
ESS10	Stakeholder Engagement and Information Disclosure	Mandatory consultations and GM integration throughout the project.

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3.5 International Conventions and Agreements

Somalia is a party to several environmental and labor conventions relevant to the project:

- **Convention on Biological Diversity (CBD)** – sustainable management of natural resources
- **United Nations Framework Convention on Climate Change (UNFCCC)** – adaptation and low-carbon development
- **United Nations Convention to Combat Desertification (UNCCD)** – soil and farm plots and well area protection
- **Basel Convention** – controls on hazardous waste disposal
- **ILO Conventions** – protection of worker rights and occupational safety

The project supports Somalia's commitments under these instruments by incorporating climate-smart technologies, adhering to safe labor practices, and managing waste responsibly.

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4. Project Area Description

4.1 General Location

The proposed Borokhle Water Rehabilitation Project will be implemented in Borokhle Village, located southwest of Carmo Town in Carmo District, Bari Region, Puntland State of Somalia. Borokhle is a rural farming settlement where agriculture is the principal livelihood, supported by groundwater-based irrigation and seasonal crop cultivation. Farmers rely on existing shallow wells to irrigate farmland, particularly during prolonged dry periods when rainfall is insufficient to meet agricultural water demand.

The project will be implemented within existing shallow well locations and irrigated agricultural areas serving the Borokhle farming community. The existing water infrastructure has deteriorated due to long-term use, inadequate maintenance, aging facilities, and reduced pumping efficiency, resulting in unreliable irrigation water supply and declining agricultural productivity. The proposed rehabilitation works will restore the functionality of the existing wells, improve water conveyance and distribution efficiency, and enhance the reliability of irrigation water for local farmers.

The project area is accessible via existing rural roads linking Borokhle with Carmo Town and neighbouring agricultural settlements. The surrounding landscape consists of gently undulating terrain with scattered rocky formations and open agricultural fields typical of the semi-arid environment of Bari Region. Existing access roads are adequate for transporting construction materials, equipment, and personnel during implementation. The rehabilitation works will remain entirely within the existing project footprint and will not require land acquisition

GPS coordinates recorded during the field assessment are: **10°31'25.0"N 49°14'39.2"E.**

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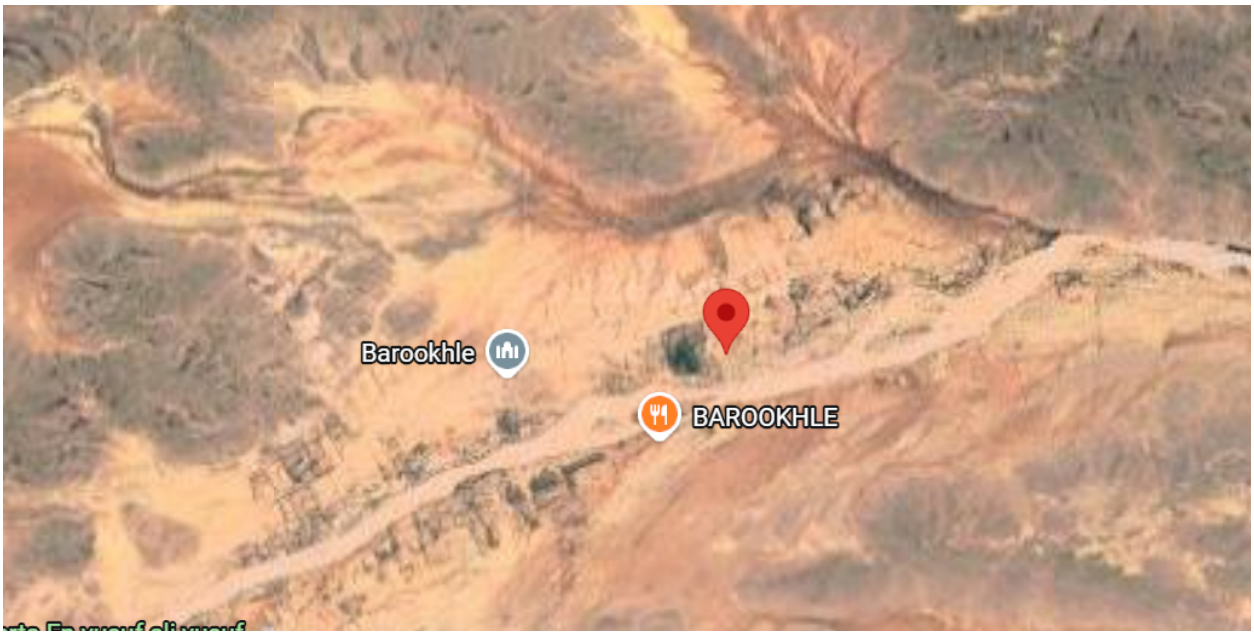


Figure 1: Borokhle Village site map

4.2 Land Ownership and Tenure

The proposed rehabilitation activities will be implemented within existing well sites and adjacent agricultural areas in Borokhle Village, where the current water infrastructure is already located and used by the local community. As the project involves the rehabilitation and upgrading of existing shallow wells, pumping systems and associated water supply infrastructure, all works will remain within the existing project footprint, and no additional land will be required for project implementation.

The project does not involve land acquisition, voluntary land donation (VLD), physical displacement, economic displacement, or restrictions on land use, and therefore ESS5 is not triggered. Community consultations and site verification confirmed that the proposed works will be undertaken within the existing project footprint without affecting land ownership, access rights, or livelihoods.

The community confirmed that:

- The rehabilitation works will be carried out within existing shallow well sites and irrigation infrastructure currently serving the local farming community
- No land acquisition, physical displacement, economic displacement, or loss of assets will occur;

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- The project will not restrict community access to irrigation water, agricultural land, or existing access routes during or after implementation.
- The rehabilitation activities are supported by the community as a priority intervention to improve water supply reliability, irrigation capacity, water-use efficiency, agricultural production, and the sustainability of farming activities.

Since the project is confined to the existing infrastructure footprint and does not require additional land, no land acquisition process, compensation measures, or Voluntary Land Donation (VLD) documentation is required**.** Implementation will be undertaken in a manner that safeguards existing land rights, protects community access to productive resources, and avoids adverse impacts on local livelihoods. Stakeholder consultations confirmed that the rehabilitated wells and distribution infrastructure are communally used assets, not privately owned, and that no individual, household, or elite group will receive exclusive rights or control over the rehabilitated water infrastructure or surrounding land as a result of this subproject.

4.3 Accessibility and Infrastructure

Access Roads

The project sites are connected to existing local access roads and rural tracks extending from the main road linking Carmo District to Borokhle Village. The surrounding terrain is generally undulating with rocky sections typical of the Bari Region. These routes are generally passable under normal weather conditions; however, access may become difficult during the rainy season due to erosion, loose gravel surfaces, and localized flooding along some sections of the road. The existing road network is adequate for transporting construction materials, equipment, and workers to the project sites.

Water Supply

The farming community currently depends on existing shallow groundwater wells that have experienced declining performance due to aging infrastructure, worn pumping equipment, and inadequate routine maintenance**.** As a result, irrigation water supply has become unreliable, affecting agricultural production, particularly during prolonged dry periods. The project will rehabilitate the existing wells, install solar-powered pumping systems, replace damaged pipework where necessary, and improve water distribution infrastructure to provide a more efficient, reliable, and sustainable irrigation water supply for the Borokhle farming community.

Electricity

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There is currently no public electricity supply available in Borokhle Village or within the project area. The proposed rehabilitation project will therefore install stand-alone solar photovoltaic (PV) systems comprising solar panels, controllers, inverters, and associated electrical equipment to power the rehabilitated water supply system**.** The solar-powered system will provide a reliable, environmentally sustainable, and cost-effective source of energy for water abstraction and irrigation, eliminating the need for diesel-powered pumps and ensuring continuous operation in this off-grid rural community.

Communication and Internet

Mobile network coverage in Borokhle Village is generally available, allowing basic communication during implementation activities. Internet access is limited but not required for site operations.

4.4 Social Conditions

- **Socio-economic Context**: Borokhle is a small rural farming community in Carmo District where the local economy is driven primarily by irrigated agriculture and seasonal crop production**.** Most households depend on groundwater from shallow wells to sustain farming activities throughout the year. Recurring droughts, deteriorating water infrastructure, and unreliable irrigation water have reduced agricultural productivity and affected household food security and incomes**.**
- **Livelihoods:** Agriculture is the main source of livelihood, with farmers cultivating vegetables, fruits, fodder crops, and other irrigated crops using groundwater. Limited and unreliable irrigation water often reduces cropping seasons and farm productivity**.** In addition to farming, some households earn supplementary income through petty trade, sale of agricultural produce, agricultural inputs, and small community businesses**.**
- **Women and Youth:** Women play an important role in crop cultivation, post-harvest handling and small-scale trading activities**,** contributing significantly to household livelihoods. Youth participate in farm labour, irrigation activities, maintenance of agricultural infrastructure, and seasonal employment opportunities. The rehabilitation project is expected to create temporary employment during construction while improving long-term livelihood opportunities through more reliable irrigation water.
- **Access to Basic Services:** Borokhle Village has limited public services typical of rural communities. Basic education, healthcare, and larger commercial services are mainly accessed in Carmo Town. There is currently no public electricity supply in Borokhle Village or the surrounding agricultural areas**.** The rehabilitated water system will therefore rely on stand-alone solar-powered pumping technology to ensure a reliable and sustainable water supply for irrigation

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- **Gender-Based Violence (GBV):** No significant GBV concerns were identified during stakeholder consultations. Nevertheless, the project will implement awareness measures, a Workers' Code of Conduct, SEA/SH prevention measures, and an accessible Grievance Mechanism (GM) in accordance with World Bank requirements.
- **Cultural Heritage:** No known cultural heritage sites, archaeological resources, or culturally significant locations were identified within the project area. A Chance Finds Procedure will be included in the Contractor's ESMP.
- **Security:** The overall security situation in Borokhle is considered stable for implementation of community-based rehabilitation activities. Coordination with local authorities, community elders, and relevant government institutions will continue throughout project implementation to maintain a safe working environment.
- **Community Health and Safety:** The project is expected to generate substantial social benefits by restoring reliable irrigation water supply, improving agricultural production, strengthening household food security, and increasing community resilience to recurring drought conditions**.** Temporary construction-related risks, including excavation hazards, movement of construction vehicles, dust, and noise, will be managed through site safety measures, community awareness, controlled access to work areas, and compliance with occupational health and safety requirements.
- **Grievance Mechanism:** The S-FSRP Grievance Mechanism (GM), including Hotline 3060, is available to all stakeholders to submit complaints, concerns, or feedback related to project activities.

4.5 Physical and Biophysical Environment

Topography and Soil

The Borokhle project area is characterized by gently rolling terrain with predominantly sandy to sandy-loam soils that support irrigated agriculture and are generally well-drained. The surrounding landscape comprises cultivated farmland interspersed with sparse natural vegetation, scattered rock outcrops, and open semi-arid land typical of the Carmo District. Groundwater is the principal source of irrigation, supporting crop production throughout the year**.** No evidence of major soil erosion, unstable slopes, flood-prone areas, or environmentally sensitive landforms was observed within the proposed rehabilitation sites**.**

Water Supply System

The farming community depends on existing shallow groundwater wells as the primary source of irrigation water. Over time, the existing water supply infrastructure has experienced mechanical deterioration, reduced pumping efficiency, and inadequate routine maintenance, leading to unreliable water delivery and reduced irrigation performance. The project will rehabilitate the existing shallow wells, install solar-powered pumping systems, rehabilitate water storage facilities

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where necessary, and upgrade the associated water conveyance and distribution infrastructure to improve water supply reliability, irrigation efficiency, and sustainable agricultural production.

Climate

Borokhle Village experiences a semi-arid climate similar to the wider Carmo area, characterized by:

- Two rainy seasons: Gu (rainy season) (April–June) and Deyr (rainy season) (October–December)
- Two dry seasons: Jilaal (January–March) and Hagaa (July–September)
- High temperatures ranging between 23°C and 36°C
- Variable and erratic rainfall patterns that influence groundwater recharge and agricultural production

These climatic conditions underscore the importance of reliable water supply infrastructure and sustainable groundwater management.

Hydrology and Drainage

Groundwater extracted from existing shallow wells is the primary water source for irrigation within the project area. Natural surface runoff is limited and occurs mainly following seasonal rainfall during the Gu and Deyr seasons, draining through small natural channels across the surrounding landscape. The rehabilitation activities will improve water abstraction, storage, and distribution without changing existing drainage patterns or affecting downstream users**.** No permanent rivers, wetlands, protected water bodies, or ecologically sensitive aquatic habitats were identified within or adjacent to the proposed rehabilitation sites.

Wildlife

The project area is dominated by agricultural land and semi-arid natural vegetation consisting mainly of scattered shrubs, grasses, and drought-resistant indigenous tree species. Wildlife is generally limited to common small mammals, reptiles, and bird species adapted to human-modified environments**.** No protected areas, critical habitats, wildlife migration corridors, or threatened species were identified within the project area. Given that the project involves rehabilitation of existing infrastructure within previously disturbed sites, impacts on biodiversity are expected to be negligible and temporary.

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5. Evaluation of Environmental and Social Impacts

5.1 Introduction

This section evaluates the potential environmental and social impacts associated with the implementation of the Borokhle Water Rehabilitation Project activities during the implementation and post-rehabilitation management phase. The assessment considers the project's physical setting, socio-economic context, activities involved, and sensitivities identified during field observations and community consultations.

The impacts are categorized as positive or negative, direct or indirect, short-term or long-term, and are rated based on significance and the extent to which they can be avoided, minimized, or mitigated through appropriate measures.

Overall, the project is classified as Moderate Risk, with impacts that are predictable, site-specific, and manageable through the mitigation measures outlined in the ESMP.

5.2 Positive Impacts

The implementation of water rehabilitation activities will generate significant environmental, social, and economic benefits, including:

a. Improved Water Availability and Reliability

- Increased access to reliable water for irrigation, livestock watering.
- Improved functionality of existing shallow wells and water supply infrastructure
- Enhanced water storage and distribution capacity within the project area

b. Enhanced Agricultural Productivity

- Improved irrigation capacity and water availability for crop production
- Increased agricultural productivity and crop yields
- Reduced interruptions to farming activities caused by inadequate water supply

c. Strengthened Community Resilience

- Increased resilience to drought and climate-related water stress
- Improved sustainable management of groundwater resources
- Enhanced community capacity to manage and maintain water infrastructure

d. Economic Benefits for Households

- Improved agricultural income through increased crop production
- Enhanced livelihood opportunities associated with reliable water access
- Reduced costs associated with water shortages and system failures

e. Employment Opportunities

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- Creation of short-term employment opportunities for local community members during rehabilitation works
- Increased participation of local labor in project implementation activities

f. Capacity Building and Knowledge Transfer

- Improved community awareness of water resource management and infrastructure maintenance
- Strengthened local capacity for operation and maintenance of rehabilitated water facilities

g. Environmental Benefits

- Promotion of renewable energy through the installation of solar-powered pumping systems
- Reduced dependence on diesel-powered water pumping systems
- Improved efficiency and sustainability of groundwater abstraction and water use

5.3 Negative Environmental and Social Impacts, Risk Assessment and Mitigation Measures

Although the project's overall impacts are positive, certain construction and operational activities may generate adverse effects if not properly managed. The table below combines the identification of negative impacts, their causes, risk ratings (inherent and residual), and the mitigation measures to be applied. Inherent risk is rated before mitigation; residual risk reflects the expected rating after mitigation is fully implemented. All residual risks are reduced to Low.

Table 2: Negative Environmental and Social Impacts, Risk Assessment and Mitigation Measures in Borokhle Village

Impact Category	Description of Impact	Cause	Phase	Relevant ESS	Receptors	Inherent Risk	Mitigation Measures	Residual Risk
Well Excavation Disturbance	Installation of wells and pump infrastructure may cause localized well excavation disturbance.	Excavation and placement of well excavations, casing works, and pump systems disturb surface soils.	Implementation	ESS1	Soils, water supply system, downstream water distribution	Medium	Minimize excavation footprint; immediately reinstate well head apron; stabilize disturbed soil around well collar; inspect after rain events.	Low

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Impact Category	Description of Impact	Cause	Phase	Relevant ESS	Receptors	Inherent Risk	Mitigation Measures	Residual Risk
Dust Emissions	Dust generated from movement of materials and site activities may affect nearby areas.	Movement of stone materials and dry-season earthworks generate fugitive dust.	Implementation	ESS3; ESS4	Workers, nearby community, livestock and domestic water users	Medium	Apply water spraying to active work areas; limit vehicle speed to 20 km/h; schedule heavy works outside peak wind hours.	Low
Noise (Minor)	Minor noise from manual works and limited equipment use.	Manual stone-breaking and limited equipment generate intermittent noise.	Implementation	ESS4	Nearby residents, livestock and domestic water users	Low	Restrict works to daytime hours (08:00-17:00); provide advance notice to community; avoid simultaneous multi-point operations.	Low
Labour Disputes (Payment, Overtime, Working Conditions)	Disputes related to payment, overtime, and working conditions may disrupt works.	Delays in payment, unclear contracts, or poor conditions may cause worker grievances.	Implementation	ESS2	Project workers	Medium	Issue written contracts to all workers; pay wages on schedule; maintain worker GM separate from community GM; post Hotline 3060 at site.	Low
Occupational Health & Safety (OHS) Risks	Risks from manual handling of stones, tools, heat exposure, and fatigue.	Manual stone-carrying and heat exposure in an extremely semi-arid environment.	Implementation	ESS2	Workers	Medium	Provide PPE (gloves, boots, hats); supply adequate drinking water; enforce 30-minute rest every 2 hours during peak heat; maintain first-aid kit on site.	Low
Community Health & Safety Risks	Risks from open work areas, movement of	Open work areas and material	Implementation	ESS4	Community members, livestock and	Medium	Erect warning barriers; install signage; inform	Low

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Impact Category	Description of Impact	Cause	Phase	Relevant ESS	Receptors	Inherent Risk	Mitigation Measures	Residual Risk
	materials, and interaction with community and livestock and domestic water users.	stockpiles expose community members and livestock and domestic water users to injury.			domestic water users		community before works commence; avoid works during peak livestock and domestic water users movement times.	
Potential SEA/SH Risks	Low risk associated with worker-community interaction if not properly managed.	Worker presence in remote community areas without adequate Code of Conduct enforcement.	Implementation	ESS2; ESS10	Community members, especially women and girls	Low	Enforce signed Code of Conduct for all workers; conduct SEA/SH awareness training; ensure confidential survivor-centred GM pathway is accessible.	Low
Soil & Water Conservation Structures: Drainage Alteration	Incorrectly designed pipe networks or well structures may alter natural water distribution.	Inadequate engineering of check dams or pipe networks without qualified design review.	Implementation	ESS1; ESS3	Soils, downstream water users, water distribution system	Medium	Technical drawings prepared by qualified water supply / civil engineer; structures reviewed and approved before construction; post-rain inspection within 48 hours of first significant rainfall.	Low
Pollution: Solid Waste	Cement-bags, food waste, and packaging generate site waste.	Project activities produce non-organic and organic waste with no designated disposal plan.	Implementation	ESS3	Site environment, soil, community health	Low	Collect all waste in designated bins; segregate organic (compost on-site) from non-organic (plastics removed to nearest designated disposal facility); no burning of	Low

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Impact Category	Description of Impact	Cause	Phase	Relevant ESS	Receptors	Inherent Risk	Mitigation Measures	Residual Risk
							plastics on site; daily site clearance.	
Pollution: Fuel/Oil Spills	Fuel or oil from water pumps or vehicles may contaminate soil or nearby water sources.	Unsafe storage or handling of fuels near sensitive areas.	Implementation	ESS3	Soil, groundwater, surface water	Low	Store fuel in pipe networked containment area minimum 50m from any water source; maintain spill kit on-site; train operators on spill response; report all spills immediately to Supervising Engineer.	Low

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6. Environmental and Social Management Plan (ESMP)

6.1 Overview of Key Environmental and Social Risks and Impacts

The implementation of the Borokhle Water Rehabilitation Project activities will generate a range of environmental and social risks requiring careful management. Key risks include temporary disturbance from excavation and rehabilitation works, dust emissions, noise generation, construction waste, occupational health and safety (OHS) risks, community health and safety concerns, temporary disruption of water supply services, traffic and movement of construction materials, and risks associated with installation of solar-powered pumping systems and water storage facilities.Additional risks identified through the Chapter 5 assessment include improper disposal of construction waste, accidental damage to existing water infrastructure, worker-community interactions, labor management issues.

No armed security personnel will be used on this project, which reduces ESS4 security risks. Site access control will be managed through community-based mechanisms only.

The intervention is based on nature-based, low-impact water infrastructure rehabilitation measures. Small quantities of hazardous materials (fuel/oil and solar PV components) will be present but are limited and fully covered by the Waste Management and spill-control measures in Table 3.

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These risks are generally predictable, site-specific, and manageable through the standard mitigation measures outlined in this ESMP. Positive impacts include improved water availability for irrigation, livestock; rehabilitation of existing shallow wells and water supply infrastructure; increased irrigation capacity and agricultural productivity; improved livestock watering; promotion of renewable energy through solar-powered pumping systems; strengthened livelihoods; and short-term employment opportunities for local communities.

6.2 Mitigation and Monitoring Plan

The following table presents the consolidated ESMP for Borokhle Village. It incorporates all environmental and social risks identified in Chapter 5 (including biodiversity risks, climate risks, water use pressure, water distribution alteration, water inefficiency, and pollution risks) and the social risks identified in this chapter. Each risk is accompanied by mitigation measures, monitoring method, frequency, responsible party, monitoring indicator, reporting line, and estimated cost.

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Table 3: ESMP Mitigation and Monitoring Plan in Borokhle Village

ESS	Risk / Impact	Mitigation Measures	Monitoring Method	Frequency	Responsible Party	Monitoring Indicator	Reporting Line & Format	Cost (USD)
ESS1	Soil disturbance and erosion from installation of well excavations, casing works, and pump systems.	Assign qualified E&S staff; integrate safeguards in supervision contracts; Contractor prepares C-ESMP. Minimize excavation footprint; immediately stabilize disturbed areas; place structures on stable foundations.	Site inspection checklist; visual observation of ground stability; review of C-ESMP.	Weekly during construction	Contractor/PCU	C-ESMP in place; well apron reinstated after deepening; no active surface disturbance at well sites.	Monthly E&S site report by Contractor to SE and PCU.	300
ESS1; ESS3	Well deepening and pump installation may alter local groundwater levels and affect water table in adjacent areas.	Hydrogeological assessment and pump sizing by qualified engineer before works; groundwater level monitoring at adjacent wells during deepening operations; post-works inspection of surrounding well water levels.	Review of engineering drawings; post-rain site inspection; photo documentation.	Design review: pre-construction. Post-rain inspection: within 48 hours of rainfall >25mm.	Contractor; Supervising Engineer (SE)/MoAI	Approved engineering drawings on file; no water distribution alteration or downstream water surgeing observed; post-rain inspections completed.	Pre-construction design sign-off report; post-rain inspection records submitted to SE.	200

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ESS	Risk / Impact	Mitigation Measures	Monitoring Method	Frequency	Responsible Party	Monitoring Indicator	Reporting Line & Format	Cost (USD)
ESS3; ESS4	Dust emissions from movement of stone materials and dry-season earthworks.	Apply water spraying to active work areas during dry and windy conditions; limit vehicle speed to 20 km/h; schedule heavy material movement outside peak wind hours; halt dusty activities if complaints received.	Visual observation; community complaint log review.	Daily during construction	Contractor	No community complaints related to dust; low visible dust levels at site boundary.	Daily site log; dust complaints recorded in GM log and reported weekly to SE.	500
ESS3	Noise from manual works and limited equipment use affecting nearby residents.	Restrict all works to daytime hours (08:00-17:00); provide advance community notice of works schedule; avoid simultaneous noisy operations at multiple points.	Community complaint log review; verification of working hours.	Daily during construction	Contractor	No noise complaints from community; works consistently within 08:00-17:00.	Daily site log; noise complaints recorded in GM log and reported weekly to SE.	200
ESS3	Solid waste generation (pump system poly-bags, food waste, packaging). Fuel and oil pollution from vehicles and water pumps.	Collect all waste in designated receptacles; segregate organic (compost/bury on site) from non-organic (transport to nearest approved disposal facility in town); prohibit open burning and dumping in wadis; maintain daily waste log. Fuel: store in pipe networked containment min 50m from water sources; maintain spill kit on site; designated refuelling area only; immediate clean-up and reporting of spills.	Weekly site inspection checklist; waste log review; visual check for oil stains near fuel storage; spill kit present check.	Weekly; immediate reporting of spills	Contractor/ SE/PCU	Waste collection point present and in use; no visible litter; no oil stains near fuel storage; waste log maintained; no open burning observed.	Weekly E&S site report; spill incidents reported to SE and PCU within 24 hours.	200

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ESS	Risk / Impact	Mitigation Measures	Monitoring Method	Frequency	Responsible Party	Monitoring Indicator	Reporting Line & Format	Cost (USD)
ESS2	Child and forced labour risk: employment of workers below minimum age (18 years) or under coercive conditions.	Verify age of all workers before hiring using official identification; maintain worker registry with age verification records; prohibit child labour and forced labour both are grounds for immediate dismissal; prioritize local hiring with written contracts specifying employment terms, wages, working hours and grievance rights; post minimum age requirement visibly at site.	Review of worker registry and contracts; random spot checks of worker ID; worker interviews on employment terms.	Pre-works; monthly spot checks	Contractor/SE/PCU	Worker registry complete with verified ages; no workers under 18 on site; all workers hold signed contracts.	Monthly labour compliance report by Contractor to SE and PCU.	200
ESS2	Poor working conditions, excessive hours, employment discrimination, disputes related to pay, working hours, and lack of workers' Grievance Mechanism (GM).	Ensure all workers informed of employment terms before starting; comply with applicable labour laws on working hours; prohibit discrimination on grounds of gender, clan, age or disability; establish a workers' GRM separate from community GM with named focal person and clear escalation path; post workers' GM contact details at site; resolve pay disputes within 7 days.	Review of worker complaint logs; interview sample of workers; verify workers' GRM posted and functional.	Monthly	Contractor/ SE	No unresolved pay disputes; workers' GRM operational and known to workers; no discrimination complaints.	Monthly labour compliance report by Contractor to SE and PCU.	300
ESS2	OHS risks: heat stress, fatigue, manual	Provide adequate drinking water (min 3 litres/worker/day); enforce 30-minute rest break every 2 hours	Daily site inspection; incident log review; PPE spot	Daily	Contractor/SE	No heat-related or OHS incidents; PPE in use;	Daily site log; incidents reported to SE	500

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ESS	Risk / Impact	Mitigation Measures	Monitoring Method	Frequency	Responsible Party	Monitoring Indicator	Reporting Line & Format	Cost (USD)
	handling injuries, cuts and falls during stone work.	during peak heat (10:00-15:00); provide PPE (gloves, safety boots, sun hats); conduct weekly toolbox talks on safe manual handling; maintain stocked first-aid kit on site; ensure workers know emergency procedures.	check; toolbox talk attendance register.			weekly toolbox talks held; first-aid kit stocked.	and PCU/ within 24 hours.	
ESS2; ESS10	SEA/SH and worker misconduct risk from worker-community interaction.	All workers sign Code of Conduct (CoC) before starting work and receive induction training. CoC prohibits: SEA/SH, sexual relations with minors, exchange of favours for sex, harassment and discrimination. Disciplinary measures include immediate dismissal. Obligation to report SEA/SH through confidential GM pathway stated in CoC. Minimum working age is 18. Conduct SEA/SH awareness sessions for workers and community monthly. SEA/SH GM pathway is confidential, survivor-centred, does not require written evidence.	Review of signed CoC records; attendance register for awareness sessions; GM log review for SEA/SH cases.	CoC signing: pre-works. Awareness sessions: monthly. GM log: continuous.	Contractor/SE/PCU	All workers signed CoC before work start; induction completed; no unresolved SEA/SH cases; confidential pathway operational.	Monthly safeguards report to SE and PCU; SEA/SH incidents reported within 24 hours through confidential pathway.	200
ESS4	Minor traffic safety risk from vehicle	Control vehicle speed (max 20 km/h) on all access routes; place warning signs on access routes; assign flagman during heavy	Vehicle speed and signage check; driver licence verification.	During material delivery and	Contractor	No traffic incidents; warning signs in	Weekly E&S site report.	200

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ESS	Risk / Impact	Mitigation Measures	Monitoring Method	Frequency	Responsible Party	Monitoring Indicator	Reporting Line & Format	Cost (USD)
	movements on access routes.	material delivery; all vehicles roadworthy and drivers licensed.		vehicle movements		place; vehicles roadworthy.		
ESS4	Security risk management.	No armed security personnel will be used on this project, which reduces ESS4 security risks. Site access control managed by community committee and site safety officer using barriers and signage only.	Confirm no armed security present at site.	Project start; monthly spot check	PCU/ Contractor	No armed security on site; access managed through community-based mechanisms.	Noted in project inception report; monthly safeguards report.	200
ESS10	Inaccessible Grievance Mechanism (GM), insufficient stakeholder engagement, and inadequate disclosure of project documents.	Display GM information (FSRP Hotline 3060) at project site and community gathering points; hold community meetings before and during works; designate GM focal person known to community; ensure project documents available for community review on request; record all grievances in GM register; acknowledge within 48 hours; resolve within 7-14 days; escalate unresolved cases to District Administration and PCU.	GM register review; community meeting attendance records; site GM information display check.	GM: continuous. Community meetings: project start, mid-point, end. Display check: monthly.	PCU /Contractor	GM information displayed and accessible; community meetings held per schedule; all grievances acknowledged within 48 hours; no unresolved cases beyond 14 days.	Monthly safeguards report by PCU to World Bank; GM summary included.	200

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6.3 ESMP Implementation Budget

The implementation of the Environmental and Social Management Plan (ESMP) for the Borokhle Water Rehabilitation Village requires financial resources to support mitigation measures during the implementation phase of rehabilitation activities, including site safety, occupational health and safety (OHS), minor waste management, environmental monitoring, and community engagement.

The total cost for implementing ESMP measures is estimated at **USD 6,500** covering key activities such as PPE provision, community awareness, monitoring of environmental and social safeguards, and implementation of mitigation measures during field works. Given the nature of the project as a low-impact, nature-based intervention, no significant operational or long-term ESMP costs are anticipated.

Sustainability of ESMP monitoring after project completion will be ensured by continued oversight by local authorities and MoAI, with integration of environmental and social considerations into ongoing farm plots and well area management practices. Monitoring responsibilities will be handled by relevant government institutions with periodic follow-up, ensuring continued compliance beyond project closure without significant additional costs.

6.4 Grievance Mechanism (GM)

A project-level Grievance Mechanism (GM) has been established to enable workers, community members, and other stakeholders to raise concerns related to the implementation of water rehabilitation activities in Borokhle Village. The GM is accessible, transparent, and culturally appropriate, and aligns with World Bank ESS10. Its purpose is to provide timely resolution of complaints, strengthen accountability, and maintain constructive engagement with affected communities.

Grievances may relate to implementation impacts such as dust, minor noise, labor issues, access restrictions, or community safety concerns during field activities. All complaints verbal, written, or anonymous will be received respectfully and handled without discrimination or fear of retaliation.

SEA/SH-related complaints will be handled through a confidential, survivor-centered GM pathway that does not require written evidence, does not involve mediation with alleged perpetrators,

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and ensures voluntary referral to qualified GBV service providers, with survivor consent, data protection, and protection from retaliation guaranteed at all times.

Complaints may be submitted to the Contractor during implementation activities. Community leaders and a complaint box at the site will also serve as additional channels. Once received, grievances will be recorded in a GM register and acknowledged within 48 hours. Most cases should be resolved within 7–14 days. If unresolved, they will be escalated to the District Administration and then to the PCU Safeguards Team. As a last resort, complainants may seek redress through the formal legal system.

Information on the GM, including procedures and contact details, will be shared through community meetings and posters displayed at the project site and within the community including the **FSRP Hotline (3060)**. A designated GM focal person will manage registration and follow-up. Sensitive cases such as SEA/SH or GBV will be handled confidentially and referred to qualified service providers using a survivor-centered approach.

The PCU will periodically review grievance records, ensure corrective actions are implemented, and prepare summary reports to support continuous improvement of environmental and social performance.

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7. Compliance and Coordination

This chapter summarizes the institutional framework for ensuring compliance and coordination in the planning and implementation of the Borokhle Water Rehabilitation Project. It describes the mandates, responsibilities, and reporting lines of all key institutions and actors involved in ESMP implementation.

7.1 Institutional Roles and Responsibilities

Table 1 provides a consolidated overview of the roles and responsibilities of each institution and actor involved in ESMP compliance for the project.

Table 4: Institutional Roles and Responsibilities for ESMP Compliance

Institution / Actor	Mandate / Role	Key Responsibilities for ESMP Compliance	Coordination / Reporting Line
MoAI (Ministry of Agriculture and Irrigation)	Lead technical owner for the Borokhle Water Rehabilitation Project.	Oversees planning, implementation, operation, and maintenance of the rehabilitated water infrastructure; ensures compliance with environmental and social requirements; supervises rehabilitation of shallow wells, installation of solar-powered pumping systems, water storage facilities, and associated distribution infrastructure; monitors promotes sustainable management of water resources and project assets.	Coordinates with District Administration and PCU; reports through project structures.
Borokhle Village/Carmo District Administration	Local authority; permitting and local oversight.	Confirms local approvals; supports enforcement of local bylaws (waste, sanitation, access control); supports community engagement and issue resolution; supports solid waste collection and disposal; facilitates GM activities.	Coordinates with MoAI/ and PCU; links to local security and community leaders as needed.
PCU / Project Coordination Unit MoAI (Safeguards Team)	ESF oversight for the subproject; World Bank safeguards compliance.	Ensures ESMP implementation; reviews and approves contractor C-ESMP and OHS plans; monitors compliance including labour, OHS, stakeholder engagement, and GM; consolidates E&S reports; oversees complaints logging; coordinates between	Reports to implementing agency / project management; coordinates with MoAI/MoERCC, Municipality, and Supervising Engineer.

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Institution / Actor	Mandate / Role	Key Responsibilities for ESMP Compliance	Coordination / Reporting Line
		ministries; supports reporting, incident management, and corrective action follow-up.	
Supervising Engineer (SE)	Day-to-day construction supervision.	Confirms contractor compliance with ESMP/C-ESMP; verifies OHS, waste, traffic management, and community safety measures; documents non-compliances and instructs corrective actions; ensures proper installation of water supply structures and pump systems (well structures, water storages).	Reports to PCU and implementing agency; coordinates daily with Contractor and focal points.
Contractor	Executes civil works.	Prepares and implements C-ESMP, OHS plan, waste management, traffic/access controls, dust/noise control, worker Code of Conduct, SEA/SH prevention measures, and community safety actions; assigns dedicated EHS focal person and GBV/GM focal person; provides PPE; keeps records (trainings, incidents, inspections); reports incidents immediately.	Reports to Supervising Engineer; provides monthly E&S reports; notifies incidents immediately.
Community Representatives (Elders, Women, Youth)	Community interface and feedback channel.	Supports awareness and feedback; helps identify community concerns (access, safety, noise/dust); supports dispute resolution at community level; promotes use of GM; participates in consultations; supports protection of rehabilitated areas and promotes sustainable use of farm plots and well area resources.	Coordinates with Municipality/MoAI/MoERCC; channels issues to GM focal point for formal registration.

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7.2 Key Institutional Mandates

The following sub-sections describe the specific mandates of each institution in greater detail.

a. Ministry of Agriculture and Irrigation (MoAI) S-FSRP Implementing Partner

- Serve as the lead technical owner and implementing agency for the Borokhle Water Rehabilitation Project.
- Provide overall oversight of project planning, implementation, operation, and maintenance of the rehabilitated water infrastructure.
- Oversee rehabilitation of shallow wells, installation of solar-powered pumping systems, water storage facilities, and associated distribution infrastructure.
- Promote sustainable water resource management and long-term functionality of project assets.
- Coordinate with the PCU and local authorities on environmental performance and reporting.
- Supervise construction activities and approve contractor C-ESMPs.
- Monitor environmental and social (E&S) compliance and report to the PCU.

b. Borokhle village / Carmo District Administration

- Support local coordination and implementation of project activities.
- Support solid waste collection and disposal in the project area.
- Facilitate community engagement and Grievance Mechanism (GM) activities.
- Ensure local compliance with construction and public health regulations.

c. S-FSRP Puntland Project Coordination Unit (PCU)

- Provide overall oversight of ESMP implementation and ensure adherence to World Bank ESS requirements.
- Consolidate E&S reports and oversee GM complaints logging.
- Review and approve contractor ESMPs and OHS plans.
- Coordinate between ministries and provide technical backstopping and E&S supervision support.

d. Contractor and Supervising Engineer

The Contractor is responsible for:

- Preparing and implementing a Contractor's Environmental and Social Management Plan (C-ESMP), covering OHS, waste management, traffic management, emergency

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preparedness and response, a Workers' Code of Conduct, SEA/SH mitigation measures, and a Workers' GM.

- Providing PPE, enforcing OHS procedures, maintaining records, and reporting incidents immediately.
- Ensuring safe handling of fuels, materials, and construction wastes, and protection of surrounding land and community areas.
- Assigning a dedicated Environmental, Health, and Safety (EHS) focal person and a dedicated GBV/GM focal person throughout implementation.
- Complying with ESS2, ESS3, ESS4, and ESS10 requirements.

The Supervising Engineer is responsible for:

- Conducting routine monitoring of contractor performance and verifying compliance with ESMP, OHS, and quality assurance standards.
- Confirming contractor compliance with the ESMP/C-ESMP and verifying implementation of OHS, waste, traffic management, and community safety measures.
- Issuing corrective action instructions when non-compliances are identified.
- Ensuring proper installation and performance of water supply structures and pump systems (well structures, water storages).
- Documenting non-compliances and providing weekly E&S reporting.

e. Community Representatives (Elders, Women, Youth)

- Participate in consultations and provide feedback through the GM.
- Help identify and report community concerns related to implementation activities (access, safety, noise, dust, water use).
- Support dispute resolution at the community level and promote use of the GM.
- Support protection of rehabilitated areas and promote sustainable use of farm plots and well area resources.
- Support transparent and inclusive decision-making on access to the rehabilitated water infrastructure, ensuring that no individual or elite group captures exclusive benefits at the expense of other legitimate users.
- Participate in agreeing and applying simple water-use arrangements, including equitable access, water-use scheduling where necessary, operation and maintenance responsibilities, and resolution of water-use disputes

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7.3 Coordination and Reporting Lines

Effective ESMP implementation requires clear lines of communication and accountability across all levels. The following principles govern coordination:

- The PCU (MoAI) serves as the central coordination hub, linking the implementing ministries, the Supervising Engineer, and the Contractor.
- MoAI provides overall technical leadership and oversight for implementation of the Borokhle Water Rehabilitation Project and reports through established project structures
- The Supervising Engineer acts as the primary interface between the PCU and the Contractor on a day-to-day basis.
- The Contractor reports monthly E&S performance to the Supervising Engineer and notifies incidents immediately.
- The Municipality/District Administration coordinates locally with MoAI and the PCU, and connects with community leaders and security actors as needed.
- Community Representatives channel concerns to the GM focal point for formal registration and resolution
- Water allocation and use of the rehabilitated infrastructure will remain transparent and inclusive. The project will not introduce changes to existing legitimate water-use arrangements or determine who can irrigate particular farmland. Existing users will continue to access water in accordance with agreed local arrangements. Simple water-use rules will be agreed with the users, covering equitable access, water-use scheduling where necessary, operation and maintenance responsibilities, and resolution of water-use disputes. Any complaints related to water access, allocation, or use of the rehabilitated infrastructure will be addressed through the project GM

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8. Stakeholder Consultation

8.1 Introduction

Stakeholder consultations were conducted as part of the environmental and social assessment for the Borokhle Water Rehabilitation Project to ensure that the views of local communities and key stakeholders were incorporated into project planning and implementation. The consultations were undertaken in accordance with the World Bank Environmental and Social Standard 10 (ESS10), emphasizing inclusive participation, transparency, and continuous stakeholder engagement.

Community discussions in Borokhle focused primarily on the deteriorating condition of the existing shallow wells, unreliable water availability during prolonged dry periods, increasing pressure on groundwater resources, and the need for sustainable management of the rehabilitated water infrastructure. Participants also discussed the importance of strengthening community ownership of the water facilities, improving maintenance arrangements, and supporting agricultural development through complementary interventions. The views and recommendations received during the consultations have been incorporated into the project design and this ESMP.

8.2 Objectives of the Consultation Process

Stakeholder consultations were conducted to:

- Inform the community about the purpose, scope, and expected benefits of the water rehabilitation interventions.
- Seek views on environmental and social risks and mitigation measures.
- Confirm community acceptance of the selected intervention sites within communal land.
- Identify vulnerable groups and ensure their inclusion.
- Build community support for the implementation of water infrastructure rehabilitation measures.
- Identify constraints affecting agricultural production, including irrigation water shortages, limited access to quality seeds, agricultural tools, and farm inputs
- Discuss long-term operation and maintenance arrangements for the rehabilitated water system.

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- Identify community training needs regarding operation and maintenance of the proposed solar-powered pumping system.
- Establish communication channels for feedback and grievance handling.

8.3 Stakeholders Consulted

Consultations involved a broad range of stakeholders, including:

- Community elders and traditional leaders
- Carmo District Administration
- Women's representatives and youth groups
- Farmers, Agricultural producer groups, and water users
- Local community members from Borokhle Village
- Village Development Committee (VDC)

The consultation attendance sheet confirms broad participation and representation from different segments of the community.

8.4 Summary of Consultation Activities Conducted

Consultations included:

- A community meeting in Borokhle Village attended by elders, women, youth, farmers,water users, and livestock owners.
- Site visits and discussions on the condition of existing wells, irrigation systems and proposed rehabilitation works.
- Meetings with district administration officials regarding project implementation support and coordination.
- Discussions with community members on water availability, irrigation challenges, infrastructure rehabilitation needs, operation and maintenance arrangements, and sustainable water use.
- Consultations on the availability of improved agricultural inputs, including quality seeds, farming tools, and irrigation equipment needed to maximize project benefits
- Discussions on community responsibilities for protecting and maintaining the rehabilitated water infrastructure after project completion.

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- Consultations regarding the introduction of solar-powered pumping systems and the need for technical training on system operation and routine maintenance
- Awareness sessions on the Grievance Mechanism (GM) and community roles during implementation.

The community demonstrated strong interest in the project and expressed readiness to collaborate during construction and operation.

8.5 Issues Raised by the Community and Responses Provided

Table 5: Issues Raised by the Community and Responses Provided

Key Issues Raised by Stakeholders	**Responses / Actions Integrated in the ESMP**
Need to improve water availability for irrigation	The project will rehabilitate shallow wells, install solar-powered pumping systems, and improve water storage and distribution infrastructure.
Request to expand the project to additional degraded areas	Explained that current intervention is limited to selected sites due to budget; additional areas may be considered if resources become available
Concern about delays in implementation affecting the upcoming irrigation season	Project team emphasized timely implementation and coordination with stakeholders to avoid delays
Questions on how workers will be selected	Contractor will be procured competitively; VDC will support recruitment of local labor
Need for grievance handling mechanism	GM (Hotline 3060) explained; focal point appointed for grievance management
Farmers reported limited knowledge of operating and maintaining solar-powered pumping systems.	The Project includes Practical training on operation, routine maintenance, and basic troubleshooting of the solar-powered water system will be provided after installation.
Farmers requested support through improved seed varieties, agricultural tools, and extension services to increase crop production once reliable irrigation water becomes available.	The recommendation will be shared with MoAI for consideration under future agricultural support programmes, while awareness on efficient water management and climate-smart farming practices will be provided.

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8.6 Stakeholder Feedback on the Project Site

Stakeholders confirmed that:

- The project sites are located within existing well sites and agricultural areas with no ownership disputes
- The selected well sites are the primary water supply infrastructure for irrigated farming
- The intervention areas are accessible and suitable for rehabilitation works.
- The project will not cause displacement or negatively affect livelihoods
- Community members are willing to participate in protecting and maintaining the rehabilitated infrastructure after completion.
- Training on operation and maintenance of the solar-powered water system is essential to ensure long-term sustainability of the investment
- The community supports the project and expects timely implementation to prevent further water access limitations.
- Farmers requested continued technical support after project completion to ensure sustainable operation of the irrigation system.
- Community members emphasized that improved irrigation should be complemented by better access to quality seeds, agricultural inputs, and extension services to maximize agricultural productivity

8.7 Consultation Outcomes

The consultation process resulted in the following outcomes:

- Strong community and local authority support for the water rehabilitation project;
- Consensus on the suitability of the selected intervention sites
- Commitment from community leaders and VDC to support implementation and coordination
- Awareness created on project activities, potential risks, and GM procedures

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- Inclusion of community feedback in project planning, including labor participation, site selection, and mitigation measures.
- Agreement that capacity-building on operation and maintenance of the solar-powered pumping system will be provided following installation to ensure sustainable management of the rehabilitated water infrastructure
- Agreement to provide practical training on solar-powered pumping system operation and maintenance after installation.
- Recommendation that future agricultural support programmes consider supplying improved seeds, farm tools, and farmer extension services to maximize project benefits.

8.8 Overall Conclusion

The consultation process demonstrated broad community support for the Borokhle Water Rehabilitation Project. Stakeholders emphasized that rehabilitating the existing wells will improve the reliability of irrigation water, strengthen agricultural production, and reduce vulnerability to recurring droughts. Community members also stressed that the long-term success of the project will depend on effective operation and maintenance of the rehabilitated infrastructure, continued community participation, and practical training on the solar-powered pumping systems.

Participants further recommended that improved irrigation infrastructure be complemented by access to improved seed varieties, basic agricultural tools, and agricultural extension services to enhance crop production and strengthen household livelihoods. These recommendations have been reflected in the ESMP through community capacity-building activities, continued stakeholder engagement, implementation of the Project Grievance Mechanism, and recommendations for future agricultural support initiatives.

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9. Conclusion

The Environmental and Social Management Plan (ESMP) for the Borokhle Water Rehabilitation Project in Borokhle Village, Carmo District, Bari Region, provides a comprehensive framework to ensure that the project is implemented in an environmentally sound, socially responsible, and sustainable manner. The assessment confirms that the potential environmental and social impacts associated with the rehabilitation and upgrading of the existing water infrastructure are moderate, localized, predictable, and can be effectively managed through implementation of the mitigation and monitoring measures outlined in this ESMP.

Effective implementation of the ESMP, including rehabilitation of existing shallow wells, installation of solar-powered pumping systems, upgrading of water conveyance and distribution infrastructure where required, adherence to occupational health and safety requirements, and continuous stakeholder engagement, will minimize risks to workers, surrounding communities, and the environment while maximizing the long-term benefits of the project.

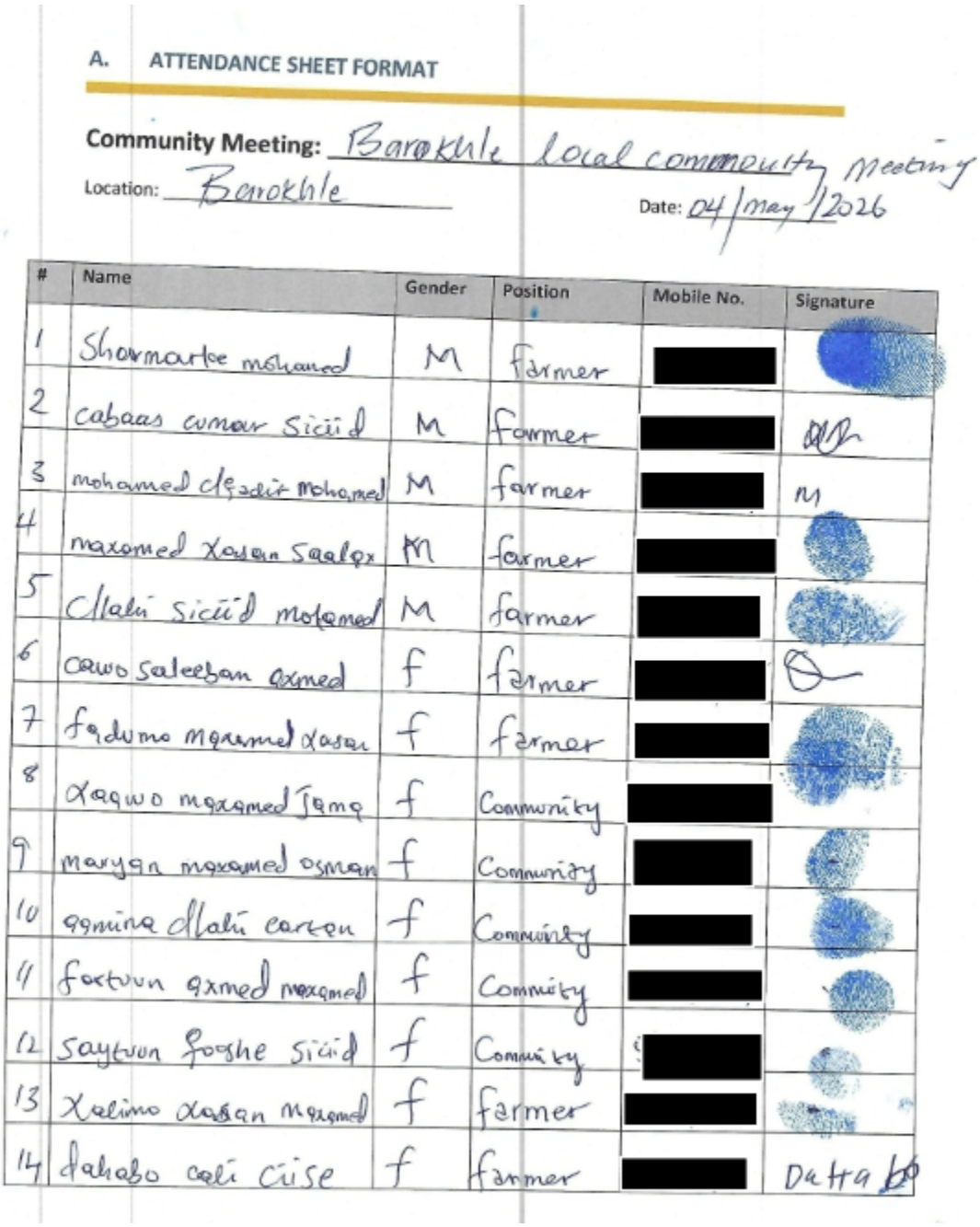
Stakeholder consultations demonstrated strong commitment from local authorities, community leaders, farmers, and irrigation water users, who identified reliable water supply, sustainable management of the rehabilitated infrastructure, and community participation in operation and maintenance as key priorities. Community members also emphasized the importance of practical training on solar-powered pumping systems, preventive maintenance of the rehabilitated facilities, and continued technical support to improve efficient water use. In addition, farmers recommended that future agricultural support programmes consider improved seed varieties, basic agricultural tools, and agricultural extension services to enhance the productivity and sustainability of irrigated farming. The establishment of a functional Grievance Mechanism (GM), clearly defined institutional responsibilities, and an ESMP implementation budget of USD 6,500 provide a sound basis for effective environmental and social management throughout project implementation.

Overall, the ESMP confirms that the Borokhle Water Rehabilitation Project can be implemented safely and in full compliance with Puntland environmental legislation, the World Bank Environmental and Social Standards (ESSs), and the Somalia Food Systems Resilience Project (S-FSRP) Environmental and Social Management Framework (ESMF). Through effective implementation of the proposed mitigation measures, continuous monitoring, and active community participation, the project will restore the functionality of existing water infrastructure, improve the reliability of irrigation water supply, promote sustainable groundwater use, strengthen resilience to recurring drought conditions, and improve agricultural productivity and household livelihoods. The project's long-term success will depend on continued community ownership, routine maintenance of the rehabilitated facilities, and sustained capacity building to ensure reliable operation of the solar-powered water supply system.

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10. Annexes

10.1. Stakeholder Consultation meetings' participant lists



A. ATTENDANCE SHEET FORMAT

Community Meeting: Barokhle local community meeting

Location: Barokhle

Date: 04/may/2026

#	Name	Gender	Position	Mobile No.	Signature
1	Shormarke mohamed	M	farmer	[redacted]	
2	cabaas cumar sicid	M	farmer	[redacted]	
3	mohamed cigadir mohamed	M	farmer	[redacted]	
4	maxamed xasan saalax	M	farmer	[redacted]	
5	cllahi sicid mohamed	M	farmer	[redacted]	
6	cawo saleeban axmed	f	farmer	[redacted]	
7	fadumo maxamed xasan	f	farmer	[redacted]	
8	xaawo maxamed jama	f	Community	[redacted]	
9	maryan maxamed osman	f	Community	[redacted]	
10	asmina cllahi carten	f	Community	[redacted]	
11	fartuun axmed maxamed	f	Commity	[redacted]	
12	saytuun foshe sicid	f	Community	[redacted]	
13	xalimo xasan maxamed	f	farmer	[redacted]	
14	dahabo cali ciise	f	farmer	[redacted]	Datta

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#	Name	Gender	Position	Mobile No.	Signature
15	Siciid Cisman cali	M	farmer	[redacted]	
16	Boruus dlahi Siciid	M	farmer	[redacted]	
17	Xasan cali cabdi	M	farmer	[redacted]	
14	maxamud Siciid cisman	M	farmer	[redacted]	
19	maxamed dlahi muse	M	farmer	[redacted]	
20	Maxamed Jama ibrahim	M	farmer	[redacted]	
21	Ismail Sciaid Cus.	M.	Farmer	[redacted]	
21	Ahisaaf cali mirre	M	farmer	[redacted]	
23	Acasiis ibrahimhiirad	M	farmer	[redacted]	
24	Axakiin salaad cali	M	farmer	[redacted]	
25	Xareed maxamed gwl	M	farmer	[redacted]	
26	Hlaali cali Cadaar	M	farmer	[redacted]	
27					
28					

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10.2 ES Screening Checklist



ES Screening for Borokhle.docx

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10.3 Chance Find Procedures

Cultural heritage encompasses tangible and intangible heritage which may be recognized and valued at a local, regional, national or global level. *Tangible cultural heritage*, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Tangible cultural heritage may be located in urban or rural settings, and may be above or below land or under the water. *Intangible cultural heritage*, which includes practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith— that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation and constantly recreated by them in response to their environment, their interaction with nature and their history.

In the event that during construction, sites, resources or artifacts of cultural value are found, the following procedures for identification, protection from theft, and treatment of discovered artefacts should be followed and included in standard bidding documents. These procedures take into account requirements related to Chance Finding under national legislation including [list relevant cultural heritage legislation in country].

- Stop the construction activities in the area of chance find temporarily.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a guard shall be arranged until the responsible local authorities take over. These authorities are [list the responsible authorities under national legislation].
- Notify the relevant [implementing agency field staff] and the relevant [list the responsible local authorities under national legislation] immediately. [Implementing agency field staff] will inform the [implementing agency management].
- The relevant [list the responsible local authorities under national legislation] shall promptly carry out the necessities and inform the [national level cultural heritage or archeology ministry] immediately from the date on which the information is received.
- The [national level cultural heritage or archeology ministry] would be in charge of evaluation /inspection of the significance or importance of the chance finds and advise on appropriate subsequent procedures.
- If the [national level cultural heritage or archeology ministry] determines that chance find is a non-cultural heritage chance find, the construction process can resume.
- If the [national level cultural heritage or archeology ministry] determines chance find is an isolated chance find, [national level cultural heritage or archeology ministry] would provide technical supports/advice on chance find treatment with related expenditure on the treatment provided by the entity report the chance find.

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