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County Government of Garissa
P.O. Box 563-70100, Garissa

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
SUMMARY PROJECT REPORT

FOR
THE PROPOSED CONSTRUCTION OF FAAN COMMUNITY WATER PAN IN FAAN VILLAGE, LAGO LOCATION, SHANTABAQ SUB COUNTY, GARISSA COUNTY

GPS Coordinates:
Longitude 39.5029753°E, and Latitude 0.3654093°N, 153m above sea level

Ministry of Agriculture & Livestock Development (MoAL&D)

APRIL 2025

PROPONENT:	LEAD EXPERT:
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FACT SHEET

Project Name	Proposed Construction of Faan Community Water Pan in Faan Village, Lago Location, Shantabaq Sub County: Garissa County.
Assignment Name	Summary Project Environmental and Social Impact Assessment (ESIA) Report
Location	Garissa County Shantabaq Sub County Baraki Ward Afwen Location Afwen Sub-Location Faan Village
GPS Coordinates	Longitude 39.5029753°E, and Latitude 0.3654093°N, 153m above sea level
Project Description	Proposed construction of a 50,000 cubic meter Water Pan comprising of; a) Excavation of the water pan, clearing of overburden materials and the top soil b) Equipping and installation of solar powered pump for the water pan. c) Fencing of the water pan and construction of embankment and draw off works d) Construction of a water kiosk and cattle troughs. e) Construction of ancillary facilities (Toilet, cattle watering trap and community water site)
Project Cost	KSh. 50,500,000.00 (Fifty Million, Five Hundred Shillings Only)
Proponent	Ministry of Agriculture and Livestock Development (MoALD) State Department for Agriculture Program to Build Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS)
Address of the Proponent	Hill Plaza 9th Floor, Ngong Road P.O. Box 30028 00100 **Nairobi, Kenya** E-mail: info@kilimo.go.ke. Telephone: +254-20-2718870.

CERTIFICATION

For and on behalf of;
Ministry of Agriculture and Livestock Development (MoALD)
State Department for Agriculture
Program to Build Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS)

This Environmental Impact Assessment (EIA) Summary Project Report was prepared in accordance with the Environmental Management and Coordination Act (EMCA) 1999 and the Environmental Impact Assessment and Audit Regulations 2003 (revised 2015 & 2019) and the **Africa Development Bank (AfDB)** Environmental and Social Safeguards in order to meet the statutory requirements for the implementation of projects under schedule ii. I, the undersigned, confirm that the contents of this report are a true representation of the ESIA process for the **Proposed Construction of Faan Community Water Pan in Faan Village, Lago Location, Shantabaq Sub County: Garissa County.**

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ACKNOWLEDGMENT

We, the ESIA study team **Mr. Erick O. Orwa (Lead)** and **Mr. Erick O. Ogada (Associate Expert)** wish to acknowledge and express our profound gratitude to the National Project Coordinating Unit (especially Mr. Kennedy Makudiuh; the Project Coordinator and Ms. Janet Oyuke; the Environmental and Social Safeguards Officer) of **Build Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS)** for commissioning this ESIA SPR. We also wish to acknowledge the support received at County level from **Mr. Abdullah Dakane,** who is the **Garissa County Project Coordinator (CPC).**

We appreciate the co-operation and contributions of all the stakeholders who we interacted with during the preparation of this ESIA report, without their support this study would not have been successful.

Finally, we wish to appreciate the contributions made by the entire community of Faan Community for providing us with useful information and filling out questionnaires during the field visits and public participation forum.

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AfDB	African Development Bank
ASAL	Arid and Semi-Arid Land
BREFONS	Program to Build Resilience for Food and Nutrition Security in the Horn of Africa
CAP	Crisis Action Plan
CBOs	Community Based Organizations
CDDC	Community Driven Development Committee
CESSCO	County Environment and Social Safeguard Compliance Officer
CGS	County Government of Garissa
CIAP	Community Integrated Action Plan
CIDP	County Integrated Development Plan
CMS	Convention on Migratory Species
COC	Code of Conduct
CPCU	County Project Coordination Unit
CPP	Consultation, Public Involvement, and Participation
CPs	Contracting Parties
CSR	Corporate Social Responsibility
DRSLP	Drought Resilience and Sustainable Livelihoods Programme.
EAP	Emergency Action Plan
EAs	Environmental Assessments
EMCA	Environmental Management and Coordination Act
ER	Emergency Response
ERP	Emergency Response Plan
ESIA	Environmental and Social Impact Assessment
ESIA/ EA	Environmental and Social Impact Assessment /Environmental Audit
ESMMP	Environment & Social Management Monitoring Plan
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
FGD	Focused Group Discussion
FPIC	Free Prior and Informed Consultation
GBV	Gender Based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GRM	Grievance Redress Mechanism
IAPs	Interested and Affected Parties
IFC	International Finance Corporation
ISLM	Integrated Sustainable Land Management
IUCN	International Union for Conservation of Nature

Km	Kilometers
Km^2	Square Kilometers
m	Meters
M	Million
m^3	Cubic Meter
MEA	Multilateral Environmental Agreements
MEO	Monitoring & Evaluation Officer
mm	Millimeter
MoALD	Ministry of Agriculture & Livestock Development
MoU	Memorandum of Understanding
NEAP	National Environmental Action Plan
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations
NPCU	National Programme Coordination Unit
OHS	Occupational Health and Safety
PAPOLD	Participatory Analysis of Poverty and Livelihood Dynamics
PCU	Programme Coordination Unit
PEPB	Pest Control Products Board
PICD	Participatory Integrated Community Development
PMC	Project Management Committee
PPE	Personal Protective Equipment
RCC	Reinforced Cement Concrete
SEA	Sexual Exploitation and Abuse
SESA	Strategic Environmental and Social Assessment
SH	Sexual Harassment
SLM	Sustainable Land management
SOP	Standard Operating Procedure
SPR	Summary Project Report
UG	Underground
UNFCCC	United Nations Framework Convention on Climate Change
WA2016	Water Act 2016
WHO	World Health Organization
WRA	Water Resource Authority
WUA	Water User Association

EXECUTIVE SUMMARY

The Building Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS) project is a Kenyan initiative funded by the African Development Bank (AfDB). It aims to combat food insecurity exacerbated by climate change through sustainable agropastoral development, increased household incomes, and enhanced climate adaptation. BREFONS builds on the successes and lessons of earlier programs, including DRSLP Phase I, SIVAP, and RLACC, and is implemented by the State Department for Crop Development under the Ministry of Agriculture and Livestock Development (MoALD) in seven counties: Baringo, Isiolo, Marsabit, Samburu, Turkana, West Pokot, and **Garissa.**

One of the key interventions under BREFONS is the Faan Community Water Pan Project in Faan Village, Garissa County. Identified through a needs-based prioritization process led by the County Government, the project targets a community with no access to reliable fresh water. The nearest borehole, located 10 km away, produces saline water and forces households to spend approximately Ksh. 18,000 to truck in 20,000 liters of water, or rely on donkeys for laborious water collection.

The proposed water pan will improve access to clean water for domestic, livestock, and small-scale agricultural use, enhance hygiene and sanitation, and reduce the financial and physical burden of water collection. With strong community support, the project is expected to significantly improve livelihoods, health, and resilience in Faan Village, aligning with BREFONS' broader goal of fostering food and nutrition security in the Horn of Africa

The proposed water pan will provide a reliable, fresh water source for domestic use and livestock, improving public health, reducing gendered burdens, and enhancing drought resilience. The project is a joint initiative of the County Government of Garissa and the BREFONS Programme, under efforts to promote sustainable water access and climate resilience in arid regions.

In adherence to Kenyan government policy, all new projects or activities require an Environmental and Social Impact Assessment (ESIA) during the planning stages. This ensures that significant environmental and social impacts are addressed throughout the project lifecycle from planning and design to construction, operation, and decommissioning. The screening process conducted in June 2024 identified the proposed Faan Community Water Pan project as a ***Low-Risk Project*** according to the 2nd schedule of the Environmental Management and Coordination Act (EMCA Cap 387), as amended via legal notice no. 31 in April 2019. Additionally, the project falls under Category 3 according to the African

Development Bank's Integrated Safeguards System (ISS) regarding Environmental and Social Risk Classification.

Therefore, the proponent – Ministry of Agriculture and Livestock Development (MoALD) State Department for Agriculture; Program to Build Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS) – undertook Environmental and Social Impact Assessment and developed a **Summary Project Report (SPR)** pursuant to Regulation 7 (1) of the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019.

The assessment approach and methodology for this exercise was structured to cover the requirements under the Environmental Management and Coordination Act (EMCA), 1999 and its subsequent regulations, as well as the African Development Bank's Environmental and Social Safeguards. The scope of the assessment covered impacts directly or indirectly associated with the construction, operation, and decommissioning phases of the project. The consultant used both conventional and participatory approaches in identifying potential environmental impacts and appropriate mitigation measures for the proposed project.

The assessment involved largely an understanding of the project background, the preliminary designs and the implementation plan as well as commissioning. In addition, baseline information was obtained through physical investigation of the site and the surrounding areas, public consultation (which included discussions with local administration and the community), photography, as well as discussions with the Proponent. A total of **22 persons (12 Male and 9 Female) of whom seventeen (9) were youth** participated in the public participation exercise that took place in **Faan Village** on **20th March, 2025** where a total of **10 questionnaires** were administered and completed. The process culminated in the preparation of an ESIA summary project report encompassing the details specified in the Environmental Impact Assessment/Audit Regulations (2003) and subsequent amendments (2015 &2019).

Although there are a number of justifications of why the project should be developed in the area, there are various negative impacts raised that affect the environment and social wellbeing and therefore the proposed mitigation measures will reduce the adverse impacts. The main negative impacts during the construction phase, several negative environmental impacts are anticipated, each requiring mitigation measures. These include temporal restrictions on site access, disturbance of vegetation and biodiversity, soil erosion, noise and vibration from construction activities, and air pollution from motor vehicle emissions and dust. Additionally, risks such as oil spills, solid waste generation, and accumulation of excavated materials and desilted silt need careful management to minimize environmental harm. Socio-economic impacts during construction include concerns over occupational health and safety, heightened risks of accidents to the community, increased exposure to diseases like HIV/AIDS, potential labor risks and influx, risks of social conflict, child labor,

school dropout rates, gender-based violence, and sexual exploitation and abuse by project workers against community members.

The suggested mitigation measures during the construction phase, mitigation measures include scheduling noisy activities during daytime hours, using quieter equipment, and erecting noise barriers to minimize noise and vibration impacts. To mitigate air pollution from motor vehicle emissions and dust, employing low-emission vehicles, watering dusty roads, and covering materials during transportation can effectively reduce environmental impacts. Measures to prevent oil spills include proper storage and handling procedures, spill response training, and regular maintenance of equipment. Implementing erosion control measures such as silt fences, erosion blankets, and terracing helps mitigate soil erosion risks. Managing solid waste involves segregating waste, promoting recycling, and implementing waste management plans. During the operational phase, mitigation measures focus on water quality monitoring, maintaining vegetative cover to prevent soil erosion and siltation of the water pan, and conducting regular inspections and maintenance of embankments to reduce risks associated with structural integrity. Occupational health and safety protocols, providing protective equipment, and regular health screenings for workers help mitigate health risks. Promoting community engagement, implementing water allocation guidelines, and establishing conflict resolution mechanisms can prevent social conflicts related to water use. These measures contribute to sustainable project management by minimizing negative environmental and socio-economic impacts while enhancing community resilience and well-being.

An environmental and social management plan has been developed in this report to assist the proponent in mitigating and managing environmental and social impacts associated with the life cycle of the project. It is noteworthy that key factors and processes may change through the life of the project and considerable provisions have been made for dynamism and flexibility of the ESM&MP. As such, the ESM&MP should be subjected to periodic review for improvement purposes. The ESM&MP should be shared with the selected contractor (C-ESMMP) for implementation. This summary project report estimates that in addition to the contracted cost; **Ksh. 980,000** should be allocated during construction phase and at least **Ksh. 1,025,000 per year** during operation phase. Additionally, **Ksh. 230,000** should be allocated during decommissioning phase of the project.

1. INTRODUCTION

1.1 BREFONS Project Background

The Building Resilience for Food and Nutrition Security (BREFONS) project is a key component of a broader regional initiative aimed at tackling food insecurity in the Horn of Africa, particularly in the context of climate change. In Kenya, BREFONS is supported through a loan from the African Development Bank (AfDB) and builds on the foundations laid by earlier efforts such as the Drought Resilience and Sustainable Livelihoods Programme (DRSLP).

As the second phase of DRSLP in Kenya, BREFONS seeks to further strengthen resilience and promote sustainable livelihoods. It integrates insights and best practices from DRSLP-1 and complementary projects like the Small-scale Irrigation and Value Addition Project (SIVAP) and the Rural Livelihoods Adaptation to Climate Change (RLACC), enabling it to apply tested solutions across diverse regions.

The project's primary aim is to enhance resilience to food and nutrition insecurity and the effects of climate change, while also contributing to peace and stability in the Horn of Africa. Its main objectives include boosting sustainable productivity within agropastoral systems, increasing household incomes through value chain development, and enhancing communities' adaptive capacity to climate risks.

In Kenya, the project is implemented by the State Department for Crop Development under the Ministry of Agriculture and Livestock Development (MoALD), with strategic oversight from a steering committee chaired by the Principal Secretary of the department.

County Coordination Units (CCUs) oversee day-to-day project activities in the seven targeted counties: Baringo, Isiolo, Marsabit, Samburu, Turkana, West Pokot, and **Garissa.** These units play a critical role in ensuring effective implementation and coordination at the grassroots level.

The project comprises four major components, each designed to address specific challenges and deliver tangible outcomes:

1. **Strengthening Pastoral and Production Systems:** This component focuses on enhancing livestock and water infrastructure, including constructing/ rehabilitating **water pans,** livestock saleyards, boreholes, livestock markets, and irrigation schemes.

2. **Supporting Agribusiness Development:** Activities under this component aim to empower agro-pastoral communities through capacity building in livestock insurance, technology adoption, and crop campaigns.
3. **Enhancing Adaptive Capacity to Climate Change:** Measures include disseminating climate information, strengthening partnerships for climate risk insurance, and capacity building for early warning systems.
4. **Project Management and Coordination:** This component emphasizes capacity building at institutional levels to ensure efficient project execution and mainstreaming of cross-cutting issues like environmental safeguards and gender equality.
5. **Project Impact and Sustainability**

The expected outcomes of BREFONS are diverse, ranging from increased agricultural productivity and job creation to improved climate resilience among farmers and pastoralists. By targeting nearly 183,000 households across seven counties, the project seeks to create lasting impacts on food security and livelihoods in Kenya's vulnerable regions.

These objectives align with Kenya's commitment as a signatory to the United Nations Framework Convention on Climate Change (UNFCCC). Embracing climate-smart agriculture becomes instrumental in achieving national goals of food security, productivity, income generation, and reducing greenhouse gas emissions.

In complying with the Kenyan development regulations, the proponent commissioned the Experts to prepare this Environmental and Social Impact Assessment (ESIA) Summary Report for the ***Proposed Construction of Faan Community Water Pan in Faan Village, Lago Location, Shantabaq Sub County: Garissa County.*** The report provides the project background as well as an assessment of the associated beneficial and adverse environmental and social impacts of the development.

1.2 Background of Faan Community Water Pan Sub Project

The proposed Faan Community Water Pan project is located in Faan Village, Garissa County, and forms part of the broader BREFONS initiative aimed at enhancing resilience and food security among vulnerable communities in the Horn of Africa. This subproject was identified through a community sensitization and prioritization exercise carried out by the Garissa County Government, which selected Faan among the four most water-stressed locations in the county for immediate intervention.

Faan Village currently lacks a reliable source of clean water for domestic and livestock use. The nearest available borehole, constructed by Islamic Relief approximately two years ago, is located 10 kilometers away and produces saline water unsuitable for drinking. As a result, households in the community incur an average cost of Ksh. 18,000 to transport 20,000 liters of water using water trucking services. Others resort to using donkeys to fetch water over the same distance, which is physically demanding and time-consuming.

The construction of a water pan in Faan is therefore expected to significantly improve access to water, reduce the cost and burden of water collection, and promote better hygiene and sanitation. The community has expressed strong support for the project, anticipating that the availability of water will not only meet domestic and livestock needs but also enable small-scale agricultural activities such as kitchen gardens and the cultivation of crops like watermelon. The reduced distance to water will free up time and resources, contributing to overall improvements in health, livelihoods, and community resilience.

1.3 Justification for the Environmental Summary Project Report

The proposed construction of the Faan Community Water Pan, falls under development activities that require environmental safeguards at the planning stage. In line with the Government of Kenya's policy and the provisions of the Environmental Management and Coordination Act (EMCA) No. 8 of 1999, an Environmental Impact Assessment (EIA) is mandatory to ensure that potential environmental and social impacts are identified and appropriately addressed during the design, construction, operation, and decommissioning phases of the project.

To meet this requirement, a Summary Project Report (SPR) was prepared following a recommendation by the National Programme Coordination Unit (NPCU), Environment Section. The process was guided by the Environmental and Social Management Framework (ESMF) developed under the Building Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS) program, and based on the outcomes of the environmental screening exercise.

The SPR was developed in accordance with the African Development Bank's (AfDB) Integrated Safeguards System (ISS), which applies to all BREFONS-supported sub-projects. Specifically, the report considered the relevant Operational Safeguards: OS 1 on Environmental and Social Assessment, OS 2 on Involuntary Resettlement, OS 3 on Biodiversity and Ecosystem Services, OS 4 on Pollution Prevention and Control, and OS 5 on Labour Conditions, Health and Safety. These safeguards ensure that sub-projects are designed and implemented in a manner that minimizes environmental harm, promotes sustainable resource use, and protects vulnerable populations.

Furthermore, the preparation of the SPR adheres to the NEMA Public Notice on ESIA requirements as outlined in Legal Notice No. 31 of April 30, 2019, which amended the Second Schedule of EMCA. As per NEMA Legal Notice No. 32, all proponents of projects classified as ***low-risk*** must submit a **Summary Project Report** for review and approval by the Authority. Given the nature and scale of the proposed water pan, this SPR serves as the appropriate environmental instrument to facilitate regulatory compliance and ensure sustainable project implementation.

1.4 SPR Scope, Objective and Methodology of the ESIA

1.4.1 Objectives of the ESIA

The principal objective is to highlight the possible positive and negative environmental and social impacts expected during the establishment and operation of the proposed project, with the aim of proposing the possible mitigation measures to the negative impacts. This is in line with ensuring that such a development does not negatively impact the environment in terms of social, health, economic and physical (soil, water, plant and animals) state of the area. The SPR identified the possible environmental impacts during the construction, implementation and operational phases of the project. The exercise was carried out in accordance with the National Environmental Management Authority (NEMA) Environmental Impact Assessment and Audit Regulations and guidelines.

In brief, the specific objectives of the study were to:

i. Describe the proposed project including the technology to be used.
ii. Collect, collate and present baseline information (Physical environment; Biological environment and Socioeconomic and cultural environment)
iii. Identify impacts, both positive and negative, the direct, indirect, cumulative, irreversible, short- term and long-term effects anticipated; and identify mitigation measures.
iv. Carry out stakeholders' participation and consultations to collect the concerns, expectations, and opinions of affected, concerned and interested stakeholders.
v. Prepare a comprehensive Environmental Management Plan (EMP)
vi. To present results of the ESIA in such a way that they can guide in informed decision-making.

1.5 Data Collection Procedures and Methodology

The Consultant first undertook environmental screening and scoping to avoid unnecessary data. The data collection was carried out through questionnaires (See sample, ***Appendix I***), observations and photography, site visits, desktop environmental studies and scientific tests where necessary in the manner and criteria specified in Part V (section 31-41) of the Environmental (Impact Assessment and Audit) Regulations, 2003.

The report applied an inter alia approach incorporating environmental, social, cultural, economic, safety and health impacts of the project. The integrated nature of the impacts review ensured all possible negative impacts were identified and adequately mitigated. Given that nature and magnitude of the Proposed Construction of Faan Community Water Pan Sub Project, a Summary Environmental Impact Assessment Project Report, was opted for to ensure comprehensiveness and completeness of the assessment. The methodology followed during the assessment was as follows:

1.5.1 Environmental Screening

According to the 2nd schedule of Environmental Management and Coordination Act (EMCA Cap 387) – amendment via legal notice no. 31 – April 2019, the ***Proposed Construction of Faan Community Water Pan Sub Project*** lies within Category (1) ***Low Risk Projects.*** The screening process revealed that anticipated environmental issues would be minimal. Therefore, the proponent **National Government of Kenya; Ministry of Agriculture & Livestock Development (MoAL&D) - Program to Build Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS)** in collaboration with the County Government of Garissa - through an Environmental Consultants undertook an Environmental Impact Assessment to submit a **Summary Project Report (SPR)** pursuant to Regulation 7 (1) of the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019.

The proposed project impacts will be site specific, few if any of them are irreversible; and in most cases adverse effects will be limited; (some minor including dust, noise and health and safety impacts during construction and operational phases) and mitigation measures can be designed. Such impacts have been clearly identified both at screening stage and in this SPR report with comprehensive mitigation measures being fully designed and described in ESM&MP.

1.5.2 Desktop Study

Desktop study included documents review on the nature of the proposed activities, project documents including designs, policy and legislative framework as well as the environmental setting of the area among others. Key documents reviewed included the following: Kenya policies, strategies and guidelines; National and County laws and regulations; applicable Multilateral Environmental Agreements (MEAs) and African Development Bank social and environmental safeguard policies.

1.5.3 Physical Inspection of the Site and Surrounding

Physical inspection of the proposed site which included field investigation at site and surrounding areas was done in on **20th March 2025.** The field investigations were meant for physical inspections of the site characteristics and the environmental status of the surrounding areas to determine the anticipated impacts from the project.

1.5.4 Public Participation

Public participation via the use of public meetings & questionnaires, key stakeholder and informant interviews were carried out during the exercise. To ensure adequate public participation in the ESIA process, questionnaires were administered to: the project stakeholders, project site neighbours to the ***Proposed Construction of Faan Community Water Pan Sub Project*** and other surrounding enterprises (***Appendix I***). The information gathered was subsequently synthesized and incorporated into the ESIA Summary Project Report.

Given the nature of the project and anticipated impacts, one major public meeting was conducted targeting respective members of **Faan Water Pan Community** and the neighbouring community on **20th March 2025** at Faan Village where **22 participants** attended (see attendance list-***appendix III*** and minutes of the public consultation meeting-***Appendix II***). This was done in order to incorporate the concerns and views of all persons and individuals in the project neighbourhood. Further, key informant interviews/consultations were conducted to incorporate views from key stakeholders as described in chapter 5.

1.6 Data Analysis, Documentation and Report Structure

The Environmental Impacts Assessment report was compiled from the findings in accordance with the EIA guidelines issued by NEMA for Summary Project Report. The Consultant ensured constant briefing of the proponent during the exercise.

The exercise culminated with the production and documentation of this Summary Project report designed to ensure that the proposed development complies with the Environmental Management and Coordination Act (EMCA, Cap 387). The report structure is organized in 9 chapters as outlined below: -

- **Chapter 1: Introduction:** *Gives Background Information to the Study Describing the Objectives and the Terms of Reference.*
- **Chapter 2: Project Description:** *Description of Project Site.*
- **Chapter 3: Baseline Information:** *Outlines the Baseline Information of the Study Area.*
- **Chapter 4: National Policy, Legal and Institutional Framework:** *Describes the overarching government regulations, laws, policies, and institutions relevant to the project's environmental and social considerations.*
- **Chapter 5: Analysis of Project Alternatives:** *Evaluation of project alternatives (Design, location, materials and technology).*
- **Chapter 6: Public Participation and Stakeholder Consultation:** *Summarizes the outcome of the Stakeholder Engagement and Public Consultations process.*

- Chapter 7: Anticipated Impacts and Mitigation Measures: *Assessment of the issues likely to arise as a result of implementation of the proposed project*
- Chapter 8: Environmental and Social Management & Monitoring Plan (ESM&MP)
- Chapter 9: Conclusion and Recommendation: *Concludes the findings and recaps the main recommendations.*
- References
- Appendices

2 PROJECT DESCRIPTION

2.1 Introduction

This chapter gives details of the project. It highlights the project design and materials supported by the design and plan drawn to scale and signed by an engineer. Additionally, it provides an overview of project activities during construction, operation and decommissioning phases. Included are a project design and layout, description of project activities and an estimate of the cost of putting up the project in the area.

2.2 Project Scope

The scopes of works for this project will include excavation of the reservoir, construction of the embankment, excavation of the spillway and silt trap, planting of grass on the embankment. The works will also include water pan water pan ancillary work comprising; construction of pipe draw off system, spillway concrete sills, cattle trough, communal water points, pit latrine, fencing of water pan, installation of pump and solar panels and erection of overhead tank (see appendix XI on Drawings and Design).

2.3 Project Design and Activities

2.3.1 Project Design

Rainwater harvesting provides an alternative and reliable water source. The proposed surface rainwater harvesting technology by constructing a water pan to store rainwater/ surface runoff within a watershed is best suited for developing rural communities that have limited sources of water. Several factors including topography, regional geology, the hydrology of the Faan watershed, weather information, the environmental and geotechnical conditions of the water pan were considered in the designing of the proposed water reservoir. The water pan has been designed to meet the existing water and irrigation demand, support upstream conservation measures in the Faan zone and reduce flooding in the downstream.

2.3.2 Project Components

The project is made up of the following major components:

i. Intake and draw off works.
ii. Solar powered pump and solar structure.
iii. Elevated Storage tank 10m^3.
iv. 1. No water trough
v. Community water point.
vi. Chain-link Fence.

The proposed project entails construction of an existing pan to to achieve storage of at least 50,000m³. Adopting an 8-hour pumping period, the rising water main will be designed for 3.51 litres per second capacity.

2.3.3 Water Pan Capacity Description

The proposed project entails the construction of an existing water pan to achieve a target storage capacity of 50,000 cubic meters (m³). This intervention aims to improve water security for both livestock and domestic use in an arid and water-stressed region like Garissa County. The pan will be deepened to an average of 7 meters, with engineered side slopes to ensure structural stability, minimize erosion, and reduce sedimentation.

2.4 Storage Design and Surface Area

Given a design volume of 50,000 m³ and an average depth of 7 meters, the estimated surface area of the water pan is approximately:

- 7,143 m²

- 0.714 hectares

- 1.76 acres

This allows for an efficient balance between water storage and surface evaporation, which is a critical factor in arid climates.

Community Water Demand Analysis

Based on the existing population of:

- 1,000 camels
- 10,000 shoats (sheep and goats)
- 500 donkeys
- 500 households (~2,750 people)

The total daily water demand is estimated as follows:

Table 2:1: Community Water Demand

Use Category	Daily Demand (Litres)	Daily Demand (m³)
Livestock	80,000	80
Domestic use	55,000	55
Total	135,000	135

Pan Supply Duration (No Refill Scenario)

If no additional inflow (rainfall or runoff) is assumed and water is withdrawn daily at this rate:

- 50,000 m³ / 135 m³ per day = ~370 days

This indicates that the pan can sustain the community's needs for about 1 year, under ideal storage and zero-loss conditions. However, considering evaporation, seepage, and occasional over-abstraction, the realistic operational lifespan may range between 6 to 9 months without recharge.

Sustainability Considerations

- Evaporation losses in Faan area could reach up to 6–8 mm/day, significantly affecting storage, especially in shallow or large-surface-area pans.
- Seepage may occur in sandy or fractured soils unless lining is considered.
- Seasonal rainfall may replenish the pan partially or fully, but variability in rainfall patterns requires robust water management practices.

The proposed 50,000 m³ water pan offers adequate capacity to support a moderate-sized pastoralist community over an extended dry season. With proper operation and maintenance, community sensitization, and equitable distribution systems in place, the pan will serve as a reliable water source for livestock and domestic use, helping build resilience against prolonged drought periods within Faan Community.

2.4.1 Irrigable Area

Community did not express need for irrigation.

2.4.2 Water Demand Estimates

The water demand for the proposed project is categorized as rural domestic Water demand Water consumption was based on consumption rates recommended in **Table 2.2** of the *Practice Manual for Water Supply Services in Kenya, 2005* was used for estimation of water demands.

Table 2:2: Summary Water Demand in Faan Zone

Consumer	Unit	Rural areas			Urban areas		
		High potential	Medium potential	Low potential	High class potential	Medium class potential	Low class potential
People with individual connection	L/head/day	60	50	40	250	150	75

Consumer	Unit	Rural areas			Urban areas		
		High potential	Medium potential	Low potential	High class potential	Medium class potential	Low class potential
People without connections	L/head/day	20	15	10	-	-	20
Livestock unit	L/head/day	50			-		
Boarding schools	L/head/day	50					
Day schools With WC Without WC	L/head/day	25 5					
Hospitals regional district other	L/head/day	400 200 100	+20 L per outpatient and day [minimum 5,000 l/day]				
Dispensary and health centre	L/head/day	5,000					
Hotels high class medium class low class	L/head/day	600 300 50					
Administrative offices	L/Head/day	25					
Bars	L/day	500					
Unspecified Industry	L/Ha/day		20,000				
Coffee, pulping factories	L/kg coffee	25 [when re-circulation of water is used]					

The Faan Water Pan has been designed with a storage capacity of 50,000 cubic meters (m^3), which is adequate to meet the estimated daily water demand of 135 m^3 for both livestock and domestic use within the surrounding community. Site assessments confirmed the feasibility of constructing a pan of this capacity at the proposed location. The full reservoir area is approximately 7,761.24 m^2, with a maximum water depth of 2.2 meters, tailored to local topographic and hydrological conditions. The system is expected to yield 101 m^3 per day under an 8-hour pumping regime, ensuring reliable water supply for most of the year. The design life of the structure is 20 years, with the primary raw water source being surface runoff collected during seasonal rainfall events.

a. Water pan Freeboard

A minimum freeboard of 1.5m meters has been adopted in the Faan water pan design considering that the pan belongs to Class A (Low Risk) water structures. Pan freeboard is necessary to prevent overtopping and washing out of the embankment due to waves.

b. Silt trap Design

This design recommends silt trap size of 30*30 m with a depth of 3 m.

2.4.3 Main Project Works/Activities

a) Site Clearance/ Reservoir Extraction (Earthworks)

This will involve clearing the site of trees/ bushes, stumps from the pan area, borrow area and reservoir and cart away (see appendix IX).

b) Silt trap excavation and construction

Excavation will be undertaken in set out area of the silt trap as provided in the engineering drawings. Stone pitching protection of inlet will be provided from silt trap to the base of the reservoir as shall be directed by engineer. The sill will be created using class 20/20 cast concrete. Stone pitching protection to spillway and outflow will be constructed as directed by the engineer.

2.4.4 Climate Proofing

In the design of the Faan Water Pan in the Garissa County, climate-proofing measures were integrated to ensure resilience against climate variability and long-term changes. Given the arid and semi-arid nature of Garissa County, which experiences frequent droughts, erratic rainfall, and temperature fluctuations, this design considerations addressed the potential impacts on water resources.

1. Incorporating Rainfall Variability

The design accounted for the region's unpredictable rainfall patterns by incorporating sufficient storage capacity to capture and store runoff during both regular and extreme weather events. Climate projections were used to estimate future rainfall patterns, which

informed the optimal size and capacity of the water pan, ensuring its ability to sustain prolonged dry spells and occasional heavy rainfall.

2. Sedimentation Control and Erosion Management

To address the region's susceptibility to soil erosion and high sedimentation rates, the design included measures such as silt traps, spillways, and vegetation buffer zones. These features were intended to reduce sediment inflow, prolong the water pan's lifespan, and maintain water quality. Plans for regular desilting were also incorporated, allowing for future maintenance in response to climate-induced erosion.

3. Flood Management and Overflow Systems

Flood management was a key consideration, with the design including robust spillways and flood diversion systems to protect the water pan from flash floods caused by intense rainfall. Properly sized overflow structures were incorporated to mitigate the risk of overtopping, which could erode embankments and reduce the pan's functionality.

4. Water Loss Reduction

To minimize water loss due to evaporation, a significant concern in arid regions, protective measures were incorporated into the design, including the installation of windbreaks (encouraging the community members to plant trees) around the water pan. Additionally, the bottom of the water pan was lined with impervious materials to prevent seepage losses, improving overall water retention.

5. Water Conservation Technologies

Water-efficient technologies, such as drip irrigation systems and controlled water distribution points, were integrated into the design to optimize water use and reduce wastage, ensuring that stored water could sustain communities and livestock for longer periods during dry seasons.

6. Sustainable Livestock and Community Watering Points

Separate and properly designed livestock watering points were included to prevent direct animal access to the main storage area, preserving water quality and managing water

distribution during times of scarcity. Community-based water allocation strategies were also developed to ensure equitable access.

2.5 Construction of ancillary structures

The proposed interventions to meet the stakeholders prioritized expectations taking into account the availability of budget include;

i. Intake and draw off works.
ii. Solar powered pump and solar structure.
iii. Elevated Storage tank 10m3.
iv. 1. No water trough
v. Community water point.
vi. Chain-link Fence.

2.6 Material and Equipment

The inputs to implementing the proposed project are human labour, plant and machinery, fuel (for excavator) solar water pump, concrete, self-regulatory water valves, Barbed wire, Chain link and paints.

2.7 Project Activities Categories

The activities associated with the proposed project have been categorized under four phases of project implementation namely; planning, construction, operation, and closure/decommissioning as discussed in the following subsections.

2.7.1 Planning Phase Activities

The main activities considered during this phase are: community mobilization, tendering services as required by procurement regulations, site hand over, handover of drawing and building plans and site layout.

2.7.2 Construction Phase Activities

The following works will generally be followed during the construction of the project:

- ***Mobilization:*** The contractor will provide access for the Construction Camp. He will be required to clear and level the site by: cutting and clearing existing vegetation; removing stumps; leveling the site by grading and filling; and installing site drainage;

- ***Setting out:*** Once the camp, material storage and parking areas are established, the next task will involve setting out the works, marking and pegging for particular activities;
- ***Site clearance and topsoil stripping:*** These tasks will be done together with setting out and as per design requirements;
- ***Earthworks, excavations, filling of structures, fencing, drainage works:*** The above tasks involving excavating, and grading and soil control erosion measures will be done as per the approved design.
- ***Handing Over:*** At the completion of the works, all structures and equipment not required for the operation and maintenance are removed from the site and the work areas prepared for re-vegetation.

Construction Materials: Construction input material will include gravel, rock, cement, sand, ballast, structural steel, reinforced steel, paint, timber, fuel and lubricants. Consumable materials will include lubricants, greases, chemicals, reagents, resins and others. The construction of the pan will utilize earth fill materials that are available from the pan area within the project site.

2.7.3 Operation Phase Activities

On project completion the facilities would be utilized for the intended purpose. The project operational activities will include: operationalizing a water trough, draw off system, a community water point and a water kiosk.

2.7.4 Decommissioning Phase Activities

Decommissioning of the water pan will become necessary if or when the project goals change, when the need arises, climatic conditions or change of government policy as regards the land use. Once this occurs, the affected structures will be demolished. Non-reusable materials will be sold to licensed scrap metal dealers. The closure of the project will involve stopping all activities and demolishing the built structures and any fences. The affected land shall be, landscaped and replanted with suitable indigenous grass and tree species.

2.8 Proposed Project cost

The costs of establishing Faan water pan estimated to have a capacity of **50,000m³** is **KSh. 36,509,975.00 (Thirty-Six Million Five Hundred and Nine Thousand Nine Hundred and Seventy-Five Shillings Only)** which includes the cost of preliminaries, excavation of the reservoir, spillway and established of ancillary facilities.

3 BASELINE INFORMATION

3.1 Introduction

This section describes a brief of the project location including the map area of the specific site location with land ownership details, possibility of environmentally sensitive areas, supportive environmental infrastructures with a validation to land conformity in accordance with the existing land use plan in the area.

3.2 Project Location

The proposed water pan project is located in Garissa County within the North Eastern region of Kenya bordering Republic of Somalia to the East, Lamu County to the South, Tana River County to the West, Isiolo County to the Northwest and Wajir County to the North.

The Faan Community Water Pan Project is a critical water harvesting initiative proposed for **Faan Village, Afwen Sub-location, Afwen Location, Baraki Ward, Shantabaq Sub - County Garissa County**. The site is accessible via the Garissa-Modogashe Road, a graded all-weather road. From Garissa town, the 45 km route passes through pastoralist settlements and acacia-dotted plains. The final 5 km to Faan Village requires off-road navigation through sandy terrain. The project location is described by the coordinates **39.5029753°E 0.3654093°N** and approximately **153** metres above Sea level. The project occupies 3 hectares of communal land allocated by the Afwen Location Council. A 2023 land survey confirmed no private claims or resettlement was needed. The map below and Satellite imagery give a detailed description of the project location.

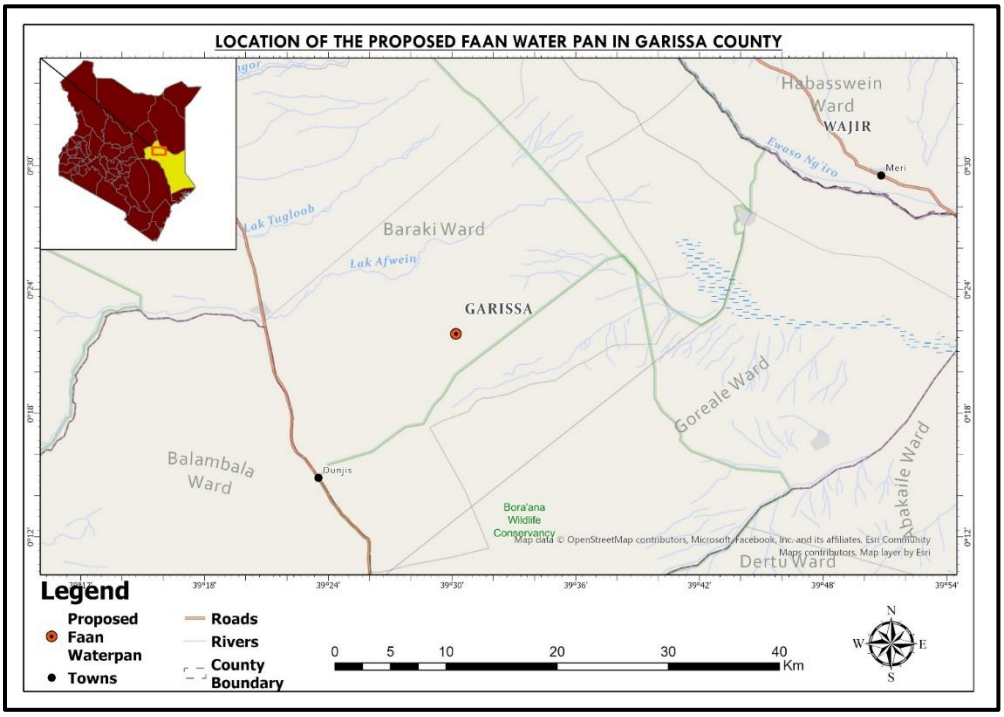

Figure 3:1: Proposed Project Location Map

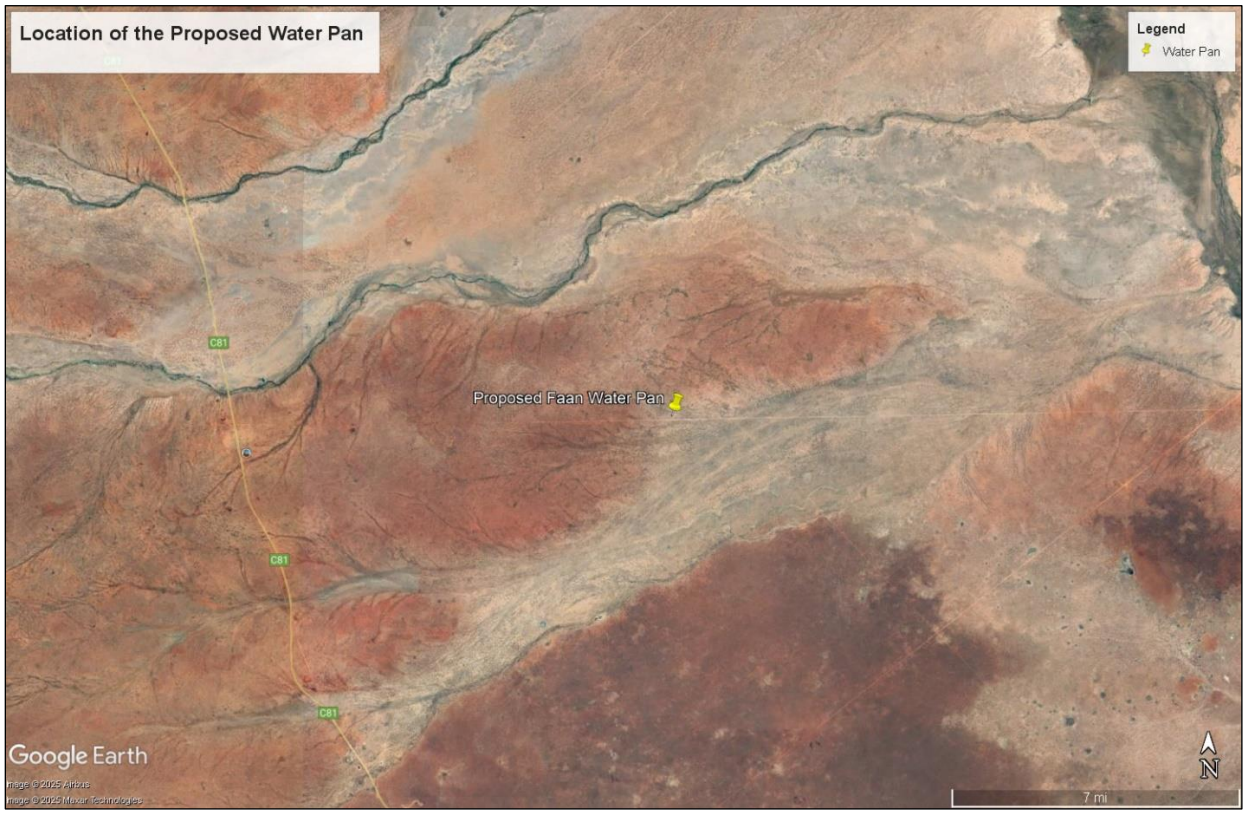

Figure 3:2: Satellite Imagery of the proposed Water Pan

3.3 Physiographic and Natural Conditions

3.3.1 Physical & Topographic Features

Garissa County is characterized by a relatively flat or undulating plain with occasional low hills. It rises from a low altitude of 20m to 400m above sea level. The major physical features are seasonal Laggas and the Tana River Basin on the western side, the Ewaso Ngiro River and the Lorian Swamp to the North Eastern areas.

The project area exhibits a varied topography, with elevation levels ranging from approximately 161 meters to 390 meters above mean sea level. The highest points are concentrated in the southwestern section, where elevation declines gradually towards the northeastern parts, forming a natural drainage pattern leading to the Ewaso Ngiro River. The terrain is predominantly gentle, with minimal variations, except for steeper sections in elevated zones. The proposed Faan water pan is strategically located in a relatively lower area to maximize water collection and storage.

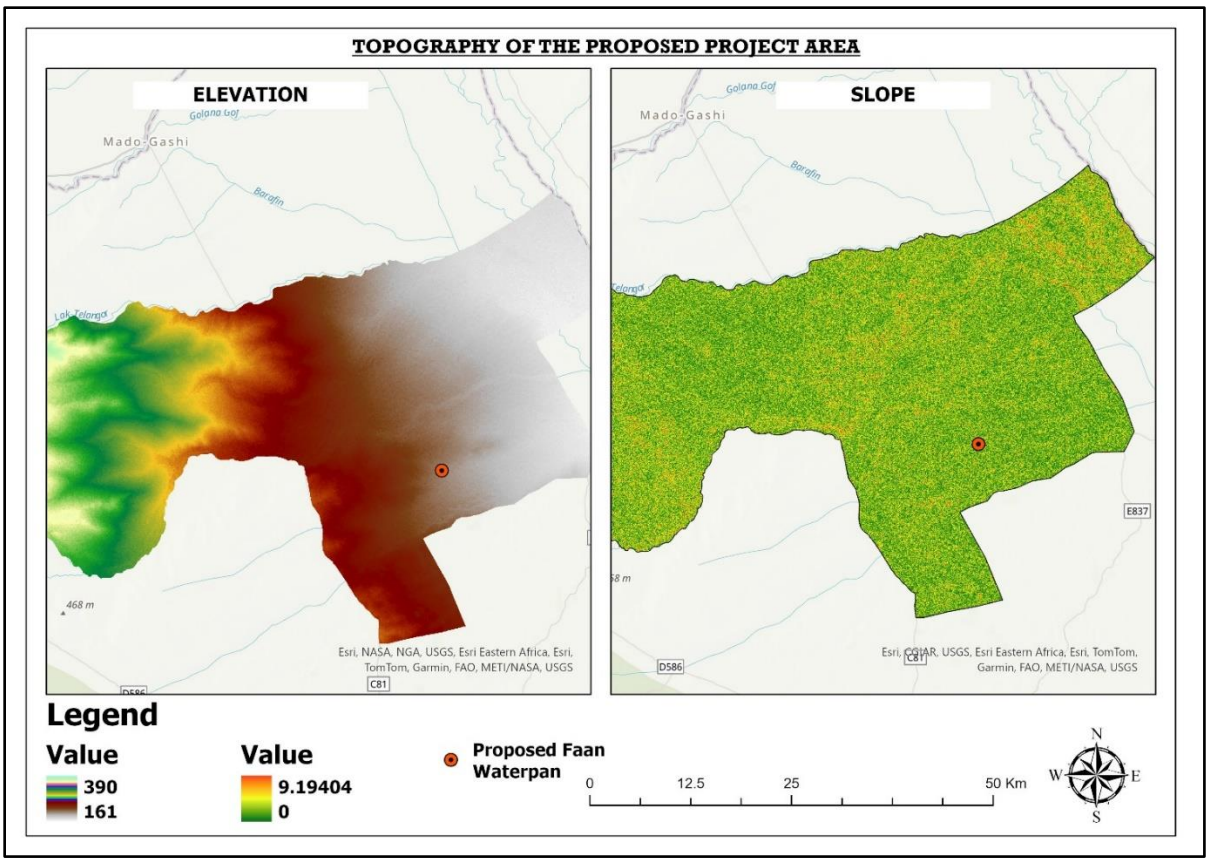

Figure 3:3: Topography and terrain of the area

3.3.2 Geology and Soils

Garissa County's geological composition is primarily characterized by sedimentary formations, which have accumulated over millions of years. These formations consist of diverse sediment types such as sandstones, shales, and mudstones, which have been deposited in environments associated with riverbeds, floodplains, and coastal regions, owing to the influence of major water bodies like the Tana River, Ewaso Ngiro, and Lorian, along with their tributaries

The proposed project area exhibits diverse geological and soil characteristics that influence land use, water retention, and overall site suitability. The soil composition varies across the project site, with predominant very clayey soils concentrated in the central and southern sections. These clay-rich soils have low permeability, making them highly effective for water retention, which is advantageous for the construction of the proposed water pan. In contrast, sandy and loamy soils are present in the northern and western areas, characterized by better drainage but lower moisture-holding capacity.

The project area consists of two primary lithological formations, The alluvium-fluvial deposits – Found mainly in the northern and northeastern parts of the site, these deposits consist of unconsolidated sediments transported by rivers and seasonal streams. The Non-Carbonate Rock Formations – Covering the central and southern sections, these formations

are composed of weathered non-carbonate materials. The presence of highly clayey soils in the designated project area enhances its suitability for water storage, as these soils naturally reduce seepage.

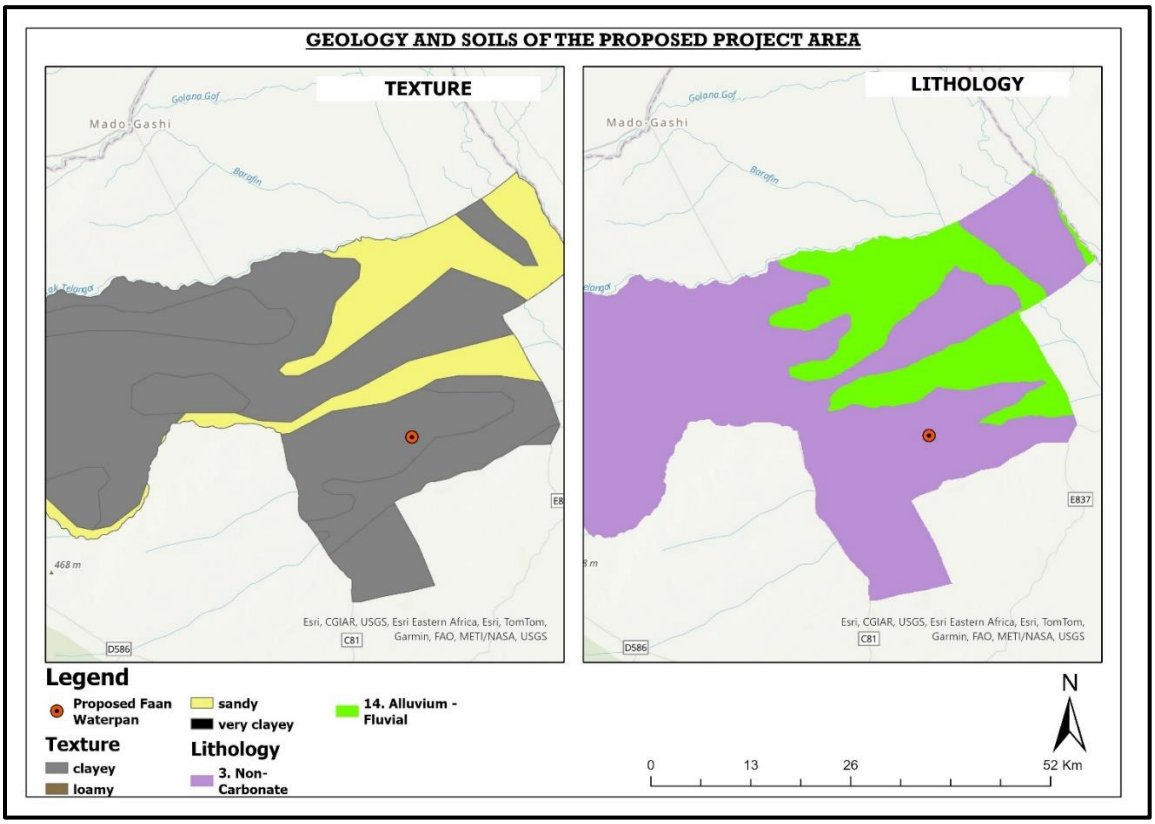

Figure 3:4: Soil map of the project area

3.3.3 Biodiversity

The Baraki area is characterised by a vast patchwork of savanna, seasonally flooded grassland, fragments of acacia woodland the small seasonal rivers and the Ewaso Ngiro. The project area is characterized by a semi-arid environment that supports a range of plant and animal species adapted to harsh climatic conditions. The vegetation primarily consists of drought-resistant trees, shrubs, and grasses, which provide essential resources for both wildlife and livestock. *Acacia tortilis* (Umbrella Thorn Acacia) is the dominant tree species, offering shade and fodder, while shrubs such as *Commiphora spp.* and *Salvadora persica* thrive in areas with slightly higher moisture retention. The ground cover includes a mix of perennial and annual grasses such as *Cenchrus ciliaris* and *Eragrostis spp.*, which are critical for grazing, especially during the wet season however the presence of Prosopis juliflora tends to threaten native vegetation.

The fauna within the project area includes both domesticated livestock and a variety of wildlife. The predominant livestock species are camels, goats, sheep, and cattle, which form the backbone of the local pastoral economy. Wildlife is relatively sparse due to the environmental conditions and human activity, but species such as gazelles, warthogs, and

occasionally giraffes can be found in less disturbed areas. Small mammals like hares and mongooses, along with reptiles such as puff adders and sand boas, are also present. The area supports diverse bird species, including weaver birds, hornbills, doves, and raptors such as hawks and eagles. Additionally, various insects, including pollinators like bees and butterflies, contribute to the ecological balance. From the project point of view, there are no known flora or fauna listed in the IUCN red list that are likely to be affected by the proposed project.

Figure 3:5: Project Environment

3.3.4 Climatic Conditions

The project area in Baraki experiences a semi-arid climate characterized by high temperatures and low, erratic rainfall. The region has two rainfall seasons, with short rains occurring between October and December and long rains between March and May. However, the total annual rainfall is low, averaging between 250 mm and 500 mm, and is highly unpredictable both in distribution and intensity. Prolonged drought periods are common, significantly affecting water availability, vegetation cover, and livestock productivity.

Temperatures in the area are generally high throughout the year, with daily temperatures ranging between 20°C and 38°C. The hottest months typically fall between January and March, while relatively cooler temperatures occur in June and July. High evaporation rates due to intense heat exacerbate water scarcity, making surface water bodies temporary and

unreliable. Humidity levels are generally low, and strong winds, especially during dry seasons, contribute to dust storms and further loss of soil moisture.

3.4 Socio-economic Environment

3.4.1 Population

According to the 2019 Kenya Population and Housing census the total population of Garissa County is 841,353. The male population stands at 458,975 while the female population stands at 382,344. The Project will be located in Afwein location where the total population was estimated at 4,569; with 2,122 males and 2,446 females dwelling in 782 households. translating to a population density of 3 persons per square kilometre.

Figure 3:6: Settlements in the project area

3.4.2 Water and Sanitation

The community in Afwein faces significant water and sanitation challenges, primarily due to water scarcity and inadequate sanitation facilities. The primary water source for the community is a saline borehole located approximately 10 kilometers from the village making it unsuitable for human consumption, forcing residents to seek alternative water sources, often at great distances from seasonal rivers.

Over 80% of the population in Garissa County experiences water shortages, with households spending an average of four to six hours daily fetching water. The proposed Faan Water Pan is designed to store 42,000 cubic meters of rainwater, providing an essential water supply for approximately 1,000 people and over 15,000 livestock. This reservoir is expected to sustain the community for six to eight months following the rainy season, significantly alleviating water scarcity.

Sanitation in the area is also inadequate, with a huge population practising open defecation due to a lack of latrines. This contributes to high incidences of waterborne diseases such as diarrhoea and typhoid, which account for 35% of clinical visits.

3.4.3 Land Use

Garissa County is predominantly characterized by a dry, arid landscape with limited vegetation. The primary land use in this region revolves around pastoralism, with local communities relying heavily on livestock grazing as their main economic activity. The main livestock breeds include Boran cattle, Galla goats, black-headed Persian sheep, and one-humped dromedary camels. Key livestock products are meat, milk, hides, and skins.

Given the harsh climatic conditions, water sources are scarce, making the proposed water pan a vital resource for both human and animal populations. Human settlements in the area are sparse, with small, scattered communities that depend on seasonal water availability. Garissa town, the nearest urban centre, serves as a commercial and administrative hub for the region. Due to the limited water supply and arid soil conditions, agricultural activities are minimal, with only small-scale farming occurring near existing water sources.

Additionally, the landscape features seasonal rivers that provide temporary relief during the rainy season, but these water bodies often dry up, exacerbating water scarcity. The presence of the Bora'ana Wildlife Conservancy in the broader region highlights the coexistence of human activities and conservation efforts, indicating that wildlife roams the area, potentially competing for available water resources.

4 NATIONAL POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 General Overview

This chapter looks at the policy, legal and institutional framework that governs environmental and social management of the proposed Faan water pan project.

4.2 Policy Framework

4.2.1 Kenya Constitution 2010

Article 42 states "every person has the right to a clean and healthy environment, which includes the right a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69, and b) to have obligations relating to the environment fulfilled under Article 70". Chapter 5 provides the main pillars on which the 77 environmental statutes are hinged and covers "Land and Environment" and includes the aforementioned articles 69 and 70. The Chapter seeks to eliminate processes & activities likely to endanger the environment.

In this ESIA SPR and the ESMMP the proponent has taken prior measures in ensuring the project contributes to a clean and healthy environment for the community in Baraki ward. Through the ESMMP proponent has captured all the concerns raised through the public participation and consultations for redress.

4.2.2 Vision 2030

Vision 2030 is being implemented through a series of five-year Medium-Term Plans (MTP). The MTP identifies the key policy actions and programmes for each Ministry Department and Agency (MDA). The overall goal of the Environment, Water and Sanitation Sector as outlined in the Vision is to attain a "clean, secure and sustainable environment" by 2030. Kenya vison 2030 includes equity as a recurrent principle in economic, social and political programmes. Special attention has been given to investment in arid and semi-arid (ASAL) counties, communities with high incidence of poverty, unemployed youth, women, and all vulnerable groups.

The implementation of the proposed water project is an effort to increase agricultural productivity investing in water for irrigation and livestock.

4.2.3 National Gender and Development Policy, 2000

The policy outlines the national agenda for gender equality and how Kenya intends to realize these ideals. The National Gender and Development Policy, 2000 purposes to promote the constitution national values and principles of governance.

This Policy will be applied in project implementation especially during hiring of staff to be involved in the project, procuring of suppliers, sub consultants and sub-contractors. The project will strive to achieve equality of opportunity and outcomes with respect to access to and control of national and county resources and services; and equality of treatment that meets the specific and distinct needs of different categories of women and men.

4.2.4 Policy on Gender and Sexual Based Violence 2017

The purpose of this policy is to put in place a framework to accelerate implementation of laws, policies and programmes for prevention and response to SGBV. The overall objective of the policy is to progressively eliminate sexual and gender-based violence through the development of a preventive, protective, supportive and transformative environment.

The project proponent has put in place plans through the ESMMP to develop and implement a SGBV action plan with an Accountability and Response Framework as part of the Contractor-ESMP (C-ESMP) and administration of the whole project cycle.

4.2.5 The National Environmental Sanitation and Hygiene Policy-2016-2030

The Policy is devoted to environmental sanitation and hygiene in Kenya as a basic right, public service and an economic good with major contribution to the dignity, health, welfare, social well-being and prosperity of all Kenyan residents. It demands the scaling up of access to improved rural and urban sanitation facilities by county governments as sanitation is a devolved function.

The implementation of the Policy will greatly increase the demand for sanitation, hygiene, food safety, improved housing, use of safe drinking water, waste management, vector control at the household level and encourage communities to take responsibility for improving the sanitary conditions of their immediate environment.

Under Policy Strategy # 2: assuring clean and healthy environment free from public nuisances, it demands adequate systems for managing wastewater treatment and seeks the protection of wetlands and water courses under threat from indiscriminate disposal of waste through provision of adequate targeted services in areas close.

The proposed project already covers this through the initiative to construct new sanitation facilities at the water pan to avoid contamination of the water source.
The water pan also contributes towards achievement of this policy through provision of safe water to area residents for livestock and domestic consumption.

4.2.6 National Food and Nutrition Security Policy (NFSP)

It is the policy of the Government that all Kenyans should enjoy at all times safe food and water in sufficient quantity and quality to satisfy their nutritional needs for optimal health. Access to food and safe water is linked to national security, development and contributor to rural income. The lack thereof water is seen as prohibitive to food security, thus

government pledge to promote and support sustainable water management systems and investment in infrastructure, including water storage facilities.

The upgrading of the water pan is a major contribution towards meeting the objectives of the policy including achieving food security and rural income. Local farmer will enhance productivity of dairy cow (milk) value chain through the provision of water.

4.2.7 The BETA Agenda

The BETA Agenda, as espoused in the Kenya Kwanza manifesto, was meant to provide inclusive growth so that even the mama mboga and bodaboda can feel the growth. A hustler fund was launched to rehabilitate the majority of these individuals so that their credit scores can be worthy before financial institutions.

Water system as an enabler for this and driver of economic growth and food security.

4.2.8 National Environment Policy (NEP) 2013

The policy sets out important provisions relating to the management of ecosystems and the sustainable use of natural resources, recognizing fresh waters are part of the country's critical ecosystems due to their capacity to store water for various uses.

Under water and sanitation as a key aspect of environmental quality and health, the policy notes that Seasonal and regional water scarcity exacerbates the difficulty to improve water supply. The government therefore pledges to improve the management and conservation of water supply sources.

It also requires infrastructural projects to undergo Environmental and Social Impact Assessment. In addition, public participation in the planning and approval of the proposed project is mandatory.

Further the proposed project helps assist the government meet its obligation towards improve the management and conservation of water supply sources.
The project will also fully comply with this policy through optimal utilization of resources in improving the quality of human environment.

4.2.9 The National Land Use Policy (NLUP) - Sessional Paper, No. 1 of 2017

The National Land Use Policy guides Kenya towards an environmentally and socially responsible use of land and allied resources for socio-economic transformation of the people of Kenya. Its mission is to promote best land use practices for optimal utilization of the land resource in a productive, efficient, equitable and sustainable manner. The principal objective of the NLUP is to provide legal, administrative, institutional and technological framework for optimal utilization and productivity of land and land related resources in a sustainable and desirable manner at National, County and Sub- County and other local levels.

The proposed project will contribute to achievement of this policy's mission through implementation of sustainable land management practices such as tree planting, terracing and storm water harvesting.

4.2.10 Kenya National Youth Policy 2006

This Policy aims at ensuring that the youth play their role alongside adults in the development of the Country. The National Youth Policy visualizes a society where youth have an equal opportunity as other citizens to realize their fullest potential.

The proposed Water pan development Project will provide direct employment to the youth as required by the Policy. The Youth Employment Programme will be used in the implementation of the ISLMP in the Faan watershed.

4.2.11 National Policy on Water Resources Management and Development - Sessional Paper Number 1 of 1999.

The National Water Policy of Kenya was developed in 1999 as the National Policy on Water Resources Management and Development (NWP 1999) and was amended in 2012 (draft still). The NWP 1999 aims to achieve sustainable development and management of the water sector by providing a framework and policy direction for the sector: Treat water as a social and economic good; Preserve, conserve and protect all available water resources and allocate it in a sustainable, rational and economical way; Supply of water of good quality and in sufficient quantities to meet the various water needs including poverty alleviation, while ensuring safe disposal of wastewater and environmental protection etc.

Construction of Faan water pan is an initiative towards Water Resources conservation and meeting government's obligation towards supply of water of good quality and quantities to its citizens for poverty alleviation.

4.2.12 The National Occupational Safety and Health Policy, 2012

The main objective of this policy is to establish National occupational safety and health systems and programmes geared towards the improvement of the work environment. The Policy seeks to reduce the number of work-related accidents and diseases, and equitably provide compensation to those injured at work or who contract occupational diseases. It thus requires employers to ensure safety and health at workplace, establishment of safety and health committees at workplaces, conduct training on occupational safety and health and report accidents, diseases and other dangerous occurrences to relevant authorities.

The contractor will be given a copy of the ESMP to develop contractor-ESMP for compliance during construction including provision of PPE, erection of signages at critical points, sealing the pan construction area to avoid unauthorized entry and accidents

4.2.13 National Land Policy

The Policy designates all land in Kenya as Public, Community or Private. Through the policy, the government will ensure that all land is put into productive use on a sustainable basis by facilitating the implementation of key principles on land use, productivity targets and guidelines as well as conservation.

The land in use is classified as community and reserved for purposes of the water pan. Construction of the pan ensures the land is put into productive use.

4.2.14 Garissa County HIV and AIDS Strategic Plan 2016/2019

The Garissa County HIV and AIDS Strategic Plan 2016/2019 aims to reduce new HIV infections, improve care for those living with HIV, and address social and economic impacts. It focuses on prevention through education and testing, expanding treatment access, supporting affected populations, enhancing coordination among stakeholders, and implementing rigorous monitoring and evaluation. This comprehensive approach seeks to enhance health outcomes and well-being across the county.

The proponent will refer to this strategic plan in planning for implementation of measures in this SPR and ESMP on HIV/AIDS such as on stakeholders to engage in implementation and on objectives set in the strategic plan.

4.3 Relevant Legislative Framework

4.3.1 Environmental Management and Coordination Act (EMCA) 1999

According to legal Notice No. 31 & 32 of 2019, the Environmental Management and Coordination Act 1999 (NO. 8 of 1999) Amendments of the second schedule the proposed Construction of the Faan water pan is categorised a community project and low risk project. The new regulation provides for preparation and submission **of Summary Project reports (SPR)** for low-risk projects. Section 58 (1) of the act requires that the proponent of the low-risk project shall before commencement of the project prepare and submit to the Authority an environmental impact assessment through an EIA expert of the likely environmental impacts of the project for approval

In carrying out the ESIA and preparing this SPR the requirements of these regulations and those of the African Development Bank Environmental and Social Safeguards have been integrated and followed throughout the process. The proponent did the screening and scoping then as advised by the NEMA office commissioned this SPR. The proponent will observe the guidelines as set out in the ESMMP laid out in this SPR in the avoidance of adverse impacts arising from the project activities.

4.3.1.1 EMCA (Waste Management Regulations 2006)

This regulation gives guidelines on both operational and administrative activities that are used in handling, packaging, treatment, condition, storage, and disposal of waste and is implemented by NEMA. It prohibits anyone from disposing of any waste on any part of

the environment except in designated waste receptacle or facility provided by the relevant authority which may be legitimate dumpsites or landfills. Since the proposed project will generate waste in form of waste soils and other solid wastes this act provides for the waste generator to be responsible for the collection, segregation at source and proper disposal of their wastes.

In this SPR and the ESMMP the proponent has provided measures for managing waste generated through the proposed project. Measures to be undertaken for proper waste disposal include clearance of non-reusable and recyclable waste and disposing off in designated disposal site. Reusing excavated soil for water pan wall.

4.3.1.2 EMCA (Noise & Excessive Vibration Pollution Control Regulations, 2009) Legal Notice 61

This regulation prohibits any person from causing unreasonable, unnecessary, or unusual noise which annoys, disturbs, injures, or endangers the comfort, repose, health or safety of others and the environment. Part 11 section 6 (1) provides that no person shall cause noise from any source which exceeds any sound level as set out in the First Schedule of the regulations. It gives standards for maximum permissible noise levels for construction sites, mines, and quarries.

The proponent through this SPR has established all the sources of noise and vibrations and has provided appropriate mitigation measures for compliance with outlined maximum levels provided for in this regulation. The chosen contractor will implement the measures provided for in the ESMMP (such as provision of ear muffles to workers and switching off engines or machinery when not in use)

4.3.1.3 EMCA (Water Quality) Regulations, 2006

These Regulations apply to drinking water, water used for industrial purposes, water used for agricultural purposes, water used for recreational purposes, water used for fisheries and wildlife, and water used for any other purposes. Section 4 of the regulation which focusses on the protection of sources of water by preventing any form of pollution. Section 6 (1) of the regulation states that no person shall abstract groundwater or carry out any activity near any lakes, rivers, streams, springs and wells that is likely to have any adverse impact on the quantity and quality of the water, without an EIA license issued in accordance with the provisions of the Act.

The Proponent has adhered to the provisions of this regulation to protect the proposed water resource from all possible sources of pollution during the construction and operation phase by carrying out this ESIA. The proponent has outlined water quality control measures in this SPR including proper waste disposal measures for oil spills and other wastes, proposed fencing of water pan area, and provision of livestock troughs and communal water drawing point.

4.3.1.4 EMCA (Air Quality) Regulations, 2008.

The objective of these regulations is to provide for prevention, control, and abatement of air pollution to ensure clean and healthy ambient air. The regulations provide for compliance with emission standards for various sources of air pollution including mobile sources (e.g. motor vehicles) and stationary sources (e.g. industries) as outlined in the Environmental Management and Coordination Act of 1999.

The proponent by this SPR and the ESMMP will ensure compliance with air quality regulations by enforcing all the proposed preventive and mitigation measures in the ESMMP e.g. proposed water sprays and mists to suppress dust, regular maintenance of vehicles and avoiding unnecessary vehicle and machinery movement.

4.3.1.5 Environmental Management and Co-Ordination (Fossil Fuel Emission Control) Regulations, 2006

These Regulations set out emission standards for internal combustion engines and provide for the licensing of persons who treat fuel and for the appointment of environmental inspectors for purposes of emission inspection.

It states that any person who operates or owns an internal combustion engine and permits it to be operated upon any road, street, public highway or any premises, which emits smoke or other air contaminants in excess of emission standards set out in the First Schedule makes an offence

All vehicles on site will be regularly serviced and maintained to ensure the set standards/limits for emissions are not exceeded.

4.3.2 The Water Act, 2016 (The National and Storage Regulations, 2019)

This Act provides for the regulation, management and development of water resources and water and sewerage services in line with the Constitution.

The ACT establishes the Water Resources Authority ("Authority") among other institutions.

According to the regulations under this **ACT,** prior to constructing the waterworks, the owner or developer or other person charged with the mandate of developing, managing and or maintaining waterworks shall – **(a)** *Apply for and obtain a water use permit under the Water Resources Regulations 2019, and (b) Apply for and obtain an environmental impact assessment license under the Environmental (Impact Assessment and Audit) Regulations 2003 made under Environmental Management and Coordination Act 2015.* Works to be designed by Qualified Water Resources Professional. Works to be constructed by the appropriate category of contractors.

A monitoring and evaluation system for optimal use of the works to be put in place for safety, health, and environmental conservation. The developer to implement any other

measures necessary for the safe operation management of the waterworks according to the provisions of this regulation.

The Proponent has undertaken the ESIA and developed this SPR as required by the provisions of the water act 2016. The proponent has undertaken hydrological assessment of the proposed Faan water pan during project design. This SPR has advised the proponent to obtain a written authorization/permit for the construction work. The Proponent will apply for the water use permit after the completion of the pan and once filled with water.

4.3.2.1 Water Resources Management (Water) Rules 2006

Requires persons intending to or currently undertaking any of the water use activities including construction of works to obtain approval from the Authority to undertake the activity

The project shall apply and receive an authorization to construct works.
Once construction commences supervision, management, and monitoring of the water pan shall be in line with the regulation classification of the water pan as low risk. After the successful implementation and operationalization of the project observations, surveillance, inspections, and continuing evaluation are required to assure the satisfactory performance of the water reservoir.

4.3.3 The Public Health Act (Cap. 242)

Section 115 of the Act states that no person/institution shall cause a nuisance or condition liable to be injurious or dangerous to human health. The law requires that all lawful, necessary, and reasonably practicable measures be taken to maintain areas under jurisdiction clean and sanitary to prevent the occurrence of nuisance or condition liable for injurious or dangerous to human health.

The proponent through this SPR and the ESMMP has defined the necessary measures to prevent the occurrence of condition liable for injurious or dangerous to human health during the construction and the operation phase of the project. Proposed measures include ensuring OHS during construction; dust management through watering of ground; proper disposal of unrecyclable or unreusable waste; and in operation, safe use of agricultural chemicals and water pollution control.

4.3.4 The Physical Planning and Land Use Planning Act, 2019

The objectives of the Act are to provide the principles, procedures, and standards for the preparation and implementation of physical development plans at the national, regional, county, urban, and rural and cities level and provision of the procedures and standards for development control and the regulation of physical planning and land use.

The proposed project is located in Faan watershed and is in harmony with existing land uses. By this SPR and the ESMMP the proponent has taken adequate measures such as waste water management, SLM such as terracing among others to ensure sustainable use of the land and water resource.

4.3.5 Penal Code (Cap. 63)

This act addresses commission of offenses that are punishable by law. Section 191 of the Penal Code provides that any person or institution that voluntarily corrupts or fouls water for public springs or reservoirs, rendering it less fit for its ordinary use shall be guilty of an offense.

The proponent in this SPR has identified all the relevant legislations in the proposed water pan upgrading project and demonstrated compliance and on how further compliance will be attained.

4.3.6 The Occupational Health and Safety Act, 2007

This requires that workplaces be kept safe for workers therein. Workers who are exposed to wet or any injurious or offensive substances are required under Section 101 of the Act to be provided with suitable protective clothing. The Act also generally provides for safety and health policies and programmes, workplace safety health and welfare conditions, occupational health and hygiene and welfare conditions.

In this SPR in the ESMMP the proponent has put in place measures to be observed by the contractor during the construction and operation phase of the project to ensure the health and safety of workers and the community. The proponent will share the ESMMP with the contractor to enable the latter to develop a C-ESMMP which will be strictly followed during construction. A comprehensive occupational health and safety audits will be carried out periodically to ensure compliance with this Act.

4.3.6.1 Fire Risk Reduction Rules, 2007

The rules require installation of electrical equipment in accordance with the respective hazardous area classification system. All flammable materials are stored in appropriately designed receptacles, electrical equipment is inspected after six months by a competent person and the Proponent is required to keep records of such inspections, installation and maintenance of firefighting systems in workplaces, fire drills at least once a year, assembly points be marked, undertake annual fire safety audits etc.

The contractor will be required to store all flammable materials and liquids safely to avoid risk of fire.

4.3.6.2 Medical Examination Rules of 2005

It requires workers on site to undergo regular medical examination to identify the symptoms of hazardous exposures on the body, especially those who handle food or food products. This is with a sole purpose of monitoring exposure for remedial action.

The contractor will institute and implement regular medical examinations for its staff at the facility.

4.3.7 Employment Act, 2007

Section.3. (1) States that this Act shall apply to all employees employed during the project implementation under a contract of service. Section 5 (3) demand that no employer shall discriminate directly or indirectly, against an employee or prospective employee or harass an employee or prospective employee on grounds of race, colour, sex, language, religion, political or other opinions, nationality, ethnic or social origin, disability, pregnancy, mental status or HIV status.

The Proponent through the contractor will make sure that fairness and gender equity are followed during the recruitment of the labour force to be used during the construction phase. Preference will be given to the local community for both skilled and unskilled labour.

4.3.8 Work injury benefits Act, 2007

Section.7. (1) Require that the proponent to obtain and maintain an insurance policy, in respect of any liability that the employer may incur under this Act to any of his employees.

The proponent will ensure the engaged contractor is qualified, registered and licensed for the excavation of the water pan; and should ensure that those employed are well insured. The contractor will also provide requisite PPEs to the workers and the latter will always be required to wear these.

4.3.9 National Construction Authority Act (2011)

The National Construction Authority Act, Number 41 of 2011 streamlines, overhauls and regulates the construction industry in Kenya. The Act contains provisions on the quality and safety standards of any construction work.

The Proponent will ensure the engagement of a registered and qualified contractor as required under the water act for the construction of the project. The proponent will ensure that regular site meetings by all the relevant stakeholders are held to oversight the work. The work site will be registered with Director of Occupational Safety and Health (DOSH)

4.3.10 National legal provisions on Gender, HIV/AIDS and Gender Based Violence (GBV) and Sexual Exploitation and Abuse (SEA)

4.3.10.1 The Sexual Offences Act of 2006 (The Sexual Offences (Amendment) Bill, 2016)

This is an Act of Parliament to make provision about sexual offences, their definition, prevention and the protection of all persons from harm from unlawful sexual acts, and for connected purposes. Makes provision about sexual offences aims at prevention and the protection of all persons from harm from unlawful sexual acts and for connected purposes. Section 15, 17 and 18 focuses mainly on sexual offenses on minor (children).

The Proponent will develop and implement a Sexual Exploitation and Abuse (SEA) Action Plan, including an Accountability and Response Framework (ARF), as an integral part of the Construction Environmental and Social Management Plan (C-ESMP). This plan will be guided by the provisions of the Sexual Offences Act, 2006 (as amended in 2016), which defines and criminalizes a wide range of sexual offences, particularly those involving minors, and aims to protect all persons from unlawful sexual acts.

In line with the African Development Bank's Integrated Safeguards System (ISS) and relevant national policies, the SEA Action Plan will establish measures for preventing, mitigating, and responding to SEA/SH (Sexual Exploitation, Abuse, and Harassment) risks during project implementation. It will include awareness and sensitization campaigns for workers and communities, a confidential grievance and reporting mechanism, and clear procedures for case management and referral, ensuring compliance with both AfDB standards and good international industry practice.

4.3.10.2 HIV and AIDS Prevention and Control Act No. 14 of 2006

This legislation provides measures for the prevention, management and control of HIV and AIDS, to provide for the protection and promotion of public health and for the appropriate treatment, counselling, support and care of persons infected or at risk of HIV and AIDS infection, and for connected purposes.

Among the purposes of this Act as outlined in section 3 (a) is to promote public awareness about the causes, modes of transmission, consequences, means of prevention and control of HIV and AIDS; and (d) to positively address and seek to eradicate conditions that aggravate the spread of HIV infection. Section 7 makes provision for HIV and AIDS education in the workplace in this case even the informal workplace is included.

This proponent in this ESIA SPR has captured HIV/AIDS as a risk in the proposed project and through the ESMMP provided adequate measures. The HIV Policy will be complied with during implementation of the Project; the Contract will incorporate in Bid Document and implement HIV awareness initiatives during construction of the Project.

4.3.11 The National Museums and Heritage Act 2006

The National Museums and Heritage Act, 2006 provides the legal framework for the identification, protection, conservation, and promotion of Kenya's cultural and natural heritage. It mandates the safeguarding of heritage resources including archaeological sites, cultural landscapes, monuments, and traditional practices, and repeals earlier laws such as the Antiquities and Monuments Act and the National Museums Act.

In line with the **African Development Bank's Operational Safeguard 1 (OS1): Environmental and Social Assessment**, which requires the protection of physical cultural resources during project implementation, the Proponent will ensure that all activities respect and preserve both tangible and intangible heritage.

*The **Contractor will implement a Chance Find Procedure** in the event that previously unidentified heritage resources are discovered during construction. This procedure, guided by Kenyan legal requirements and AfDB safeguard principles, outlines the steps for reporting, securing, and handling such discoveries to prevent damage or loss. (See Appendix VII for Kenya's Chance Find Procedure.)*

4.3.12 Malaria Prevention Act (CAP 246)

Article **23.** (1) of the Act states unless with the written consent of a health authority, a person shall not, within an area subject to the control of a health authority— *(a)* build or maintain a dam or other construction so as to obstruct the flow of water into or out of a drain under the control of the health authority; *(b)* alter the level of water so as to reduce the flow of water; or *(c)* construct a step, bridge or platform over a drain under the control of a health authority. 24. (1) A person shall not, within an area subject to the control of a health authority, plant trees or cultivate land in such a manner as is likely, in the opinion of a health authority, to obstruct the flow of water in, into or out of a drain or culvert under the control of a health authority.

The Proponent has adequately provided measures (such as sensitize the community on use of treated mosquito nets, local spraying and bush clearing near households) for the prevention and control of malaria.

4.3.13 County Government Act No. 17 of 2012

The Act provides for county governments' powers, functions and responsibilities to deliver services and for connected purposes. It covers matters of planning, placing the responsibility of planning within counties and mandating them to coordinate integrated development planning. One of the objectives of county planning is to ensure productive use of scarce land, water and other resources for economic, social, ecological and other functions across a county.

PART VIII of the Act provides for a wide variety of matters relating to public administration at local level including Citizen Participation principles such as timely access to information, data, documents, and other information relevant or related to policy formulation and implementation among others.

The proposed project is taking place on land planned and set aside for water resources purposes by the county.

The Proponent has complied with the principle of citizen participation as the identification of this project is through a community Participatory Integrated Community Development (PICD) process. Further the community was involved through the planning, screening, designing and ESIA process. The proponent will continue to engage the community throughout the project cycle.

4.3.14 Land Act 2012

It is the substantive law governing land in Kenya and provides legal regime over administration of public and private lands. It also provides for the acquisition of land for public benefit. The government has the powers under this Act to acquire land for projects, which are intended to benefit the general public.

This Act provides for the procedure to be followed during compulsory acquisition of land by the Government and the just compensation which should be paid promptly and in full to all persons whose interest in land has been affected.

The water pan is constructed located on a land parcel that is categorized as community land held in trust by the County Government of Garissa and therefore no land acquisition is anticipated.

4.3.15 Energy Act 2019

PART VIII provides for energy efficiency and Conservation of energy resources. The Act advocates for project owners to develop, promote and manage in collaboration with other agencies, the use of renewable energy and technologies.

The project complies through an inbuilt solar system for the shallow well- comprising of a solar pump delivering water to elevated plastic water tanks complete with all its accessories, pipes, controllers, and solar panels.

4.3.16 The Standards Act CAP 496

This Act promotes the standardization of the specification of commodities, and provides for the standardization of commodities and codes of practice to ensure public health and

safety. It establishes the Kenya Bureau of Standards (KEBS) and defines its functions as related to:

- promotion of standardization in industry and commerce; and
- Making arrangements or provision of facilities for the testing and calibration of precision instruments, gauges and scientific apparatus, for the determination of their degree of accuracy by comparison with standards approved by the Minister on the recommendation of the Council, and for the issue of certificates in regard thereto.

This means that the contractor under the supervision of the county engineer will ensure that all materials used on site adheres to the highest standards and do not pose any human health and safety risk.

4.3.17 Climate Change Act number 11 of 2016

An act for the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development. It requires national and county governments to mainstream climate change responses into development planning, decision making and implementation and to build resilience and enhance adaptive capacity to the impacts of climate change. In this it pushes for mainstream intergenerational and gender equity in all aspects of climate change responses.

The Construction of the water pan is in response to the national and government obligation to enhance community adaptation to climate change and enhance resilience to droughts through provision of water for livestock purposes.

4.3.18 HIV and AIDS Prevention and Control Act 2011

The objective and purpose of this Act is to promote public awareness about HIV and AIDS as well as protect the human rights and civil liberties of any person suspected or known to be infected with the virus.

Section 31 prohibits any form of discrimination against qualified employees, on the basis of actual, perceived or suspected HIV status unless the employer can prove to a tribunal that the job requires a particular state of health or medical or clinical condition.

The contractor will sensitize workers/community on HIV/AIDs as well as other measures such as provision of condoms on site during construction.

Voluntary Counselling and Testing (VCT) services will be provided by the contractor. The results will be private and not disclosed to any third party. Fair employment practices will be followed.

4.4 Institutional Framework

4.4.1 County Government of Garissa

Water is a devolved function as per the Constitution of Kenya, 2010. The Fourth Schedule of the Constitution outlines the distribution of functions between the national and county governments. Specifically county governments are responsible for water and sanitation services, including the implementation of specific national government policies on natural resources and environmental conservation, including soil and water conservation.

The County Government will be responsible for approving the designs of the proposed water pan Construction project and supervision of the construction works to ensure the ESMP is adhered to. Its various departments will inspect the site on regular basis to ensure provisions e.g., on public health are adhered to by the contractor and proponent.

4.4.2 Program to Build Resilience for Food and Nutrition Security in the Horn of Africa (BREFONS)

The Building Resilience for Food and Nutrition Security in Kenya (BREFONS Kenya) Project is responsible for the day-to-day implementation of activities in Garissa County. The project conducts participatory monitoring and evaluation with local communities to ensure accountability and effectiveness. BREFONS Kenya plays a key role in conflict resolution facilitation, promotes social inclusion, and ensures that all interventions are technically sound, environmentally sustainable, and aligned with sustainable development goals.

The project places deliberate focus on mainstreaming gender equality, empowering marginalized and disadvantaged groups, and integrating HIV/AIDS awareness and prevention across all project components.

Under the water infrastructure component, BREFONS Kenya supports the construction and effective management of water pans to address community water needs domestic use, livestock watering, and small-scale irrigation. The programme ensures that local communities actively participate in the monitoring and evaluation of water pan projects, aligning outcomes with community priorities and strengthening local ownership and sustainability of water resources.

4.4.3 African Development Bank (AfDB)

The African Development Bank (AfDB) requires all projects it finances to undergo thorough Environmental and Social Impact Assessments (ESIAs) to ensure that potential environmental and social risks are effectively identified, assessed, and mitigated. These assessments are anchored in the Bank's Integrated Safeguards System (ISS), which provides a comprehensive framework for managing environmental and social risks throughout the project lifecycle.

In Kenya, AfDB-funded projects must comply not only with the ISS requirements but also with the provisions of the Environmental Management and Coordination Act (EMCA) Cap 387, which is the primary environmental legislation governing ESIAs in the country. This means that all ESIA studies must be prepared in line with National Environment Management Authority (NEMA) regulations, including submission for review and approval before project implementation can proceed.

A critical component of the AfDB ESIA process is public participation and stakeholder engagement. This ensures that communities, including women, youth, marginalized and vulnerable groups, are actively involved in identifying potential risks and shaping project interventions. The process also emphasizes the preparation of Environmental and Social Management Plans (ESMPs), which outline mitigation measures, monitoring responsibilities, and institutional arrangements necessary for effective implementation.

All ESIA reports for AfDB-funded projects are subject to mandatory disclosure, both locally and on AfDB platforms, typically for a period of at least 30 days prior to project appraisal. This reinforces transparency and strengthens the accountability of project implementers.

By harmonizing AfDB's safeguard policies with Kenya's ESIA requirements, projects are better positioned to meet both national environmental standards and international best practices, thereby ensuring long-term social, economic, and environmental sustainability.

4.4.4 Water Resources Authority (WRA)

The objective of WRA is to protect, conserve, control and regulate the use of water resources through the establishment of a national water resource strategy. In addition, the WRA is responsible for: formulation and enforcement of standards, procedures and regulations for the management and use of water resources; policy development; planning and issuing of water abstraction permits; and setting and collecting permits and water use fees.

The proponent has engaged WRA in undertaking hydrology assessment for the proposed project. As per the requirement of the WATER ACT (No. 43 of 2016)-The National and Storage Regulations, 2019 the proponent has applied for the water use and works permit from WRA.

4.4.5 Water Resource Users Association (WRUA)

WRUAs are local community institution established under the Water Act, which work with WRA to manage water resources at the grass-root level. The county in partnership with WRA will support the establishment of WUAs to support management of water resources in the project area.

The proponent will collaborate with the established WUA for effective and successful implementation of management of the proposed water project and efficient utilization of the water and activities such as tree planting in the Faan watershed. WRA will undertake capacity building for the established WUA, Faan Water pan Management Committee to enhance sustainable management of the project and the catchment of the water pan.

4.4.6 National Environment Management Authority NEMA

The National Environment Management Authority (NEMA) exercises general supervision and co-ordination over all matters relating to the environment and is the principal instrument of Government of Kenya (GoK) in the implementation of all policies relating to the environment. Specific NEMA roles related to this project are:

- Review (in collaboration with other lead agencies) and prove approval or issuance of improvement comments on the project ESIA report.
- Issue ESIA license and the associated conditions
- Routinely monitor the ESMP, ESIA license conditions compliance and issuance of compliance note or stoppage or improvement orders to the project.

4.4.7 Department of Occupational Health and safety (DOSH)

Directorate of Occupational Safety & Health Services (DOSHS) is an Institution established under OSHA Act 2007 with a mandate of ensuring compliance with the provisions of the Occupational safety and health Act 2007 and promote safety and health of workers. The project contractor will register the site as a work place with DOSHS and also engage the directorate in handling work related accidents if any.

4.4.8 National Environmental Tribunal

Its principal function is to receive, hear and determine appeals on environmental matters. These mostly arise from decisions of the NEMA on issuance, denial or revocation of environmental impact assessment (EIA) licenses, among other decisions. Any disputes that may arise from licensing of this project will be heard by the tribunal.

4.4.9 Land and Environment Court

Established as a court of the same standing as the High Court, this will handle all environment disputes brought to it by any aggrieved party. The court is also however expected to advocate for application of alternative dispute resolution mechanisms

4.5 African Development Bank Environmental and Social Framework (ESF)

The African Development Bank (AfDB) Environmental and Social Framework (ESF) offers a structured and comprehensive approach to managing environmental and social risks in development projects. The Proposed Construction of the Faan Community Water Pan in Garissa County falls under the category of rural water infrastructure development an activity that must comply with both Kenya's Environmental Management and Coordination Act (EMCA), Cap 387, and the AfDB's Integrated Safeguards System (ISS).

This framework is essential for ensuring that the project is not only technically feasible and financially sound, but also environmentally sustainable, socially inclusive, and responsive to the needs and vulnerabilities of the local community.

The following outlines the **relevance of each of the five Operational Safeguards (OS)** under the AfDB ISS in the context of this water pan project:

4.5.1 OS 1: Environmental and Social Assessment

Relevance:

This safeguard ensures that a full Environmental and Social Impact Assessment (ESIA) is carried out to identify, predict, and evaluate the potential environmental and social effects of the water pan construction.

In Faan, this means evaluating impacts such as clearing of natural vegetation, changes to surface runoff, sedimentation, and disruption to traditional land use. It also includes community consultation, identifying vulnerable groups, and integrating their concerns into project design.

4.5.2 OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation

Relevance:

Although physical displacement is unlikely, the water pan may affect access to communal grazing land or alter traditional movement patterns for pastoralists.

This safeguard ensures that any potential economic displacement, loss of access, or land-use conflicts are addressed through participatory planning, livelihood restoration, and grievance redress mechanisms.

4.5.3 OS 3: Biodiversity and Ecosystem Services

Relevance:

The construction site may be home to native vegetation, important bird species, or seasonal water-dependent ecosystems.

This safeguard ensures that the project avoids or minimizes harm to local biodiversity, protects water catchment integrity, and prevents degradation of surrounding habitats. It supports practices like buffer zone creation, controlled excavation, and post-construction site restoration.

4.5.4 OS 4: Pollution Prevention and Resource Efficiency

Relevance:

During construction, risks of oil spills, construction waste, dust, and water pollution may arise.

This safeguard ensures proper waste disposal, dust suppression, equipment maintenance, and efficient use of materials and water. It promotes low-impact construction techniques and encourages reuse of excavated soils for embankment formation or agricultural improvement.

4.5.5 OS 5: Labour Conditions, Health and Safety

Relevance:

Labourers and local workers involved in construction must be protected from hazards such as equipment-related injuries, heat exposure, or unsanitary conditions.

This safeguard enforces decent working conditions, provision of personal protective equipment (PPE), occupational safety training, and community health measures, including HIV/AIDS awareness, gender-based violence prevention, and first aid preparedness.

4.5.6 Cross-Cutting Themes: Gender, Vulnerability, and Climate Resilience

The AfDB ESF emphasizes the need to mainstream gender equality, especially in water access and management. Special attention is given to women, youth, the elderly, persons with disabilities, and marginalized pastoralist groups.

Given the increasing frequency of droughts in Garissa, the project must also integrate climate-resilient design such as optimizing the pan's storage capacity, reinforcing embankments, and ensuring year-round usability.

4.6 International Conventions and Treaties

Kenya has ratified or acceded to numerous international treaties and conventions. Those that have implications on Project are described below.

4.6.1 Conservation of Biological Diversity (CBD) Regulations 2006

These regulations are described in Legal Notice No. 160 of the Kenya Gazette Supplement No. 84 of December 2006. These Regulations apply to the conservation of biodiversity which includes Conservation of threatened species, Inventory, and monitoring of BD and protection of environmentally significant areas, access to genetic resources, benefit-sharing and offenses and penalties.

The proposed project site is not habitat to any threatened or endangered species of flora or fauna. Therefore, it does not pose any threat to any plant or animal life in the project context. Through the ESMMP provided mitigation measures such planting of indigenous trees, establishment of community tree nurseries and catchment protection through community SLM practices the Proponent will contribute to flora and fauna conservation in the project area.

4.6.2 United Nations Convention to Combat Desertification, 1994

The convention addresses the problem of the degradation of land by desertification and the impact of drought, particularly in arid, semi-arid and dry semi-humid areas. This convention is domesticated in EMCA CAP 387.

The proposed SLM practices in the Faan watershed, tree nursery establishment and revegetation in this SPR by the proponent will contribute to the goal of this Convention.

4.6.3 Sustainable Development Goals (SDGs)

The goals relevant to the implementation of this project are; **Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture. **Goal 5:** Achieve gender equality and empower all women and girls. **Goal 6:** Ensure availability and sustainable management of water and sanitation for all.

Through this SPR the Proponent has shown that Faan Water pan water project will contribute to improvement in food and nutrition security, ensure readily availability of fresh water and improvement in sanitation through the proposed construction of latrines in the project site.

5 ANALYSIS OF PROPOSED PROJECT ALTERNATIVES

5.1 Introduction

This section analyzes the viable alternatives to the proposed Faan Community Water Pan project. The aim is to assess other options in terms of feasibility, cost, sustainability, environmental impact, and socio-economic benefits to determine the most appropriate course of action for improving water access in Faan Village.

5.2 Alternative Location

The current location within Faan Village was selected following a community sensitization and project prioritization exercise led by the Garissa County Government. Faan was identified as one of the four most water-stressed communities in the county, making it a high-priority intervention site under the BREFONS initiative.

In addition to community prioritization, technical teams comprising engineers and surveyors conducted a topographical survey in the area. The results of this survey confirmed that the proposed site in Faan Village offers optimal conditions for the construction of a water pan. Factors considered included natural drainage patterns, surface runoff potential, soil suitability, proximity to beneficiaries, and availability of land. The combination of community need and technical feasibility makes the proposed location the most appropriate and viable site for the project.

Alternative locations within or outside the village were assessed but found to be either topographically unsuitable, too far from the target population, or located on contested or unavailable land. As such, the selected site is considered the best option for maximizing impact, sustainability, and community ownership.

5.3 Alternative Water Sources

5.3.1 Exploitation of groundwater

A borehole constructed by Islamic Relief exists 10 km away but produces saline water unsuitable for drinking. Drilling a new borehole in Faan is costly and uncertain due to the high risk of hitting saline aquifers, common in the region. Groundwater exploitation was therefore deemed unreliable and economically unfeasible for this location.

5.3.2 Source water from elsewhere

Transporting water from other areas using tankers is currently practiced but is highly expensive (Ksh. 18,000 per 20,000 liters) and unsustainable. It increases community dependency on external sources and does not offer a long-term solution.

5.3.3 Roof water Catchment

Roof catchment is not viable as a primary source due to the low and unreliable rainfall in Garissa County. Moreover, many households have limited roofing infrastructure, making this method inadequate for meeting the community's domestic and livestock water needs.

5.4 The No Project Alternative

If the water pan is not constructed, the community will continue relying on expensive water trucking or long-distance donkey transport. This will sustain poor hygiene conditions, limit agricultural opportunities, and maintain the existing cycle of poverty and water stress. The 'No Project' option would result in continued hardship and lost development potential for Faan Village.

5.5 Construction of the existing the Water Pan

The proposed water pan in Faan Village is a **new construction**, as there is currently **no existing water pan** within or near the community. The area has never had a surface water harvesting facility despite the community's long-standing water challenges. The need for the water pan emerged from a combination of community consultations and technical assessments, which confirmed the site's suitability for such an intervention.

The proposed construction will involve land clearing, excavation using machinery, installation of inlet and outlet structures, construction of livestock watering points (troughs), and fencing to protect the pan from contamination. Given the severity of water scarcity and the absence of any pre-existing water harvesting infrastructure in the village, this new water pan will serve as the **first major community-managed surface water source**.

While the current phase focuses on initial construction, future expansion may be considered based on the performance and demand arising from increased usage, particularly for small-scale irrigation and livestock. The water pan is expected to bring long-term benefits in terms of water access, hygiene, food security, and livelihood diversification.

5.5.1 Alternatives construction method- manual vs machines

This option considered the use of manual labour in the construction of the water pan. The choice is not considered to be feasible as it would require a very large workforce to excavate the water pan of the proposed capacity **(50,000m³)** to reduce the number of man hours and the duration to complete the work. The safety of the water pan will not be guaranteed due to the limitation of human labour and such a large work concentrated in one place will result in the degradation of the environment that is besides increased cases of communicable diseases. The use of machinery is therefore, considered as a suitable alternative in terms of efficiency, effectiveness, quality and timelines of completing the

work. However, use of human labour will be necessary particularly for project auxiliaries such as construction of water trough, latrine, installation of the water pump and solar panels among others.

5.5.2 Alternative utilization- Direct fetching from the water pan vs draw points

This involves allowing the community and the livestock to obtain water directly from the water pan. Direct fetching from the water pan was found unsuitable as it would result in the contamination and pollution of water and erosion and destruction of the water pan walls and eventual breakage.

5.5.3 Alternative Construction Materials

In evaluating the design and cost-effectiveness of the Faan Community Water Pan, the choice of construction materials plays a critical role in ensuring both structural integrity and economic feasibility. A key consideration in this regard is the availability of suitable construction materials within or near **Faan Village, Garissa County**, in order to reduce transport costs and support local economic participation.

Compacted Soil and Clay Liners

One of the most commonly used materials for lining water pans in arid and semi-arid regions is compacted soil, particularly clay-rich soils, due to their low permeability and availability in many rural areas. Preliminary assessments suggest that parts of Garissa County may contain natural clay deposits, though the specific presence and suitability of such materials within Faan Village would require confirmation through localized geotechnical or geological surveys.

If suitable clay is identified locally, it would serve as a cost-effective and technically appropriate option for lining the base and embankments of the water pan, reducing seepage losses and extending the useful life of the reservoir. Similarly, clay-rich local soils, if properly tested and compacted, could serve as effective natural liners, eliminating the need for imported synthetic materials.

Rock Materials for Riprap and Gabions

Garissa County is characterized by a generally rocky terrain, which may present opportunities to source stone or boulders for constructing riprap protection and gabion structures, particularly along embankments and spillways. These elements are essential for preventing erosion and enhancing structural stability, especially during peak runoff events. If quarries or rocky outcrops exist within reasonable proximity to the site, the use of local rock would be both environmentally appropriate and cost-saving. However, transport logistics and access to quarrying equipment would need to be considered.

Concrete Components

Concrete is often required for constructing spillways, inlet structures, and outlet drains. While cement is not manufactured locally in Garissa and would need to be transported from larger towns (e.g., Garissa Town or Nairobi), sand and coarse aggregates may be available locally, subject to quality verification. The use of concrete introduces higher costs due to the transport of cement and batching logistics, but it offers durability and long-term performance for critical control structures.

Geomembrane Liners

Synthetic geomembranes (such as HDPE liners) offer highly effective impermeability and long-term durability but are not locally available. These would need to be procured from major suppliers based in urban centers or imported from international vendors. The use of geomembranes would introduce significant upfront costs, including purchase price, transport, and specialized installation, making them less feasible for community-based or budget-constrained projects unless durability and water retention are of utmost priority.

Material Selection Considerations

A thorough geological and geotechnical survey of the Faan project area is recommended to verify the presence and suitability of:

- Clay-rich soils for natural lining,
- Local stones or boulders for riprap and gabion construction,
- Sand and aggregates for concrete works.

This should be complemented by consultations with local suppliers, community leaders, and contractors to assess the availability, accessibility, and affordability of each material type. Environmental considerations, such as avoiding over-extraction and ensuring sustainable use of natural resources, should also be factored into material sourcing decisions.

6 PUBLIC PARTICIPATION & STAKEHOLDER CONSULTATIONS

6.1 Introduction

The Kenyan government has enshrined the need for human societies' involvement in project development in the Constitution. This has been set out in the EMCA, 1999 and Environmental (Impact and Audit) Regulations, 2003. The proposed project has incorporated public consultations in order to understand the local impacts, needs and wishes of the community and eventually incorporate them into the final designs and operations of the project.

6.2 Objectives

The key objectives of the consultation and public participation for proposed Construction of Faan Water Pan Sub Project was to:

i. Disseminate and inform the public and stakeholders about the project with special reference to its key components and description
ii. Create awareness among the public on the need of the ESIA for the proposed project
iii. Gather comments, suggestions and concerns of the interested and affected parties
iv. Incorporate the information collected in the ESIA
v. Build community consensus and acceptance of the proposed project

6.3 Methodology

Public participation for the proposed project was conducted through the public consultative meetings and admission of questionnaires to allow for systematic understanding and interaction of the project beneficiaries, neighbours, local community members/surrounding enterprises and any other would be affected/ interested parties.

6.3.1 Public Consultation Questionnaires

ESIA questionnaires were administered, to gather information from key stakeholder and the members of the public. This was done using structured questionnaires to assess the environmental and socio-economic views of the respondents. A total of **10 questionnaires** were administered in the project area. Samples of filled questionnaires administered in the project area are appended to this report (***Appendix I***).

6.3.2 Key Informant Interviews

Key stakeholder interviews and consultations were conducted on the **20th March 2025.** The key stakeholder engagements were conducted to foster better and mutual understanding of public concerns as well as incorporate key stakeholders' opinions to this report.

6.3.3 Public Consultation Meetings

ESIA questionnaires were administered, to gather information from stakeholders and the members of the public. This was done using structured questionnaires to assess the environmental and socio-economic views of the respondents. A total of **10 questionnaires** were administered in the project area. Filled questionnaires administered in the project area are appended to this report *(Appendix I).* In seeking the views of the key stakeholders, and any other would be affected/interested parties, the consultant organized a consultative meeting targeting mainly **Faan Water Pan Sub Project Members** and community members surrounding the Proposed Construction of the Faan Water Pan sub project comprised of the elderly, women, youth, people with special needs (Vulnerable and Marginalized groups) and the local administration, were in attendance during the meetings that took place on **20th March, 2025**. The meeting was used to publicize the proposed **Construction of Faan Water Pan Sub Project** and the anticipated effects and benefits. Prior to the meeting, a stakeholder mapping was carried out to identify key stakeholders to be invited for the meeting. Stakeholders that were directly affected by the proposed project were critically analyzed in consultation with the proponent.

Presentation of the project scope was outlined, after which an open discussion forum followed during which all pertinent issues were raised and agreed upon with all stakeholders. During the public participation meeting, stakeholders had a chance to interact with the proponent represented by the EIA expert and ministry of agriculture officials at county and sub-county level. The findings are incorporated into this report and captures the issues, suggestions, concerns and recommendations from public meetings on site. The meetings were well attended and the attendees participated actively during the meetings *(See Minutes Appendix II and List of Participants in Appendix III).*

Plate 6:1: A The lead expert leading the public baraza at Faan Village.

Plate 6:2: Women taking part in the public participation forum.

6.4 Consultation and Disclosure Outputs

The appendices present the information on the public consultations undertaken under the environmental impact assessment for the Proposed Construction of Faan Water Pan Sub Project. This information includes selected responses as detailed in the minutes (***Appendix II***). It was noted that members lauded the project and were eager to see the start of the project. However, there were a few areas that the members sought clarity. A summary of the key concerns raised by the participants is provided in table 6-1 below:

Key Issues from Public Participation Forum (Baraza)

Table 6:1: Summary of Issues Raised by the Community and Stakeholders and Response

KEY ISSUE	QUESTIONS FROM THE COMMUNITY	RESPONSE FROM THE CONSULTANT TEAM
Need for Piping and Water Kiosk	The community expressed a need for piping and a water kiosk to improve water accessibility.	• The technical team confirmed that indeed the project BoQs include the construction of a water kiosk to enhance water accessibility for drinking and domestic use.

Need for Water for Livestock	The community highlighted the need for adequate water supply for livestock alongside for domestic use.	• The technical team acknowledged the importance of water for livestock and confirmed that the BoQs include the installation of cattle troughs to ensure livestock easily get access to the water.
Toilets construction should consider their religion and cultural beliefs	Based on community's religion and cultural beliefs the community requested that toilets be constructed far apart.	• The technical team assured that indeed their inputs and recommendations will be factored in to guide on the toilet constructions.
Vandalism Challenges	The community raised concerns about vandalism of water infrastructure, which could affect reliability and safety of the water storage.	• The technical team acknowledged the issue of vandalism and recommended implementing security measures to protect water infrastructure. • Installing fencing, lighting, and surveillance around critical water facilities to deter vandals was suggested. Already the BoQ had a fencing component. • Engaging the community in safeguarding the infrastructure by reporting suspicious activities and participating in community watch programs was also emphasized. • Educating the community on the negative impacts of vandalism and promoting a sense of ownership and responsibility towards the water facilities was recommended
Water Depletion	The community was concerned about depletion of the water especially during the dry periods.	• The technical team responded that there will be need for the community to be trained and advised on proper water regulation to avoid over abstraction.
Schedule Timings for Drinking Water	The community requested scheduled timings for drinking water to ensure fair	• The technical team recommended implementing a schedule for water distribution to ensure equitable access

	distribution and access for both humans and animals.	for all users, including humans and livestock. • Communicating the schedule clearly to the community and making necessary adjustments based on feedback and usage patterns was suggested. Encouraging community involvement in monitoring and managing the schedule to ensure fairness and efficiency was also emphasized.
Leadership challenges and possible conflicts	It was also reported that there is likely to emerge conflicts from leadership and management regarding use of resources.	• The technical team noted that the area under irrigation will be smaller and may not accommodate all members at the same time. They also took cognizance of the fact that resource management can be a source of conflict among members. The team pointed that the capacity building on the management committee will be continuous on financial management, procurement and maintenance. They also urged members to ensure active participation through bi-annual or annual meetings to discuss progress made and way forward.
Gender-Based Violence (GBV)	Concerns were raised about the potential for increased gender-based violence (GBV) in the community due to changes brought about by the water pan project.	• The technical team acknowledged the seriousness of GBV and recommended implementing comprehensive GBV prevention and response measures as part of the project. • Collaborating with local NGOs and community organizations to provide education and awareness programs on GBV prevention was suggested. • Ensuring that project staff and contractors are trained on GBV awareness and prevention, and adopting a zero-tolerance policy towards GBV within the project was also recommended.

Child labor	Concerns were raised about the potential for child labor exploitation in the construction and operation of the water pan project.	• The technical team recognized the importance of preventing child labor and recommended strict adherence to national and international labor laws prohibiting child labor. • Implementing monitoring and enforcement mechanisms to ensure that no child labor is used in any phase of the project was suggested. Conducting regular inspections and audits to verify compliance with labor laws and standards was emphasized. Providing educational support and opportunities for children to ensure they remain in school and do not engage in labor activities was also recommended.

6.5 Salient Issues

6.5.1 Opinion on Project Implementation

It was clear from the questionnaires received back that the ***Construction of Faan Water Pan Sub -Project*** will serve an important role of providing the community with both domestic and livestock water. This will also reduce trekking distances and enable women and children more time at home performing other chores. All the residents admitted that they were interested in this project more solely for their increased resilience during drought periods and generally improved agricultural productivity.

6.6 *Anticipated Impacts*

6.6.1 Positive Impacts

Positive impacts identified by stakeholders include the following:

- **Improved health and hygiene:** The water pan will provide sufficient water to enable the residents perform cleaning duties consistently and also obtain clean water for drinking and cooking.
- **Economic Development:** Sufficient water availability will help stimulate economic growth by enhancing different farming activities such as crop farming, livestock farming that would in turn contribute to the development of Haji Aden Village.
- **Community Empowerment:** With a reliable water source, the community can focus on other developmental activities, such as education and entrepreneurship, leading to overall community empowerment and development.

- **Job Creation:** The project will likely create jobs during the construction and maintenance phases, boosting local employment and economic activity.
- **Community Resilience:** Access to a reliable water source would enhance the resilience of Faan Village, enabling better adaptation to arid conditions and supporting the overall well-being of the community.
- **Reduced distance to water source:** The nearest fresh water source currently serving the community is located 10 km away therefore the proposed water pan will greatly reduce the distance the community members have to travel to seek water for domestic use thereby creating convenience.
- **Soil erosion control:** By slowing down run off and capturing rainwater, there will be a reduction in soil erosion around the region thereby preserving soil quality.

6.6.2 Anticipated Negative Impacts

Some of the negative impacts identified include the following:

- **Vandalism Risk:** Potential vandalism of water pan infrastructure requires continuous community supervision and security measures.
- **Water Quality and Health Risks:** Contamination risks from fecal matter and machinery fuel spillage necessitate hygiene education and strict operational protocols.
- **Environmental Impact:** Construction activities could lead to noise pollution, soil compaction, and siltation, impacting local ecosystems and agriculture.
- **Safety Concerns:** Safety hazards such as site accidents and drowning risks for children highlight the need for safety measures and community awareness.
- **Social and Management Issues:** Potential conflicts over water use among neighboring communities and within the water users' association emphasize the importance of effective governance and conflict resolution mechanisms.

6.7 Suggestions and comments from public consultations

- Form a functional and registered water users' association with clear roles and responsibilities to ensure effective management and sustainability.
- Implement strict environmental and safety protocols during construction and operation phases to mitigate negative impacts.
- Establish long-term measures to prevent direct animal access to the water pan, such as constructing water troughs.
- Foster community awareness and participation in project oversight and governance to enhance ownership and sustainability.
- Jobs opportunities that will arise during the construction of the water pan project particularly unskilled labour should be reserved for the residents of the project areas.

- Ensure the workers/employees of the proposed project are insured through WIBA for adequate compensation due to injury while at work.
- The proponent and the contactor should involve local administration during the construction phase of the project. Liaison with the community should also continue during construction work and initial operation of the project
- Construction work should strictly observe standards of Occupational Health and Safety including the following;
    - Usage of appropriate safety gear and equipment by construction workers
    - Erection of safety signage along the construction route
    - Provision of sanitation facilities, clean water, and food to construction workers
- The contractor should also strive to use high-quality construction materials as detailed in the design
- Establish a community advisory committee.
- Enforce safety protocols and provide regular project updates.

7 ANTICIPATED IMPACTS AND MITIGATION MEASURES

7.1 Preamble

This chapter identifies both positive and negative environmental impacts likely to be occasioned by the project's construction/ installation, operation and decommissioning phases.

7.2 Positive Environmental and Social Impacts during construction

7.2.1 Employment Creation

The project will create employment opportunities in the construction phase for both skilled and unskilled and casual and contractual work. In the construction works for the catchment youths will be engaged through the youth employment programme in the project. Women will have the opportunity to supply foodstuffs to the workers.

7.2.2 Market for Construction Materials

The construction works will provide market for locally available construction materials such as cement, sand, timber, and steel, building stones and fencing materials.

7.2.3 Increase in Government Revenue

The implementation of the sub project will result in increased revenue for the county and national governments through levies, taxes and cess on the purchase of materials during construction phase.

7.3 Negative Environmental Impacts and Mitigation during the Construction Phase

7.3.1 Temporary Disruption of Land Use and Access

During the construction of the new water pan, access to portions of community land designated for the project may be temporarily restricted. This may affect normal grazing patterns, footpaths, or other communal uses of the land. Although this impact is short-term, it may cause inconvenience or dissatisfaction among community members if not properly managed.

The proposed **mitigation** measures will include:

- **Advance sensitization** of the community through barazas and the local administration to inform them of the planned works, timelines, and any temporary access restrictions.
- **Clear demarcation** of the construction zone to prevent unnecessary interference with unaffected areas.
- **Provision of alternative routes or access points** for people and livestock if existing paths or grazing areas are temporarily blocked.

- **Timely execution of construction activities** to minimize the duration of disruption.
- **Community liaison personnel** to be available on-site to address any arising concerns during the construction phase.

This approach ensures that the community remains informed, engaged, and supportive throughout the construction process, reducing the likelihood of conflict or resentment.

7.3.2 Disturbance of Vegetation and biodiversity

Site clearance will result in the removal of vegetation, pasture and biodiversity losses. The construction of the water pan will increase irrigated land from 2 to 4 acres.

Mitigation measures

- Site clearance to be limited to the project demarcated area and selective removal of vegetation or trimming of trees to be exercised where possible.
- Local community to be allowed to harvest areas of natural vegetation that are to be cleared prior to clearing.
- The proponent to support establishment of a community tree nursery for indigenous trees
- Compensatory planting of trees or other appropriate vegetation after construction works
- Construction workforce to be sensitized on environmental and ecological conservation

7.3.3 Soil erosion

Activities undertaken during the preparation and the construction stage of the water pan such as clearance/disturbance of vegetation, excavation and tramping by people and machineries/vehicles may result in soil erosion.

Mitigation measure

- Contractor to avoid construction during the wet season.
- Contractor to limit excavation to the marked boundaries of the project site.
- Contractor to ensure proper compaction at recommended soil moisture where required.
- Contractor to provide designated routes for vehicles.
- Where possible the contractor to exercise selective removal of mature, indigenous trees.
- Compensatory planting of trees or other appropriate vegetation after construction
- Sensitization of construction workforce on environmental and ecological conservation and protection.

7.3.4 Noise and Vibration Generation

Continuous exposure to noise levels above 85 dB may cause hearing problems leading to occupational deafness. Noise and vibration produced during construction may have some temporary negative impacts to the immediate residents. Sources of noise pollution include excavation and earth moving machines and during mobilization of the construction materials to the site. The impact is low risk as the nearest dwelling units are over 3km away.

Proposed mitigation and management measures.

- Avoid idling of machinery or engine when not in use.
- Restrict activities that create noise to daytime only.
- Workers to be provided with ear muffles.
- Contractor to ensure the use of well-maintained machineries and vehicles.

7.3.5 Air pollution (Motor vehicle emissions and dust generation)

The potential sources of air pollution include traffic, emission from excavator and material supply vehicles. This is a short-term negative impact and will last within the actual excavation period and ferrying of materials. This impact is considered low risk as there are no residential units nearby.

Mitigation measures

- Ensure that maintenance on all machinery is done regularly to avoid the emission of noxious gases.
- Drivers and machine operator to avoid unnecessary running of motor vehicle engines and machinery when not in use.
- Provision of dust masks to workers and ensure their use.
- Locating haul roads, tips, and stockpiles away from sensitive receptors, considering prevailing wind directions.
- Contractor to instruct the drivers to avoid unnecessary speeding near settlements in the project areas
- Contractor to make sure water sprays and mist are applied as dust suppression measures on loose soils and stockpiles.

7.3.6 Oil spills

Oils and grease spillage on the ground may cause contamination to the soil and surface water making the water to be unsuitable for use by both people and livestock.

Mitigation measures

- Proper maintenance of vehicles and other equipment (using petroleum products) to avoid fuels and lubricants spills at the project site.

- The contractor should properly handle, store, and dispose off oils and greases and their wastes during construction by ensuring that servicing is strictly done at designated servicing yard or external petroleum stations.
- Site staff to be sensitized on safety procedures for fuel storage and re-fueling should be well understood and implemented by site staff.

7.3.7 Solid waste generation and accumulation

The volume of solid waste generated from the construction of water troughs, latrines and any other masonry structure and packaging materials such as cement bags will be small with low impact.

Mitigation measures

- The contractor to exercise waste segregation and to ensure waste not reusable or recyclable is cleared from the project site and disposed off as per NEMA and County Government regulations
- Contractor to provide temporal waste disposal receptacles in site
- Contractor to liaise with licensed waste collector to routinely collect and dispose the waste

7.3.8 Earth Excavated material & desilted silt

The debris from excavation and desiltation is expected to be of a large volume and would be washed back in to water channels and surface water storage structures if not handled well.

Mitigation measures

- Contractor to dump unused excavated materials and debris in designated places as directed by the supervising engineer.
- Contractor to use excavated soil for the water pan wall/embankment.
- Excavated silt can be incorporated with compost for use as potting media in the tree nursery.

7.4 Negative Socio-economic impacts in the construction phase.

7.4.1 Occupational Health and Safety (OHS)

During the excavation and construction stage of the water pan accidents may result caused by the moving part of the excavator. Accidents may also occur in the construction of the auxiliary structures (latrine, livestock troughs) and other masonry structures caused by falls in excavated sites or injuries by wrongly placed equipment, tools or other construction materials.

Mitigation measures

- The sites to be protected or fenced off from unauthorized intrusions and warning signs; barricades should be properly displayed and strictly adhered to.

- All workers to be provided with full protective gear (PPEs) and trained on appropriate use
- Workers to be trained on first aid & a fully equipped First Aid Kit provided at site.
- The contractor to have Incident and Accident Registers on site for recording of injuries or any OHS incidence.
- Contractor to prepare an emergency management and preparedness plan for accident response & avail Emergency contacts for police, ambulance, etc.
- Contractor to appoint a qualified health and safety person to manage OSH issues.
- Tools and equipment to be placed in a safe place when not in use.

7.4.2 Risk of Accidents to the community

Hauling of equipment (plant and machinery) and other materials and supply to the project site may pose a potential risk of accidents to animals, people, especially children.

Mitigation measures

- Contractor to sensitize the community on the project and the project period and what caution to be taken by the community. Restricted access to the construction site for community members unless where necessary.
- Contractor to employ qualified drivers.
- Drivers to be instructed to observe required speed limits.
- Installation of warning sign boards at the construction site and identified risk areas.

7.4.3 Increased exposure to transmissible diseases including HIV/AIDS

7.4.3.1 Increase in incidences of HIV/AIDS and STIs

The construction of the Faan Water Pan in Garissa County brings with it concerns about potential increases in HIV/AIDS and STIs. Such projects often attract a transient workforce and disrupt local social dynamics, increasing vulnerability to risky behaviours like unprotected sex and substance abuse. To mitigate these risks, robust health education programs, access to HIV/AIDS and STI prevention services, and community involvement in project planning are essential. Strengthening local health systems and promoting safe practices are critical steps to ensure that development efforts enhance community well-being without compromising public health.

Mitigation measures

- Contractor to sensitize workers and community members on HIV/AIDS and other communicable diseases.
- Contractor's Health and Safety Management Plan (CHSMP) to be enforced through the Directorate of Occupational Health & Safety (DOSH)
- Controlled access to Contractor's Workforce Camps by outsiders.

- Contractor to provide standard quality condoms at the construction site during the construction period.

7.4.4 Labour risks including labour influx

The excavation work for the proposed water pan will be largely mechanized, while construction of auxiliary structures such as water troughs, fencing, and latrines will primarily rely on local labour. However, the potential influx of workers from nearby towns such as Shantabaq could lead to increased social tensions, illicit behaviour, or perceptions of insecurity within the local community. Risks may include theft, physical assaults, substance abuse, and commercial sex work.

Mitigation measures

- The proponent will ensure full compliance with Kenya's national labour laws and the African Development Bank's environmental and social safeguards, particularly Operational Safeguard 5 (Labour Conditions, Health and Safety), by incorporating these provisions into the Procurement and Contract Agreement for implementation by the contractor.
- All workers will be sensitized on the AfDB Code of Conduct, national labour standards, and community engagement principles to ensure responsible behaviour throughout the project.
- Local community members will be prioritized for casual and unskilled labour opportunities to minimize labour influx and enhance local ownership of the project.
- The contractor will conduct pre-employment orientation and continuous awareness training on acceptable conduct and project expectations.
- A detailed registry of all workers will be maintained onsite, documenting their identity, role, and origin, to ensure traceability and accountability.
- The project will support training of the Project Management Committee (PMC), Site Advisory Implementation Committee (SAIC), County Environmental and Social Safeguards Officers (CESSCOs), and promote community policing measures to monitor and manage labour-related risks effectively.

7.4.5 Risk of Social Conflict

Conflicts may arise between the local community and the construction workers, which may be related to cultural, or ethnic differences, or based on competition for local resources. Tensions may also arise between different groups within the labor force, and pre-existing conflicts in the local community may be exacerbated.

Mitigation measures

- The proponent adherence to national labour code and AfBD policies through incorporating the same in the Procurement and Contract Agreement document for implementation by the contractor.

- Contractor to sensitize the workers on code of conduct (COC)
- Develop and implement local hiring rules in consultation and partnership with the local community.
- Train workers and the project management committee and rank members on conflict management and resolution

7.4.6 Child Labor and School Dropout

The proposed project may result in increased opportunities for the sale of goods and services to the incoming workers, which can lead to child labor to produce and deliver these goods and services, which in turn can lead to enhanced school dropout.

Mitigation measures

- The proponent to sensitize the community on national children welfare policies, children's laws and African Development Bank policies on the protection of children and the importance of children being educated.
- The Proponent to ensure the Contractor complies with national and AfDB policies and rules on welfare of children.
- Control to ensure there is no child labour at the construction. This can be done by using Identification Cards to verify the age of the workers and casuals.

7.4.7 Gender Based Violence (GBV)

This impact is triggered during Project Construction Phase when the Contractor fails to comply with gender inclusivity requirements in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 gender rule. Failure to protect Human Risk Areas Associated with, Disadvantaged Groups, interfering with Participation Rights, and interfering with Labour Rights may also result in GBV.

Mitigation Measures of Human Rights and Gender Requirements are.

- The contractor will implement provisions that ensure that GBV at the community level is not triggered by the Project, including:
    a) Effective and on-going community engagement and consultation, particularly with women and girls.
- Review of specific project components that are known to heighten GBV risk at the community level e.g. hiring procedures and renumeration.
- The contractor shall develop specific plan for mitigating these known risks, e.g., sensitization employment.
- The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.

7.4.8 Sexual Exploitation and Abuse (SEA) by project workers against community members

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. Such risks also occur where project workers with some level of authority abuse this power e.g., through promise of jobs in return for sexual favours.

Mitigation Measures to Risk of SEA include.

- Proponent to develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP.
- The SEA action plan will include how the project will ensure necessary steps are in place for:
  a) Prevention of SEA through including Code of Conduct (CoC) and ongoing sensitization of staff on responsibilities related to the COC.
  b) Response to SEA by including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures.
  c) Engagement with the community & development of confidential community-based complaints mechanisms discrete from the standard GRM.
  d) Integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA.

7.5 Positive Environmental and Social Impacts during operation phase

7.5.1 Soil Conservation in Project Area.

The construction of the Faan water pan will support upstream soil conservation measures by acting as a draining point for cut-off drains constructed in the watershed.

7.5.2 Replenish Groundwater

The storage of a large volume of water in the pan will replenish groundwater in the dry period in the project area.

7.5.3 Flood Control

The water pan will be a safe discharge of excess flood water from the catchment. This will reduce flooding on the downstream farms thus livelihoods and preventing losses.

7.5.4 Improved Livestock production & Profitability

Supply of water for livestock farming will lead to increase in livestock numbers and productivity thus raising farmers income levels.

7.5.5 Increased Drought Resilience

Considering the size of the water pan it will be able to hold enough water which will provide a reliable water supply throughout the year. This will increase the community resilience to drought.

7.5.6 Improved Food Security

Availability of water will contribute to livestock productivity. This will enhance food security and nutrition beside income through local sale.

7.5.7 Livelihood Diversification

The proposed project will enhance livelihood diversification e.g. to beekeeping, poultry keeping, as a result of water supply. This will be possible through the increased volume of water in the water pan. Diversification will contribute towards employment creation, income generation and food security in the project area.

7.5.8 Improved Public Hygiene

The proposed construction of sanitary facilities latrines in the project and fencing of the Faan water pan will mean less contamination and pollution of the water and the environment. All this will result in improved sanitation and public hygiene in the area.

7.5.9 Reduction in Water Borne Diseases

The project area is ASAL. With appropriate water treatment before use the water pan provides a source of safe water for livestock and some limited domestic uses. This is likely to lead to improved personal and public hygiene. Improvement in public hygiene will mean reduced disease incidences and disease burden. The trainings and continuous sensitizations expected to take place during operation stage by water department will enhance the curbing of waterborne diseases. Provision of communal watering points and livestock troughs will control water pollution resulting from direct fetching of water from the water pan.

7.5.10 Increased Household Income

Construction of the water pan will ensure there is reliable water for crop farming and livestock use. This will result in increased agricultural productivity to households resulting in high incomes at the household level. This will also lead to lowering of poverty in the community.

7.6 Negative Environmental and Mitigation Measures during the Operation phase

7.6.1 Surface and Ground Water Pollution

Water pollution may be from several sources. Pollution of the water could make the water unsuitable for the proposed use in the project. This could be from: watering of animals directly from the water pan, unattended oil spillage during the construction

period, poor farming technologies upstream, use of agrochemicals and destruction of catchment. Leaching of agrochemicals would result to ground water pollution.

Mitigation measures include the following.

- The water pan should be fenced as indicated in the BQ and having only one controlled entrance.
- The users should draw off water from the designated sites only.
- The Contractor to clear the site of all solid wastes, construction materials and any spills after completion of the construction works.
- The Proponent to ensure the construction of pit latrines in the site as provided in the BOQ at a safe distance from water sources.
- The Proponent to develop and implement (through sensitization of farmers) an *Integrated Pest Management Plan* (IPMP)
- Proponent to ensure regular monitoring of water quality.

7.6.2 Soil Erosion and Siltation of the Water Pan

Concentration of many livestock in the project area as they come for watering and poor farming practices will result in soil erosion. Overstocking of livestock in the project area will also result in overgrazing and soil erosion. The erosion of the inlet water course and the degradation of the water pan catchment will result in the siltation of the water pan resulting in increased water turbidity and reduced volume of the water pan.

Mitigation measures

- Construction of silt traps along the inlet water course as will be guided by the supervising engineer (see annex 5 on Bill of Quantities)
- Regular maintenance of the check dam/silt traps by the community
- The embankment to be grown with suitable grass as outlined in the design plan.
- The proponent to ensure the implementation of the developed ***integrated sustainable land management (ISLM)*** plan.
- The catchment community to be sensitized on the ISLM & to be trained on farm SLM practices e.g. terracing, minimal tillage, agroforestry crop rotation, intercropping.
- Regular desilting should be undertaken (removal of silt from the reservoir using manual labour can be periodically organized during the dry season).
- The proponent to consider piping water to other sites in future to avoid animal concentration and overgrazing in the project area.
- Sensitize the community on appropriate stock rate.

7.6.3 Water Pan Breaking Its Walls and Associated Risks

Above normal rains over a longer period, damage of the water pan walls and lack of maintenance could result in the water pan walls breaking and suddenly discharging its

water. The outcome may be destruction of property, land degradation and risk to the people living downstream.

Mitigation measures

- The Proponent should develop the Faan Water Pan Crisis Action Plan (CAP). The CAP should contain the details for Water pan CAP as shown under Appendix IX.
- A qualified Water Resource Professional should inspect the site every year and at least at the end of every rainy season.
- Undertake regular (continuous) monitoring and assessment of the water pan and project site especially with the current climate change, before and after the rainy season.
- Proper inspection should be done once in 3 years to a maximum of once in 5 years by a qualified professional
- The inspection forms (see on annex 8) should be properly filled, maintained and action recommended.
- Train the project management committee and the local administration (local technical team) on scouting which will lead to early detection and responding to any risk situation.
- An Emergency Action Plan (EAP) should always be maintained by the operation and maintenance team and this should be done during the routine preventive maintenance by the local technical team (see the plan on annex X).
- Undertake Environmental Audit for the Faan water pan annually as required by NEMA.

7.6.4 Solid Waste Generation

Due to the farming activities, there would be generation and accumulation of wastes including wrapping and packaging materials and containers. Some of the packaging/wrapping and containers will be from agrochemicals which if not properly disposed off would result in toxicity in the environment.

Mitigation measures

- Sensitization of the farmers on the disposal of used agrochemical wrappings, containers and packages.
- Proponent to ensure wastes from farming activities are sorted before disposal
- Proponent to provide litter/waste bins in the project area for temporal storage of waste.
- Use of a NEMA registered waste collector, transporter and disposer.

7.6.5 Risk of Drowning

The water pan filled with water presents the risk of drowning to people or animals that may stray into the perimeter fence of the Faan water pan or can be used in self-suicide.

Mitigation measures

- The risk has been significantly reduced through the proposed fencing and installation of a gate.
- The gate to be always locked with a padlock.
- The community be sensitized on the potential risk of drowning.
- Involvement of the whole community members in ensuring that the perimeter fence is maintained and not destroyed (encourage community policing).
- Employ a person to guard the water pan/through the water users' association (WUA) ensure regular monitoring.

7.6.6 Impacts on River Regime and Downstream Users

The unnamed natural drainage, like all the drainage channels in the sub basin is ephemeral and only flows during the rains and a shortly thereafter. The construction of the water pan will enable the harvesting of the flood water which would otherwise be lost, and use it for economic activity within the area. The development of the storage facility is therefore not expected to have an adverse impact on the river flow and the downstream community.

7.7 Negative Social and Economic Impacts

7.7.1 Outbreak of Livestock Diseases

Livestock converging in one watering point from different sites/regions increase the chance for the spread of livestock pest and diseases. If unchecked will lead to poor animal health, reduced livestock productivity and even livestock loss.

Mitigation measures

- Regular disease surveillance by the veterinary department and community.
- Sensitization of the community on disease spread, monitoring and control.
- A livestock disease management plan be put in place by the veterinary department to ensure disease incidences are promptly responded to and addressed.

7.7.2 Human health impacts e.g., Malaria and schistosomiasis, water borne diseases.

The presence of standing water provides good breeding ground for disease vectors especially with malaria and increase in schistosomiasis. Further, due to water scarcity in the area, the community may be tempted to use the water pan water for drinking purposes without treatment. The two scenarios carries possibility of increasing diseases

given malaria prevalence is at 46.9% in the county while diarrhoea and typhoid are at 7.6% (KNBS, 2018).

Mitigation measures

- Sensitize the community on malaria prevention through use of mosquito nets, local and indoor residual spraying and bush clearing near households.
- Malaria surveillance programme to be maintained.
- Establish community-based health education committee that facilitate malaria control programme facilitated and coordinated through public health department
- Sensitize the community on water purification methods.

7.7.3 Occupational Health and Safety Concerns

Various occupational health and safety concerns are likely to arise particularly in relation to the use of pesticides and agrochemicals in farming.

Proposed mitigation

Development of Integrated Pesticide Management Plan (IPMP) and to include;

- Train the farmers on agrochemical management and environmentally sound chemical management, pesticides and fertilizers.
- Training farmers on application of residues, waste from cleaning and proper irrigation practices.
- Management of agricultural chemicals and fertilizers as per material safety data sheet and avoid environmental safety risks.
- Provision of an environmental programme to monitor agriculture chemicals through the field.
- Emphasize on the use of organic manure by the farmers.

7.7.4 Water use related conflict

Low rainfall or failure may result in inadequate water supply to the water pan. Unprecedented increase in land acreage under irrigation would also mean increase water demand for irrigation. Dependency on the Faan pan for domestic; irrigation and livestock may result on water use related conflicts.

Mitigation measures

- Develop and implement a community users' development plan in consultation and partnership with the local community and existing WRUAs
- Formulation of local by-laws to guide the use of water in the project area
- Sensitize the community/beneficiaries on efficient water use to avoid wastage.
- Raise community awareness on the benefits of the project for more cooperation.

7.7.5 Poor leadership and management problems

Poor leadership, lack of transparency and accountability would result in the mismanagement of the will result into the project not meeting its intended goals.

Mitigation includes;

- Training of PMC on water project management, financial management and promotion of accountability & accountability.
- Sensitization of project beneficiaries/community members on project management.

7.7.6 Child labour and school drop out

The irrigation project may attract to children to engage in the sale of crops produced in the area such as tomatoes. The children may engage in vending of the crops harvested interfering with their educations and their welfare and children rights beside exposing them to other social evils.

Mitigation measure

- Train village volunteer child monitors to work closely with the office of the chief and the department of children on issues of child protection
- Sensitize the community on child protection issues relating to the project.

7.8 Decommissioning phase

The proposed Faan water pan project is expected to operate for 20 years. After this period depending on the prevailing situation of the time, decommissioning of the project could be undertaken. This could be due to various reasons such as a new bigger source of water being developed in the area therefore, the water pan being abandoned, or the water pan becoming completely silted or creating a risk to the community.

7.8.1 Positive Environmental and Social Impacts

The positive impacts associated with the decommissioning of the water pan are direct employment for those involved in the demolition work, restoration of the land for other productive purposes and reduction in the risk associated with the water pan.

7.8.2 Negative Environmental and Social Impacts

The main negative impacts of decommissioning are reduction in crop and livestock productivity, reduction in indirect employment opportunities, reduction in household income, the community and livestock to continue to walk for long distances in such of water and pasture, increased soil erosion and land degradation from the excessive run off and increased burden for the women to get water for households, increased in water borne diseases due to inadequate source of fresh water and increased poverty and reduced community adaptive capacity to climate change effects.

7.8.3 Mitigation Measures for the Decommissioning of the Water pan

Depending on the reason for the decommissioning the report recommends that an environment and social impacts assessment be undertaken with the terms based on the prevailing scenario and baseline conditions and the nature of the decommissioning. However, if the decommissioning will be because of the complete abandonment of the water pan the land should be restored to its original state.

8 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

8.1 Introduction

The project proponent recognizes that the implementation of the proposed activities will result in certain impacts on the biophysical environment, as well as on the health, safety, and socio-economic conditions of the Faan Water Pan Community and other local stakeholders. Accordingly, the primary objective will be to minimize adverse effects while enhancing the project's positive contributions. To support this, an Environmental and Social Management and Monitoring Plan (ESM&MP) has been prepared to guide the mitigation and management of environmental and social impacts throughout the project's life cycle. It is important to note that project conditions and influencing factors may evolve over time; therefore, the ESM&MP has been designed to allow flexibility and adaptability. Regular reviews and updates are recommended to ensure its continued relevance and effectiveness.

Tables 8-1 form the core of this ESM&MP for the construction, operational and decommissioning phases of the proposed Construction of Faan Water Pan. In general, the tables outline the potential environmental, socio-economic, health and safety risks associated with the project and details all the necessary mitigation measures, their financial costs, as well as the persons responsible for their implementation and monitoring. The ESM&MP should be used as checklist in the initial environmental audit of the project.

It worth noting that the key responsibilities regarding compliance to the proposed ESM&MP during the construction period rest on the Contractor whereas those in operation stage will be the responsibility of the proponent. **The ESM&MP should be shared with the selected contractor(C-ESM&MP) for implementation.** It is important that the project proponent ensures adequate monitoring and evaluation for the Contractor for non-conformances and adequate resources are allocated for operational stage.

Table 8:1: Environment and Social Management and Monitoring Plan

Environment/ Social Impact	Proposed Mitigation Measure	Indicator	Responsibility	Means of Verification	Time Frame	Estimated cost (Kshs)
NEGATIVE ENVIRONMETAL IMPACTS IN THE CONSTRUCTION PHASE						
Temporary Disruption of Land Use and Access	• Advance sensitization of the community through barazas and the local administration to inform them of the planned works, timelines, and any temporary access restrictions. • Clear demarcation of the construction zone to prevent unnecessary interference with unaffected areas. • Provision of alternative routes or access points for people and livestock if existing paths or grazing areas are temporarily blocked. • Timely execution of construction activities to minimize the duration of disruption. • Community liaison personnel to be available on-site to address any arising concerns during the construction phase.	• Number of barazas held • Visible site demarcation • Alternative routes provided • Adherence to timelines • Presence of liaison officer and • Complaint records	Contractor Proponent Department of water (Director) CPCU	Meeting minutes and attendance lists; site inspection/photos; site layout map; contractor progress reports; grievance logbook and posted contact info	4 months	**200,000 water trucking**
Disturbance of vegetation	• Site clearance to be limited to the project demarcated area and selective removal of vegetation or trimming of trees to be exercised where possible. • Local community to be allowed to harvest areas of natural vegetation that are to be cleared prior to clearing. • The proponent to support establishment of a community tree nursery for indigenous trees • Compensatory planting of trees or other appropriate vegetation after construction works • Construction workforce to be sensitized on environmental and ecological conservation	• Area cleared of vegetation • Number of tree nursery established. • Number sensitization meetings for workers held	Proponent Supervising engineer/Contractor PMC	M & E reports Engineer's report Photographs	4 months	**150,000** Tree nursery establishment
Soil Erosion	• Contractor to avoid construction during the wet season. • Contractor to limit excavation to the marked boundaries of the project site. • Contractor to ensure proper compaction where required. • Contractor to provide designated routes for vehicles. • Where possible the contractor to exercise selective removal of mature, indigenous trees. • Compensatory planting of trees or other appropriate vegetation after construction • Sensitization of construction workforce on environmental and ecological conservation and protection.	• Time of excavation • Area of land excavated • Designated site for stock pile available • Number of compactions runs made • Marked routes for vehicles available • Number of sensitization meetings held	Contractor/supervising engineer Proponent Dept. of Agriculture Dept. of Environment Community	Engineers' reports Photographs Attendance register Sectoral Field reports CESSCO reports	8 months	**Factored above**

Noise and vibration generation	• Avoid idling of machinery or engine when not in use. • Restrict activities that create noise to daytime only. • Workers to be provided with ear muffles. • Contractor to ensure the use of well-maintained machineries and vehicles.	• Number of PPEs purchased. • Number of workers using PPEs. • Number of vehicles and machinery not on idling when not in use. • Time of operation	Contractor/Supervising engineer/work manager	Local purchase orders Reports Receipts Available servicing cards/receipts	4 months	**10,000** **Ear muffs**
Air Pollution (Dust & Machinery and motor vehicle emissions)	• Ensure that maintenance on all machinery is done regularly to avoid the emission of noxious gases. • Drivers and machine operator to avoid unnecessary running of motor vehicle engines and machinery when not in use. • Provision of dust masks to workers and ensure their use. • Locating haul roads, tips, and stockpiles away from sensitive receptors, considering prevailing wind directions. • Contractor to instruct the drivers to avoid unnecessary speeding near settlements in the project areas • Contractor to make sure water sprays and mist are applied as dust suppression measures on loose soils and stockpiles.	• Frequency of machinery/ vehicle maintenance • No / frequency of water sprays and mists • No. of designated hauling/stockpiles areas • No of PPEs procured/ Proportion of workers with requisite PPEs • No of drivers trained/advised due diligence on machine/vehicle operation	Contractor/Supervising engineer/work foreman NEMA	LPOs Reports Signed contracts between Contractor & employees	4 months	**100,000** **Water sprays**
Oil spills	• Proper maintenance of vehicles and other equipment (using petroleum products) to avoid fuels and lubricants spills at the project site. • The contractor should properly handle, store, and dispose off oils and greases and their wastes during construction by ensuring that servicing is strictly done at designated servicing yard or external petroleum stations. • Site staff to be sensitized on safety procedures for fuel storage and re-fueling should be well understood and implemented by site staff.	• Designated site for disposal of contaminated materials available • Number of sensitization meetings held • Number of motor vehicle servicing undertaken • Number of vehicles serviced	Contractor/supervising engineer	Servicing receipts/cards Reports Attendance registers	8 months	**30,000**
Solid waste generation & accumulation	• The contractor to exercise waste segregation and to ensure waste not reusable or recyclable is cleared from the project site and disposed off as per NEMA and County Government regulations • Contractor to provide temporal waste disposal receptacles in site. • Contractor to liaise with licensed waste collector to routinely collect and dispose the waste	• No of litter bins installed • Licensed waste handler in place • No of trainings on waste management • NO. of bins for handling waste	Contractor/Project Manager	Receipts Attendance Register Photos	4 months	**5,000** **For bins**
Excavated earth materials & desilted silt	• Contractor to dump unused excavated materials and debris in designated places as directed by the supervising engineer. • Contractor to use excavated soil for the water pan wall/embankment. • Excavated silt can be incorporated with compost for use as potting media in the tree nursery.	• Presence of designated site for unreusable earth materials. • Volume of reused earth materials • Volume of silt to be used in tree nursery	Contractor/Supervising engineer	Engineers report Photos	4 months	**10,000**

NEGATIVE SOCIO-ECONOMIC IMPACTS IN THE CONSTRUCTION PHASE						
Occupational Health and Safety (OHS)	• The sites to be protected or fenced off from unauthorized intrusions and warning signs; barricades should be properly displayed and strictly adhered to. • All workers to be provided with full protective gear (PPEs) and to use them • Workers to be trained on first aid & a fully equipped First Aid Kit provided at site. • The contractor to have Incident and Accident Registers on site for recording of injuries or any OHS incidence. • Contractor to prepare an emergency management and preparedness plan for accident response & avail Emergency contacts for police, ambulance, etc. • Contractor to appoint a qualified health and safety person to manage OSH issues. • Tools and equipment to be placed in a safe place when not in use. • Workers on contract to be insured	• No of Labels and warning signs installed • No of workers using PPEs on use by those involved at the site • No of staff/ workers trained on first-aid • No of First-aid Kits installed No of incidences/ accidents reported • NO. of emergency plan for accident response in place • Emergency contacts at the site • No of persons insured	Contractor/Supervising engineer/work foreman Work foreman Directorate of Occupational Health and Safety (DOSH)	Purchase receipts Reports Attendance register Records of testimonials of drivers	4 months	**50,000**
Risk of Accidents to the community	• Contractor to sensitize the community on the project and the project period and what caution to be taken by the community. • Contractor to employ qualified drivers. • Drivers to be instructed to observe required speed limits. • Installation of warning sign boards at the construction site and identified risk areas.	• Number of drivers instructed • No. of signage in identified risk areas • No. of community sensitizations on project implementation, risks and safety measures	Contractor/Supervising engineer	Photographs Attendance register Site visits	4 months	**15,000**
Increase in incidences of HIV/AIDS and STIs	• Contractor to sensitize workers and community members on HIV/AIDS and other communicable diseases. • Contractor's Health and Safety Management Plan (CHSMP) to be enforced through the Directorate of Occupational Health & Safety (DOSH) • Controlled access to Contractor's Workforce Camps by outsiders. • Contractor to provide standard quality condoms at the construction site during the construction period.	• Number of worker and community sensitized • No of condom dispensing equipment installed • Number of meetings held for workers and community	Contractor Proponent Public Health	Attendance registers Site visits	8 months	**40,000**
Spread of COVID-19 amongst construction workers	• The Contractors will develop SOPs for managing the spread of Covid-19 during project execution in line with the African Development Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions; • Mandatory provision and use of appropriate PPE) shall be required for all project personnel including workers and visitors; • Concentration of more than 15 people in a location to be avoided. • Maintain social distancing of at least 1.5 meters where two or more people gathered, • Subject workers and other people visiting the site	No of SOP(s) developed, No of training material developed, No of PPE purchased and used, No of installed handwashing equipment installed.	All the Project components Supervising Eng. & Contractor(s)	SOPs Project assessment reports Purchase orders/receipts Photos	8 months	**50,000**

	to rapid Covid-19 screening which may include temperature check and other vital signs; • Install hand-washing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings; • Ensure routine sanitization of shared social facilities.					
Labor risks including labor influx	• Local community members will be given priority in employment opportunities, in casual and unskilled labour. • Train the community on the project requirements and product. • Training of PMC, SAIC, CESSCOs and Community policing of the project	• Number of trainings for PMC, SAIC, CESSCOs and Community policing of the project • NO. of community members trained on project requirements	Contractor/ CPCU/	Training reports Workers register local administration report on GBV incidences monitoring, assessment	1 month	**50,000**
Risk of social conflict	• The proponent adherence to national labour code and AfDB policies through incorporating the same in the Procurement and Contract Agreement document for implementation by the contractor. • Contractor to sensitize the workers on code of conduct (COC) • Develop and implement local hiring rules in consultation and partnership with the local community. • Train workers and the project management committee and rank members on conflict management and resolution	• No of tenders with specific clause on AfDB policies such as equality in employment • No of signed code of conduct by the workers • Community user's development plan developed • NO. of PM, SAIC, & administration trained on GBV	Contractor/Works foreman CPCU Local Project management committee	Minutes Reports Attendance registers	1 months	**10,000**
Child labor and school dropout	• The proponent to sensitize the community on national children welfare policies, children's laws and African Development Bank policies on the protection of children and the importance of children being educated. • The Proponent to ensure the Contractor complies with national and AfDB policies and rules on welfare of children. • Control to ensure there is no child labour at the construction. This can be done by using Identification Cards to verify the age of the workers and casuals.	• No. of sensitizations on children welfare • No of registered workers • No of workers who have signed the code of conduct	CPCU	Signed agreements attendance registers copies of ID. Card No. of workers	Construction phase	**10,000**
Gender-based Violence (GBV) at the community level	• The contractor will implement provisions that ensure that GBV at the community level is not triggered by the Project, including: • Effective and on-going community engagement and consultation, particularly with women and girls. • Review of specific project components that are known to heighten GBV risk at the community level. • The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization employment.	• Number of engagements with women & girls • Code of conduct prepared • NO. of GBV risk factor identified • NO. of plans to mitigate risks developed. • NO. of Referral mechanisms in place.	Supervision Consultant GBV Expert Local NGO/CBO	GBV plans Attendance registers GBV action plans	1 year	**100,000**

	• The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.					
Sexual Exploitation and Abuse by project workers against community members	• Proponent to develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP. • The SEA action plan will include how the project will ensure necessary steps are in place for: • Prevention of SEA through including Code of Conduct (CoC) and ongoing sensitization of staff on responsibilities related to the COC. • Response to SEA by including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures. • Engagement with the community & development of confidential community-based complaints mechanisms discrete from the standard GRM. • Integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA.	• NO. of SEA Action Plans • NO. of workers signed COC • Number of community members engaged on developing community-based complaint mechanism.	Supervision Consultant GBV Expert	SEA action plan Attendance registers	1 year	**150,000**
NEGATIVE ENVIRONMETAL IMPACTS IN THE OPERATION PHASE						
Surface & Ground water pollution	• The water pan should be fenced as indicated in the BQ and having only one controlled entrance. • The users should draw off water from the designated sites only. • The Contractor to clear the site of all solid wastes, construction materials and any spills after completion of the construction works. • The Proponent to ensure the construction of pit latrines in the site as provided in the BOQ at a safe distance from water sources. • The Proponent to develop and implement (through sensitization of farmers) an ***Integrated Pest Management Plan*** (IPMP) • Proponent to ensure regular monitoring of water quality.	• No of animals drinking from water troughs • No of community members drawing water from communal drawing points constructed • Acreage fenced • NO. of pit latrines constructed • NO. of IPMP developed & implemented • NO. of farmers sensitized on IPMP • Frequency of water quality testing.	Proponent Dept. of Livestock and agricultural officers Proponent Community in catchment area	Designs & BQs Reports Photographs Attendance Registers Training manuals	6 months	**150,000** **IPMP development & implementation.**
Soil erosion & Siltation	• Construction of silt traps along the inlet water course as will be guided by the supervising engineer (see annex 5 on Bill of Quantities) • Regular maintenance of the check dam/silt traps by the community • The embankment to be grown with suitable grass as outlined in the design plan. • The proponent to ensure the implementation of the developed ***integrated sustainable land management (ISLM)*** plan. • The catchment community to be sensitized on the ISLM & to be trained on farm SLM practices e.g. terracing, minimal tillage, agroforestry crop rotation, intercropping.	• No of silt traps constructed along the inlet water course • Acreage of land under catchment management and conservation through SLM • No of trainings on SLM • Area of embankment planted with grass. • NO. of additional cattle troughs. • NO. of community members sensitized on stock rate. • NO. of gabions constructed • Frequency of desiltation.	PMC Proponent Community Director Department of agriculture	Designs & BQs Training manuals Attendance Registers Photographs	8 months	**75,000** **sensitization**

	• Regular desilting should be undertaken (removal of silt from the reservoir using manual labour can be periodically organized during the dry season). • The proponent to consider piping water to other sites in future to avoid animal concentration and overgrazing in the project area. • Sensitize the community on appropriate stock rate.					
Water pan breaking its walls and associated risks	• The Proponent should develop the Faan Water Pan Crisis Action Plan (CAP). The CAP should contain the details for Water pan CAP as shown under Annex 9. • A qualified Water Resource Professional should inspect the site every year and at least at the end of every rainy season. • Undertake regular (continuous) monitoring and assessment of the water pan and project site especially with the current climate change, before and after the rainy season. • Proper inspection should be done once in 3 years to a maximum of once in 5 years by a qualified professional • The inspection forms (see on annex 8) should be properly filled, maintained and action recommended. • Train the project management committee and the local administration (local technical team) on scouting which will lead to early detection and responding to any risk situation. • An Emergency Action Plan (EAP) should always be maintained by the operation and maintenance team and this should be done during the routine preventive maintenance by the local technical team (see the plan on annex 10). • Undertake Environmental Audit for the water pan annually as required by NEMA.	• CAP in place • number of inspections conducted/ frequency of inspection. • No of trainings for PMC • No of annual inspections conducted by engineers • Number of seasonal monitoring and assessment of the water pan • No of Environmental Audit for the water pan annually • Presence of Emergence Response Plan (ERP)	Local project management committee Chief/Village Administrator CPCU/County Government	Inspection reports CAP Training manuals Attendance Registers Audit Reports ERP Periodical M & E reports Photographs	1 year	**250,000**
Solid waste generation	• Sensitization of the farmers on the disposal of used agrochemical wrappings, containers and packages. • Proponent to ensure wastes from farming activities are sorted before disposal • Proponent to provide litter/waste bins in the project area for temporal storage of waste. • Use of a NEMA registered waste collector, transporter and disposer.	• NO. of famers sensitized on agrochemical waste disposal • NO. of waste bins provided. • NO. of registered waste collectors engaged	Proponent Director agriculture & livestock CPCU	Attendance register Training manuals Reports	once	**40,000 training & waste bins**
Drowning Risk	• The risk has been significantly reduced through the proposed fencing and installation of a gate. • The gate to be always locked with a padlock. • The community be sensitized on the potential risk of drowning. • Involvement of the whole community members in ensuring that the perimeter fence is maintained and not destroyed (encourage community policing).	• Length of perimeter fence constructed • No. of sensitized • No. of entrances • No. of persons responsible for policing	PMC	BQs Reports Photographs Signed agreements with community policing team	1 year	**60,000**

	• Employ a person to guard the water pan/through the water users' association (WUA) ensure regular monitoring.					
NEGATIVE SOCIO-ECONOMIC IMPACTS IN OPERATION PHASE						
Outbreak of livestock diseases	• Regular disease surveillance by the veterinary department and community. • Sensitization of the community on disease spread, monitoring and control. • A livestock disease management plan be put in place by the veterinary department to ensure disease incidences are promptly responded to and addressed.	• Number of disease surveillance • No of Sensitization meetings held on disease control • A livestock disease management plan put in place	CPCU	Surveillance reports Training reports Attendance Registers Disease Management Plan	1 year	**100,000**
Human health impacts e.g. Malaria and schistosomiasis	• Sensitize the community on malaria prevention through use of mosquito nets, local and indoor residual spraying and bush clearing near households. • Malaria surveillance programme to be maintained. • Establish community-based health education committee that facilitate malaria control programme facilitated and coordinated through public health department • Sensitize the community on water purification methods.	• No/ Proportion of households with mosquito nets • No of people trained on malaria & water borne diseases control • Record of disease incidence • No of households practicing safety rules	CPCU Department of Public Health	Photographs Attendance Registers	2 weeks	**50,000**
Occupational Health and Safety to use of agricultural chemicals	• Development & implementation of Integrated Pesticide Management Plan (IPMP)	NO. of IPMP developed & implemented	CPCU Proponent Department of Agriculture	Reports	Quarterly	**150,000**
Water use related conflict	• Develop and implement a community users' development plan in consultation and partnership with the local community and existing WRUAs • Formulation of local by-laws to guide the use of water in the project area • Sensitize the community/beneficiaries on efficient water use to avoid wastage. • Raise community awareness on the benefits of the project for more cooperation.	NO. of community water users plan developed & implemented NO. of bylaws developed and implemented NO. of community members educated on water conservation	CPCU Proponent WRA Department of Agriculture / Water	Attendance register Training manual Reports	Quarterly	**75,000**
Poor leadership and management problems	• Training of PMC on water project management, financial management and promotion of accountability & accountability. • Sensitization of project beneficiaries/community members on project management.	NO. of PMC trained NO. of trainings NO. of community members trained on project management.	CPCU Proponent	Attendance register Reports	Quarterly	**50,000**
Child labour and school drop out	• Train village volunteer child monitors to work closely with the office of the chief and the department of children on issues of child protection • Sensitize the community on child protection issues relating to the project.	• NO. of village volunteer's child monitors trained. • NO. of community members trained on child protection.	CPCU Proponent Chief	Attendance register Reports	Quarterly	**25,000**
DECOMMISSIONING PHASE						
Decommissioning Impacts	• Proponent to undertake environmental and social impacts of the proposed decommissioning	Duration of investigation	Proponent	Decommissioning report	1 months	**200,000**

		NO. of Decommissioning Plans ESMP developed		Decommissioning Plan ESMP		
conflict Management	• Proponent to notify all the Project Affected Persons (PAP)	NO. of methods of notification NO. of PAPs notified	Proponent	Notification notice	1 week	**30,000**
TOTAL						**2,235,000**

NOTE: *This ESMP should be shared with the chosen Contractor to enable the development of the Contractor ESMP for easy follow up and monitoring of the proposed mitigation measures and response to other issue that might arise during the construction phase.*

8.2 Environmental and Social Monitoring Programme

8.2.1 Monitoring and Management

The project will establish both compliance and effects monitoring plans. The compliance monitoring mechanisms will ensure that the various project organizations are implementing the provisions of the ESMMP effectively and on time. The effects monitoring mechanisms will check on the impacts which the project is having on the physical, biological and social environment, by regular measuring of indicators. The results will be fed back to project management for evaluation.

During the project preparatory stages, the proponent, Faan Water pan PMC and the CPCU would ensure that the measures outlined in the ESMMP are complied with. When the construction phase commences, it is expected that a supervising consultant (Engineer) be appointed to ensure compliance of the construction contractor. The project Management Unit through the CESSCO and the Monitoring & Evaluation Officer (MEO) will prepare periodic project compliance reports to the BREFONS CPCU & NPCU and other relevant stakeholders.

8.2.2 Compliance Monitoring -Pre-construction and Construction phase

During the project preparatory stages, the proponent and the CPCU would ensure that the measures outlined in the ESMMP are complied with. When the construction phase commences, it is expected that a supervising consultant (Engineer) be appointed to ensure compliance of the construction contractor.

The project Management Unit will prepare periodic project compliance reports

8.2.3 Compliance Monitoring - Operation Phase Monitoring

Periodic preparation of Project Compliance reports will be prepared by the proponent and the SEA, through review of reports and regular site inspections will ensure that the project is implemented in compliance with the ESMP.

The financing partner will mount periodic supervision missions.

8.2.4 Effects Monitoring

Environmental effects monitoring is done to determine the environmental impacts that arise as a result of implementation of the project. In each aspect of the environment, indicators are determined and compliance is measured against those indicators. Main monitoring indicators are as shown in table 12 below.

Table 8:2: Monitoring Indicators

Area	Activity	Indicators	Monitoring Frequency
Surface & Ground Water	Sampling and analysis of water quality in the channels & project area	Turbidity	Quarterly
		pH	Quarterly
		Total dissolved Solids	Quarterly
		Total Suspended Solids	Quarterly
		Nitrates	Quarterly
		Sulphates	Quarterly
		Phosphates	Quarterly
		Chemical Oxygen Demand	Quarterly
		Metals	6-monthly
	Water usage data to be tracked to ensure sustainable water use	Volume of Water use (rate of water uptake).	Weekly
Socio-Economic	Gender Human impact monitoring and rights (GBV/SEA), Child labour	Number of women and disadvantaged groups with income. NO. of GBV/SEA incidences reported and addressed NO. of children involved in child labour reported	Annually
	Public health: Determination of disease prevalence in project area health institutions.	Number of cases in each health facility.	Annually
	Social interactions	Number of project related conflicts	Annually
Ecology	Audit on alien species invasion (AIS) control	Extent of alien species invasion (ha coverage)	Every 2 years

8.2.5 Audits and Reviews

Annual environmental and social audits and reviews will be conducted to assess the performance on environmental, health and safety guidelines and to monitor progress in implementation of the ESMMP. This follows the Environmental (Impact Assessment and Audit) Regulations, 2003 which requires an environmental audit to be conducted annually to determine unforeseen environmental and social issues which can then be incorporated in the ESMMP. The quarterly monitoring reports on ESMMP implementation will form the basis for effective auditing and review of the ESMMP of the proposed sub project.

8.3 Water Pan Crisis Action Plan (CAP)

A crisis action plan for Faan Water pan should be developed and would consist of:

- Contact names and telephone numbers (owner of the pan, authorities downstream, police and emergency services and others) to call if the pan is damaged, develops problems or is considered unstable.
- Information on possible areas likely to be affected downstream (estimated area of inundation) should the pan fail or significant amounts of water require immediate release from gates, drains or outlets. A map to illustrate various levels of inundation (with estimates of timings for any flood wave) should be prepared and be available.
- A list of names, addresses and telephone numbers (keep this up to date) of inhabitants living immediately downstream of the pan and within the estimated area of inundation.
- The CAP should be periodically updated to consider changes in land use downstream and any changes to the catchment upstream.
- Plans for warning and emergency evacuation, including the provision of safe routes to follow in case of flooding/ pan failure. Immediate evacuation should take priority over any other action should the stability of the water pan be threatened.
- Information on resources to use and procedures to follow for emergency repairs. This should include a list of civil engineering contractors, equipment and materials' suppliers and engineers available locally.

8.3.1 Emergency Action Plan (EAP)

An Emergency Action Plan should always be maintained by the operation and maintenance team and this should be done during the routine preventive maintenance by the local technical team (see the EAP on appendix XIII).

8.3.2 Community Training

As the water pan will be owned by the community at least two members of the water pan committee should receive basic training in operation and maintenance aspects of the water pan. This training should concentrate on the following issues:

- Attending to minor problems which can be taken care of by the community itself, e.g., rain erosion on embankment slopes, repair of fences etc.;
- Identification of problems which require more specialized attention, e.g., erosion in spillway channel; and
- Establishment of communication channels between the representatives of the community (water pan committee) and the responsible organization or administration at county level.

8.4 Risk Assessment

Water pans are considered to be a hazard as it may cause inundation, physical and environmental damage and loss of life. As such, classifying water structures into different hazard classes helps to define design speculations and acceptable risk associated with different scale of hazard. Based on table 8.3 below, this type of water pan is a low to medium risk hence a crisis action plan is very necessary.

Table 8:3: Class of Water Structures

Class of water structure/dam/water pan	Maximum Depth of Water at NWL (m)	Impoundment and NWL (m3)	Catchment Area (km²)
A (Low Hazard)	0-4.99	<100,000	<100
B (Medium Hazard)	5.00-14.99	100,000 to 1,000,000	100 to 1,000
C (high Hazard)	>15.00	>1,000,000	>1,000

Source (Practice Manual for Small Dams, Pans and Other Water Conservation Structures in Kenya)

Based on the above criterion, Faan water structure falls in the Low hazard category since it has a depth of above 4 meters with a catchment area of less than 100 square kilometers.

8.5 Water Pan Inspection

To ensure the safety of Faan water pan regular inspection will be undertaken. A qualified Water Resource Professional should inspect the site every year and at least at the end of every rainy season. The pan should also be continuously monitored especially with the current climate change, before and after the rainy season. However, Proper inspection should be done once in 3 years to a maximum of once in 5 years by a qualified professional.

The inspection forms (see on appendix XI on inspection form) should be properly filled, maintained and action recommended. An emergency Action Plan should always be maintained by the operation and maintenance team and this should be done during the routine preventive maintenance by the local technical team (see plan on appendix XI).

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusion

The Faan Water Pan project has raised issues of importance to the environment, social, health and also economic wellbeing through and an in-depth assessment and evaluation of the environmental and social impacts. Additionally, mitigation measures have been proposed for adverse environmental and social impacts identified as detailed in the ESMMP. Subject to full resourcing and effective implementation of the measures identified in the ESIA SPR, & the ESMMP, the project is considered to be in compliance with the AfDB environmental and social policy guidelines, EMCA Act 1999 and other legislations, policy and regulatory framework. It therefore concluded that the positive impact outweighs the negative impacts raised and the project should be allowed to proceed.

9.2 Recommendations

9.2.1 Implementation

- ✓ It is recommended that the proposed project proponent be allowed to go ahead provided the outlined mitigation measures are implemented as outlined in the ESMMP. The ESMMP will be shared with the Contractor who will implement the Contractor-Specific Environmental and Social Management and monitoring Plan (C-ESMMP).
- ✓ On approval, it is recommended that the proponent should implement the proposed project based on the proposed plans and if alterations are necessary, advice should be sought from the CESSCO and subsequently environmental expert.
- ✓ There is need for rigorous implementation of the Environmental Management and Monitoring Plan which will facilitate the mitigation and/ or prevention of potentially adverse environmental impacts.
- ✓ The proposed ESM&MP should be followed fully by the contractor with the supervision from the proponent. A report on the findings from the monitoring of the ESM&MP right from implementation all through to decommissioning phase submitted quarterly.
- ✓ The mitigation measures proposed should be followed by the proponent as it is highlighted in this ESIA report.
- ✓ The design, construction and operation should be carried out in accordance to the specific report for the proposed project.
- ✓ The proponent to undertake Environmental Impact Assessment Studies for all the proposed borrow pits and areas of construction materials
- ✓ An Environmental Audit be undertaken and submitted to NEMA every year after commissioning of the project to ensure that all the proposed mitigation measures

have been complied with. The social impacts raised during community participation should be followed.

In conclusion, the positive impact outweighs the negative impacts raised. Mitigation measures for the negative impacts have been given and, in the end, it is economically viable and therefore it should be allowed to proceed.

9.2.2 Compliance with the Water Quality Regulations

The proponent will comply with the standards set out in the Fourth Schedule of Water Act 2016 by applying for the WRA water permit.

9.2.3 Water Pan Crisis Action Plan and Emergency Response Plan (ERP)

The established water pan CAP should be adhered to by the proponent. The proponent should ensure regular monitoring of the water pan particularly the water pan walls, before and after the rains. The PMC should be trained on detecting and responding to any risk situation and be part of the ERP team together with the local administration. The proponent should establish proper channel of information and communication of ER situation including capacity building of the community and members of the water pan committee.

It is thus recommended that on submission of this report NEMA to consider it and give its approval for the proposed work to commence and as according to the guiding regulations on ESIA and Environmental Audits (EA) issue the ESIA license for the project.

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APPENDICES

Appendix i	Sample of Filled Public Consultation Questionnaire
Appendix ii	Minutes of Public Consultation Meetings
Appendix iii	List of Attendants for Public Consultation
Appendix iv	NEMA Practicing License (Lead and Associate Expert)
Appendix v	Land Resolution Form / Consent
Appendix vi	Photo Gallery
Appendix vii	Chance Find Procedure
Appendix viii	ESIA Inspection form
Appendix ix	Water Pan Crisis Action Plan (CAP)
Appendix x	Overview of Emergency Action Plan
Appendix xi	Faan Water Pan Drawings and Design

Appendix I: Sample of Filled Public Consultation Questionnaire

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity: ESIA FOR THE PROPOSED FAAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent
Name: GEDIO ABDI HAJI
Phone Number: 07 24 8 79 100
Village: FAAN Sub-County: SHANTA BAAG

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Availability of plenty water
   - Job opportunities
4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Vandalism
5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**
   start the project soon

Signature/ Thump Print: .....

Date: 20/03/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity: ESIA FOR THE PROPOSED FAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent

Name: NAHIR KADIYE

Phone Number: 0725785443

Village: FAN Sub-County: SHANTA BAAG

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

   - Economic growth
   - plenty work for community Members

4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

   Expensive to maintain the project
   Vandalism

5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**

   Visit my project soon

Signature/ Thump Print: ✓

Date: 20/2/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity:
ESIA FOR THE PROPOSED FAAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent
Name: GEDI DIRIYE JAMA
Phone Number: 0742900890
Village: FAN Sub-County: SHANTA BAAQ

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Job Opportunities
   - Availability of Water
4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Vandalism
5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**
   Start the construction soon

Signature/ Thump Print: ....

Date: 20/3/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity: ESIA FOR THE PROPOSED FAAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent
Name: KHAT MAAJ
Phone Number: 0710990771
Village: FAAN Sub-County: SHANTA BAAG

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Availability of Plenty Logs
   - The economy growth in the community
4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Vandalism
5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**
   Start the construction soon

Signature/ Thump Print: ....

Date: 20/3/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity:

.....ESIA FOR THE PROPOSED FAAN WATER PAN.....

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent

Name:.....HAJIR JAWANE.....

Phone Number:....0711.904.744.....

Village:....FAN..... Sub-County:....SHANTA BAAQ.....

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

.....
- Employment
- Job opportunities for community members
- Availability of plenty water
.....

4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

.....
- Clearing of bush for construction
.....

5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**

start the construction soon

Signature/ Thump Print: .....

Date: 28/2/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity:

.....ESIA.....FOR.....THE.....PROPOSED.....FAAN.....WATER.....PAN.....

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent

Name:.....KALU ADEN.....

Phone Number:.....0729066707.....

Village:.....FAAN..... Sub-County:.....SHANTA BAAQ.....

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

.....

- Job opportunities for community Members

.....

- Economy growth

.....

- Water will be available

4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

.....

- Vandalism

.....

.....

.....

5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**

start the project soon

Signature/ Thump Print: .....

Date:.....18/2/2025.....

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity:
ESIA FOR THE PROPOSED FAAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent
Name: AMINA MUHUMED
Phone Number: 0100974141
Village: FAAN Sub-County: SHANTA BAAQ

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Economy growth
   - Availability of work
4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Expensive to Maintain
   - Vandalism
5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**
   Start constructing the project soon

Signature/ Thump Print: .....

Date: 20/2/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity:
ESIA FOR THE PROPOSED FAAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent
Name: NIMO KHALF
Phone Number: 0703921769
Village: FAAN Sub-County: SHANTA BAAQ

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Availability of job opportunities
   - Availability of water for Animal and people
4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - People might steal the tools for construction
5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**
   start the construction soon

Signature/ Thumb Print: .....

Date: 20/2/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity: ESIA FOR THE PROPOSED FAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent
Name: NIMO ALI
Phone Number: 0728517051
Village: FAN Sub-County: SHANTA BAAQ

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Job opportunities
   - Availability of water
4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?
   - Vandalism
5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**
   start the project soon

Signature/ Thump Print: [signature]

Date: 20/2/2025

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)

STATE DEPARTMENT FOR AGRICULTURE

PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)– KENYA COMPONENT

PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

Specific Site Activity: ESIA FOR THE PROPOSED FAN WATER PAN

Pursuant to the provisions of the Environmental Management and Co-ordination Act (1999), and the Environmental (Impact Assessment and Audit) Regulations (2003) revised in 2015. **African Development. Bank (AfDB)** Environmental & Social Safeguards that encompass rigorous Environmental and Social Assessments, Stakeholder Engagement, development of Environmental and Social Management Plans (ESMPs), establishment of Grievance Redress Mechanisms, Continuous Monitoring and Evaluation, Capacity Building, And Knowledge Sharing which are applicable in the Sub-Project, Public Health Act and Legal Supplement 2003 an Environmental and Social Site Assessment (or EIA/ ESMP is being conducted for the **PROPOSED PROJECT.**

Please note that these details are required for the purpose of authenticity in relation to the proposed project

Respondent

Name: IMANI IBRAHIM

Phone Number: 0712 005676

Village: FAN Sub-County: SHANTA BAAQ

1. Do you support the proposed project in the area Yes (✓) No ( )
2. Within the area are there similar projects Yes ( ) No (✓)
3. What **Potential Positive Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

   • There will be Availability of water

   • Job opportunities for community Members
4. What **Potential Negative Environmental and Socio-Economic** impacts do you anticipate the project's implementation will generate?

   • Vandalism
5. In your general opinion, should the project be implemented on the proposed site? Yes (✓) No ( )
6. Kindly give any other comments or suggestions you may have about the **project.**

   Start the Construction soon

Signature/ Thump Print: .....

Date: 20/2/2025

Appendix II: Minutes of Public Consultation Meetings

MINUTES OF THE PUBLIC PARTICIPATION FOR THE PROPOSED FAAN COMMUNITY WATER PAN AT FAAN VILLAGE, IN AFWEYNE LOCATION, SHANTA BAAQ SUB COUNTY, GARISSA COUNTY HELD ON 20TH MARCH, 2025.

PRESENT MEMBERS

List attachment

AGENDA

The agenda for the meeting was proposed by the chair of the session Mr. Abdishukri Suleiman a representative from the Garissa County Ministry of Agriculture, who was standing in for the County Project Coordinator (CPC) for the Program to Build Resilience for Food and Nutrition Security in The Horn of Africa (BREFONS) Mr. Abdullahi Dakane and adopted by the members as follows;

- Preliminary matter
  - Introductions
  - Opening remarks
- Presentation of the proposed project by the Environmental Experts
- Project Impacts and Issue matrix
- Way forward
- AOB

MIN 1/20/03/2025: PRELIMINARIES

The meeting began at 10:20 a.m. with an Islamic prayer led by a member of the community. Under the chairmanship of the Garissa County Agriculture department representative, introductions were made by all attendees followed by the Chair expressing his appreciation and extending a warm welcome to everyone. He acknowledged the government's effort in facilitating beneficial programs such as **BREFONS** for the vulnerable communities in arid regions, and requested the community to fully cooperate and offer support to the environmental team by sharing information needed to aid in the preparation of the Environmental and Social Impact Assessment (ESIA) report. The purpose of the meeting was to allow the project's Environmental Consultant to present a detailed

overview of the project and to inform the Faan community, addressing any concern and soliciting their views and opinions.

MIN 2/20/03/2025: PRESENTATION BY THE ENVIRONMENTAL CONSULTANTS

The Environmental Consultant for the proposed project, Mr. Erick Orwa, briefed the community on the ongoing BREFONS program. He provided a comprehensive overview of the project in the chosen seven ASAL Counties of Kenya that includes Marsabit, Turkana, Isiolo, West Pokot, Samburu, Baringo and **Garissa**, further pointing out that BREFONS had drawn from the previous DRSLP project that had been implemented in the other six counties excluding Garissa.

He also explained the ESIA process and its relevance to the project, as well as the contractor tender process. The community was then invited to share their views on the project's importance, their current challenges, and the justification for the water pan construction.

MIN 3/20/03/2025: PROJECT IMPACTS AND ISSUE MATRIX

Community members highlighted several positive impacts of the project including;

- **Reduced distance to water source:** The nearest fresh water source currently serving the community is located 10 km away therefore the proposed water pan will greatly reduce the distance the community members have to travel to seek water for domestic use thereby creating convenience.
- **Improved health and hygiene:** The water pan will provide sufficient water to enable the residents perform cleaning duties consistently and also obtain clean water for drinking and cooking.
- **Economic Development:** Sufficient water availability will help stimulate economic growth by enhancing different farming activities such as crop farming, livestock farming that would in turn contribute to the development of Haji Aden Village.
- **Community Empowerment:** With a reliable water source, the community can focus on other developmental activities, such as education and entrepreneurship, leading to overall community empowerment and development.
- **Job Creation:** The project will likely create jobs during the construction and maintenance phases, boosting local employment and economic activity.
- **Community Resilience:** Access to a reliable water source would enhance the resilience of Faan Village, enabling better adaptation to arid conditions and supporting the overall well-being of the community.
- **Soil erosion control:** By slowing down run off and capturing rainwater, there will be a reduction in soil erosion around the region thereby preserving soil quality.

The presentation from the project expert team was followed by a plenary session of question and answer as follows;

KEY ISSUE	QUESTIONS FROM THE COMMUNITY	RESPONSE FROM THE CONSULTANT TEAM
Need for Piping and Water Kiosk	The community expressed a need for piping and a water kiosk to improve water accessibility.	• The technical team confirmed that indeed the project BoQs include the construction of a water kiosk to enhance water accessibility for drinking and domestic use.
Need for Water for Livestock	The community highlighted the need for adequate water supply for livestock alongside for domestic use.	• The technical team acknowledged the importance of water for livestock and confirmed that the BoQs include the installation of cattle troughs to ensure livestock easily get access to the water.
Toilets construction should consider their religion and cultural beliefs	Based on community's religion and cultural beliefs the community requested that toilets be constructed far apart.	• The technical team assured that indeed their inputs and recommendations will be factored in to guide on the toilet constructions.
Vandalism Challenges	The community raised concerns about vandalism of water infrastructure, which could affect reliability and safety of the water storage.	• The technical team acknowledged the issue of vandalism and recommended implementing security measures to protect water infrastructure. • Installing fencing, lighting, and surveillance around critical water facilities to deter vandals was suggested. Already the BoQ had a fencing component. • Engaging the community in safeguarding the infrastructure by reporting suspicious activities and participating in community watch programs was also emphasized. • Educating the community on the negative impacts of vandalism and promoting a sense of ownership and responsibility towards the water facilities was recommended

Water Depletion	The community was concerned about depletion of the water especially during the dry periods.	• The technical team responded that there will be need for the community to be trained and advised on proper water regulation to avoid over abstraction.
Schedule Timings for Drinking Water	The community requested scheduled timings for drinking water to ensure fair distribution and access for both humans and animals.	• The technical team recommended implementing a schedule for water distribution to ensure equitable access for all users, including humans and livestock. • Communicating the schedule clearly to the community and making necessary adjustments based on feedback and usage patterns was suggested. Encouraging community involvement in monitoring and managing the schedule to ensure fairness and efficiency was also emphasized.
Leadership challenges and possible conflicts	It was also reported that there is likely to emerge conflicts from leadership and management regarding use of resources.	• The technical team noted that the area under irrigation will be smaller and may not accommodate all members at the same time. They also took cognizance of the fact that resource management can be a source of conflict among members. The team pointed that the capacity building on the management committee will be continuous on financial management, procurement and maintenance. They also urged members to ensure active participation through bi-annual or annual meetings to discuss progress made and way forward.
Gender-Based Violence (GBV)	Concerns were raised about the potential for increased gender-based violence (GBV) in the community due to changes brought about by the water pan project.	• The technical team acknowledged the seriousness of GBV and recommended implementing comprehensive GBV prevention and response measures as part of the project. • Collaborating with local NGOs and community organizations to provide

		education and awareness programs on GBV prevention was suggested. • Ensuring that project staff and contractors are trained on GBV awareness and prevention, and adopting a zero-tolerance policy towards GBV within the project was also recommended.
Child labor	Concerns were raised about the potential for child labor exploitation in the construction and operation of the water pan project.	• The technical team recognized the importance of preventing child labor and recommended strict adherence to national and international labor laws prohibiting child labor. • Implementing monitoring and enforcement mechanisms to ensure that no child labor is used in any phase of the project was suggested. Conducting regular inspections and audits to verify compliance with labor laws and standards was emphasized. Providing educational support and opportunities for children to ensure they remain in school and do not engage in labor activities was also recommended.

MIN 4/20/03/2025: WAY FORWARD

After the plenary session the meeting agreed that there was need for a full collaboration between the community and the contractors to ensure smooth service delivery. Training and sensitization of the community on issues of sustainability and capacity building was also emphasized.

MIN 5/20/03/2025: CLOSING REMARKS

The project environmental expert team appreciated the community members for attending the meeting. The community members appreciated the team for being informative and giving them a chance to articulate their issues more clearly. The members also appreciated the effort made by the project consultants to honor the call and come for the meeting which has helped them to gain more insight about the proposed project.

There being no other business, the meeting was adjourned at 11:40 a.m.

Signed by:

Mr. Erick O. Orwa — **Environmental and Social Safeguards Consultant**

Appendix III: List of Attendants for Public Consultation

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)
STATE DEPARTMENT FOR AGRICULTURE
PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)
PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

SAH .D. OMAR CHIEF AFWEIN LOCATION Date: 20/3/2025

PROPOSED ACTIVITY: ESIA FOR THE PROPOSED FAAN WATER PAN

Date: 20/3/2025 **Venue:** FAAN VILLAGE

PUBLIC PARTICIPATION ATTENDANCE LIST

NO	NAME	DESIGNATION / VILLAGE	Gender M/F	Below 35 Years	Above 35 Years	ID NO. / P No.	TELEPHONE NUMBER	SIGNATURE / THUMB PRINT
1.	IMANI IBRAHIM SAID	FAAN	M		✓	4405920	0728005676	
2.	NIMO ALI MURSAL	FAAN	F	✓		29764766	0728517051	
3.	NIMO KHALIF AHMED	FAAN	F		✓	25894145	0703912197	N
4.	AMINA MUHUMED BULLE	FAAN	F		✓	23358181	0700974111	Amina
5.	KALI ADEN TALAHO	FAAN	F		✓	0035633	0729066707	Kali
6.	HAJIR TAWANE	FAAN	M	✓		25668942	0711904741	
7.	KUSA MAHAT ADEN	FAAN	F		✓	35476603	0710990771	
8.	MOHAMED GARANE	FAAN	M		✓	2522720	0725281189	
9.	ISMAIL ALI KHAR	FAAN	M		✓	13119143	0713011914	

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)
STATE DEPARTMENT FOR AGRICULTURE
PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)
PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

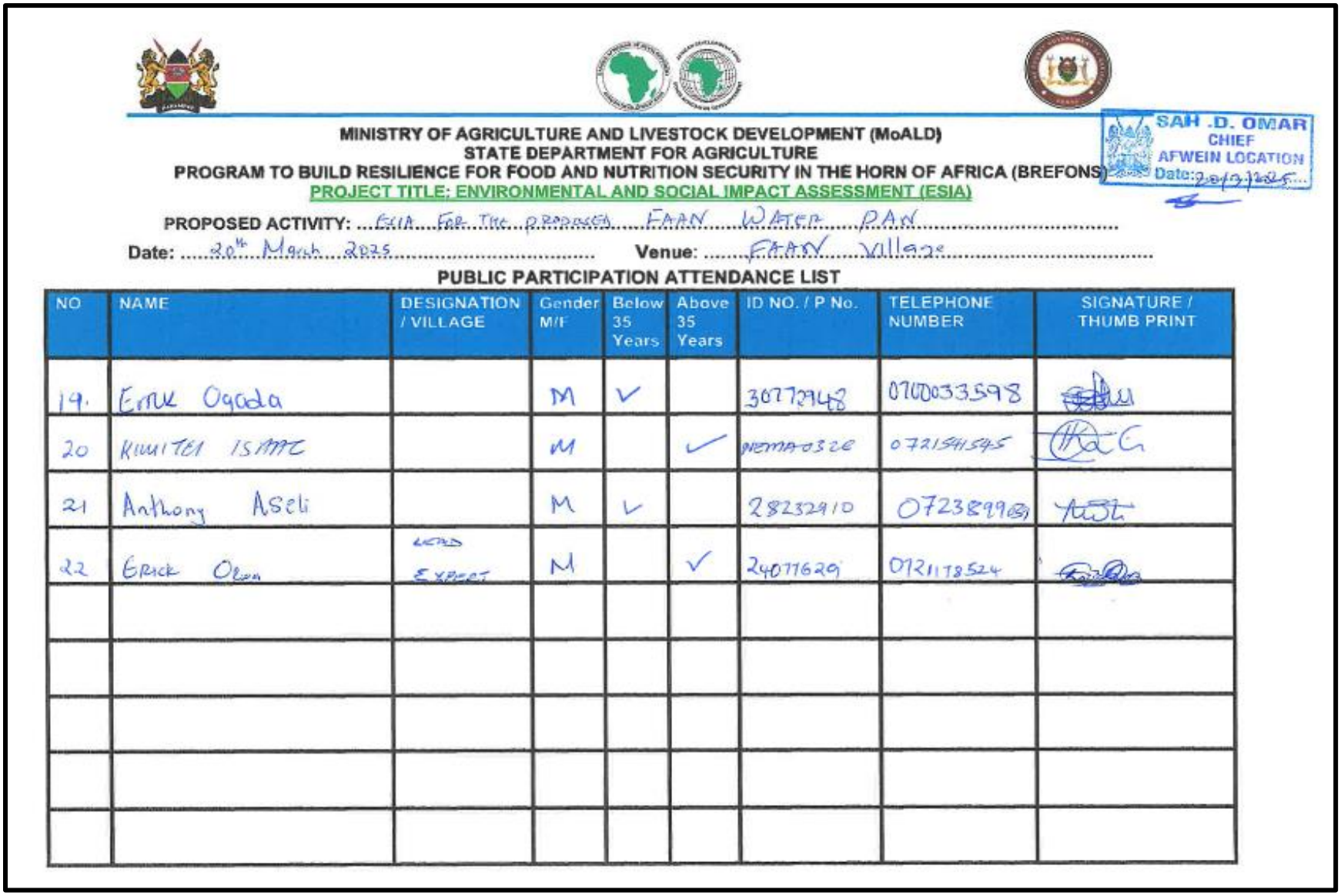
SAH .D. OMAR
CHIEF
AFWEIN LOCATION
Date: 2-7-2025

PROPOSED ACTIVITY: ESIA FOR THE PROPOSED FAAN WATER PAN

Date: 20/03/2025 Venue: FAAN VILLAGE

PUBLIC PARTICIPATION ATTENDANCE LIST

NO	NAME	DESIGNATION / VILLAGE	Gender M/F	Below 35 Years	Above 35 Years	ID NO. / P No.	TELEPHONE NUMBER	SIGNATURE / THUMB PRINT
10.	GEDI DIRIYE JAMA	FAAN	m		✓	0189938	0740900890	
11.	SEINAB ABDI SHEIKH	FAAN	m		✓	25881995	0746795864	
12.	DAHIR TAWANE KADIYE	FAAN	m	✓		22786953	0725785443	
13.	BILOW ABDILLE ALI	FAAN	m		✓	11885924	07102978 79	
14	GEDIO ABDI HAJI	FAAN	F		✓	00189524	072487910	
15.	KAMILA ABDI ADAN	FAAN	F	✓		30903932	0768716828	
16.	BARWAKA GARANE	FAAN	F		✓	25675285	0718906871	
17.	ABDISHUKRI SULEIMAN	C.G.G (Rms)	m	✓		30371590	0725080579	
18.	KINOTHO chilla	Assistant Chief	F	✓		38255216	0114644290	



MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)
STATE DEPARTMENT FOR AGRICULTURE
PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)
PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

SAH .D. OMAR
CHIEF
AFWEIN LOCATION
Date: 20/3/2025

PROPOSED ACTIVITY: ESIA FOR THE PROPOSED FAAN WATER PAN

Date: 20th March 2025 Venue: FAAN Village

PUBLIC PARTICIPATION ATTENDANCE LIST

NO	NAME	DESIGNATION / VILLAGE	Gender M/F	Below 35 Years	Above 35 Years	ID NO. / P No.	TELEPHONE NUMBER	SIGNATURE / THUMB PRINT
19.	Ertuk Ogoda		M	✓		30772948	0700033598	
20	KIMITEI ISAAC		M		✓	34840326	0721541545	
21	Anthony Aseli		M	✓		28232910	0723899[illegible]	
22	Erick Olum	LEAD EXPERT	M		✓	24077629	0721178524	

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT (MoALD)
STATE DEPARTMENT FOR AGRICULTURE
PROGRAM TO BUILD RESILIENCE FOR FOOD AND NUTRITION SECURITY IN THE HORN OF AFRICA (BREFONS)
PROJECT TITLE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED PROJECT ACTIVITIES IN GARISSA COUNTY

KEY INFORMANT INTERVIEW LIST

NO	NAME	DESIGNATION / INSTITUTION	CONTACT	SIGNATURE	DATE
(KEY)	KIMITEI ISAAC KIPCHIRCHIR	NEMA	0721541595		18/3/25

Appendix VI: NEMA Practicing License (Lead and Associate Expert)

nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

ENVIRONMENT MANAGEMENT AND COORDINATION ACT, Cap 387

Experts License - Associate/Lead Experts

License No.: **NEMA/ENVIS/EL/0491**

Application Reference No: **NEMA/ENVIS/ELA/03020**

M/S Erick Odhiambo Orwa

(individual or firm) of (address) **P.O.BOX 46213, 00100,Nairobi General Post Office**

is licensed to practice in the capacity of a **Lead Expert** registration number **NEMA/ENVIS/EL/0491** in accordance with the provision of the Environmental Management and Coordination Act cap 387.

Issued Date: **15th January 2026**

Expiry Date: **31st December 2026**

David Ongare

For DIRECTOR GENERAL

National Environment Management Authority

P.T.O.

ISO 9001 : 2015 Certified

FORM 5 (r.14(4))

EAE 23062335

nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

CERTIFICATE OF REGISTRATION AS AN ENVIRONMENTAL IMPACT ASSESSMENT/ AUDIT EXPERT

Certificate No: NEMA/EIA/RC/7501

Application Reference No: NEMA/EIA/ER/16530

This is to certify M/s **ERICK OKOTH OGADA** of

P.O.BOX 54-40100 (Address) has been registered as an Environmental Impact Assessment Expert in accordance with the provisions of the Environmental Management and Coordination Act Cap 387 and is authorized to practice in the capacity of a Lead Expert/Associate

Expert/Firm of Experts (Type) **Associate Expert**

Expert Registration No: **13489**

Issued Date : **8/13/2024**

Signature

(Seal)

Director-General
The National Environmental Management Authority

P.T.O.

Appendix V: Land Resolution Form / Consent

COMMUNITY LAND RESOLUTION FORM – GARISSA COUNTY

Community Resolution on Identification/ Selection of structure sites i.e.

.....FAAN COMMUNITY WATER PAN.....

We, the beneficiaries of AFWEIN LOCATION Have discussed and agreed that FAAN VILLAGE.....will be the site for the proposed construction of ...FAAN WATER PAN..... in SHANTABAQ....Sub County. BALAMBALA..... Ward, ...AFWEIN..... Location, ...AFWEIN..... Sub-location.

We, on behalf of the beneficiaries (beneficiaries' representatives) confirm the above information be true.

(Names of three (NO) Beneficiaries' representatives)

S/NO.	NAME	ID/NO.	SIGNATURE
	IMANI IBRAHIM SAID	44059220	
	MOHAMED GHANE IBRAHIM	21522720	
	AHMED ALI KARE	7497905	
	NIMO ALI MURSAL	29764766	

Witnessed By: ABDI SHUKRI SULEIMAN

Chief office (Stamped)

NAME	P/NO.	DESIGNATION	SIGNATURE
SAMIR OMAR OMAR	20140792L6	CHIEF	

CHIEF AFWEIN LOCATION OMAR
Date:.....

CDA'S OFFICE (Stamped)

NAME	P/NO.	DESIGNATION	SIGNATURE
MUHIMIN S. KHALO	19920223Y	CDA	

COUNTY DIRECTOR OF AGRICULTURE
P.O Box 3... GARISSA
21 MAY 2025
Email: agriculture@garissa.go.ke

County Government (Stamped)

(County Executive for Agriculture / Livestock)

NAME	ID/NO.	SIGNATURE
MILGO D KEMBO	24311123	

COUNTY EXECUTIVE COMMITTEE MEMBER MINISTRY OF AGRICULTURE, LIVESTOCK, FISHERIES ...
21 MAY 2025
COUNTY GOVERNMENT OF GARISSA
P.O. BOX 215-70100 GARISSA

(NB: Please add any other relevant information)

CamScanner

Appendix VI: Photo Gallery

The lead expert leading the public baraza at Faan Village.

Community members in attendance to the public meeting.

An expert describing the project details to the community.

Community members showing consent of project acceptance.

The project team administrating questionnaires and capturing attendance data.

Women taking part in the public participation forum.

Some livestock (goats) varieties found within the project location.

A sample of a housing structure (Manyatta) found within the proposed project location.

A sign board directing to Faan Village

Access road to the proposed water pan location.

Building materials sited for mosque construction.

Common livestock around the project vicinity.

Vegetative nature of the area around the proposed water pan.

The site location for the proposed water pan.

A local member directing the experts to the project location.

A community baraza with members filling in questionnaires.

Appendix VII: Chance Find Procedure

1. Purpose of the chance find procedure

The chance find procedure is a project-specific procedure that outlines actions required if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation. A Chance Find Procedure, is a process that prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements are implemented.

2. Scope of the chance find procedure

This procedure is applicable to all activities conducted by the personnel, including contractors, that have the potential to uncover a heritage item/site. The procedure details the actions to be taken when a previously unidentified and potential heritage item/site is found during construction activities. Procedure outlines the roles and responsibilities and the response times required from both project staff, and any relevant heritage authority.

3. Induction/Training

All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to this procedure during the Project induction and regular toolbox talks.

4. Chance find procedure

If any person discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the following steps shall be taken:

1. Stop all works in the vicinity of the find, until a solution is found for the preservation of these artefacts, or advice from the relevant authorities is obtained;

2. Immediately notify a foreman. The foreman will then notify the Resident/Supervising Engineer and the Environment Officer (EO)/Environmental Manager (EM);

3. Record details in Incident Report and take photos of the find;

4. Delineate the discovered site or area; secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities take over;

5. Preliminary evaluation of the findings by archaeologists. The archaeologist must make a rapid assessment of the site or find to determine its importance. Based on this assessment the appropriate strategy can be implemented. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage such as aesthetic, historic, scientific or research, social and economic values of the find;

6. Sites of minor significance (such as isolated or unclear features, and isolated finds) should be recorded immediately by the archaeologist, thus causing a minimum disruption to the work schedule

of the Contractor. The results of all archaeological work must be reported to the National Museums of Kenya (NMK), once completed.

7. In case of significant find the National Museums of Kenya (NMK) should be informed immediately and in writing within 7 days from the find.

8. The onsite archaeologist provides the NMK with photos, other information as relevant for identification and assessment of the significance of heritage items.

9. The NMK must investigate the fact within 2 weeks from the date of notification and provide response in writing.

10. Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage;

11. Construction works could resume only after permission is granted from the responsible authorities.

12. In case no response received within the 2 weeks' period mentioned above, this is considered as authorization to proceed with suspended construction works.

One of the main requirements of the procedure is record keeping. All finds must be registered. Photo log, copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports - kept.

5. Additional information

Management options for archaeological site

a) ***Site avoidance.*** If the boundaries of the site have been delineated attempt must be made to redesign the proposed development to avoid the site. (The fastest and most cost-effective management option)
b) ***Mitigation.*** If it is not feasible to avoid the site through redesign, it will be necessary to sample it using data collection program prior to its loss. This could include surface collection and/or excavation. (The most expensive and time-consuming management option.)
c) ***Site Protection.*** It may be possible to protect the site through the installation of barriers during the time of the development and/or possibly for a longer term. This could include the erection of high visibility fencing around the site or covering the site area with a geotextile and then capping it with fill. The exact prescription would be site- specific.

Management of replicable and non-replicable heritage

Different approaches for the finds apply to replicable and non-replicable heritage.

Replicable heritage[1]

[1] Replicable cultural heritage is defined as tangible forms of cultural heritage that can themselves be moved to another location or that can be replaced by a similar structure or natural features to which the cultural values can be transferred by appropriate measures. Archaeological or historical sites may be considered replicable where the particular eras and cultural values they represent are well represented by other sites and/or structures.

Where tangible cultural heritage that is replicable and not critical is encountered, mitigation measures will be applied. The mitigation hierarchy is as follows:

a) Avoidance;
b) Minimization of adverse impacts and implementation of restoration measures, in situ;
c) Restoration of the functionality of the cultural heritage, in a different location;
d) Permanent removal of historical and archaeological artefacts and structures;
e) Compensation of loss - where minimization of adverse impacts and restoration not feasible.

Non-replicable heritage[2]

Most cultural heritage is best protected by in situ preservation, since removal is likely to result in irreparable damage or even destruction of the cultural heritage. Nonreplicable cultural heritage must not be removed unless all of the following conditions are met:

a) There are no technically or financially feasible alternatives to removal;
b) The overall benefits of the project conclusively outweigh the anticipated cultural heritage loss from removal; and
c) Any removal of cultural heritage must be conducted using the best available technique advised by relevant authority and supervised by archaeologist.

Human Remains Management Options

The handling of human remains believed to be archaeological in nature requires communication according to the same procedure described above. There are two possible courses of action:

a) ***Avoid.*** The development project is redesigned to completely avoid the found remains. An assessment should be made as to whether the remains may be affected by residual or accumulative impacts associated with the development, and properly addressed by a comprehensive management plan.
b) ***Exhume.*** Exhumation of the remains in a manner considered appropriate by decision makers. This will involve the predetermination of a site suitable for the reburial of the remains. Certain ceremonies or procedures may need to be followed before development activities can recommence in the area of the discovery.

[2] Nonreplicable cultural heritage may relate to the social, economic, cultural, environmental, and climatic conditions of past peoples, their evolving ecologies, adaptive strategies, and early forms of environmental management, where the (i) cultural heritage is unique or relatively unique for the period it represents, or (ii) cultural heritage is unique or relatively unique in linking several periods in the same site. Examples of non-replicable cultural heritage may include an ancient city or temple, or a site unique in the period that it represents.

Appendix VIII: ESIA Inspection form

WAPER PAN NAME:		DATE	
MONITORED BY:		WATER LEVEL:	
ITEM	CONDITION	ACTION REQUIRED	BY WHOM
CATCHMENT AREA			
Erosion			
EMBANKMENT (cracks, vegetation, erosion, slumps, leaks, animals)			
Crest			
Downstream slope			
Upstream slope			
Lining Material			
SPILLWAY (debris, vegetation, erosion)			
Sill Area			
Culverts under Road			
Channel			
River confluence			
DRAW-OFF WORKS			
Status of Pump and Meter			
WATER QUALITY			
Color/turbidity			
Smell			
Chemical Analysis required?			
ENVIRONMENT			
Details of Any Animals			
Details of Any Plants			
Accessibility to Dam			
SIGNED BY			

Appendix IX: Water Pan Crisis Action Plan (CAP)

A crisis action plan for Faan Water Pan should be developed and should consist of:

1. Contact names and telephone numbers (owner of the water pan, authorities downstream, police and emergency services and others) to call if the Pan is damaged, develops problems or is considered unstable.

2. Information on possible areas likely to be affected downstream (estimated area of inundation) should the pan fail or significant amounts of water require immediate release from gates, drains or outlets. A map to illustrate various levels of inundation (with estimates of timings for any flood wave) should be prepared and be available.

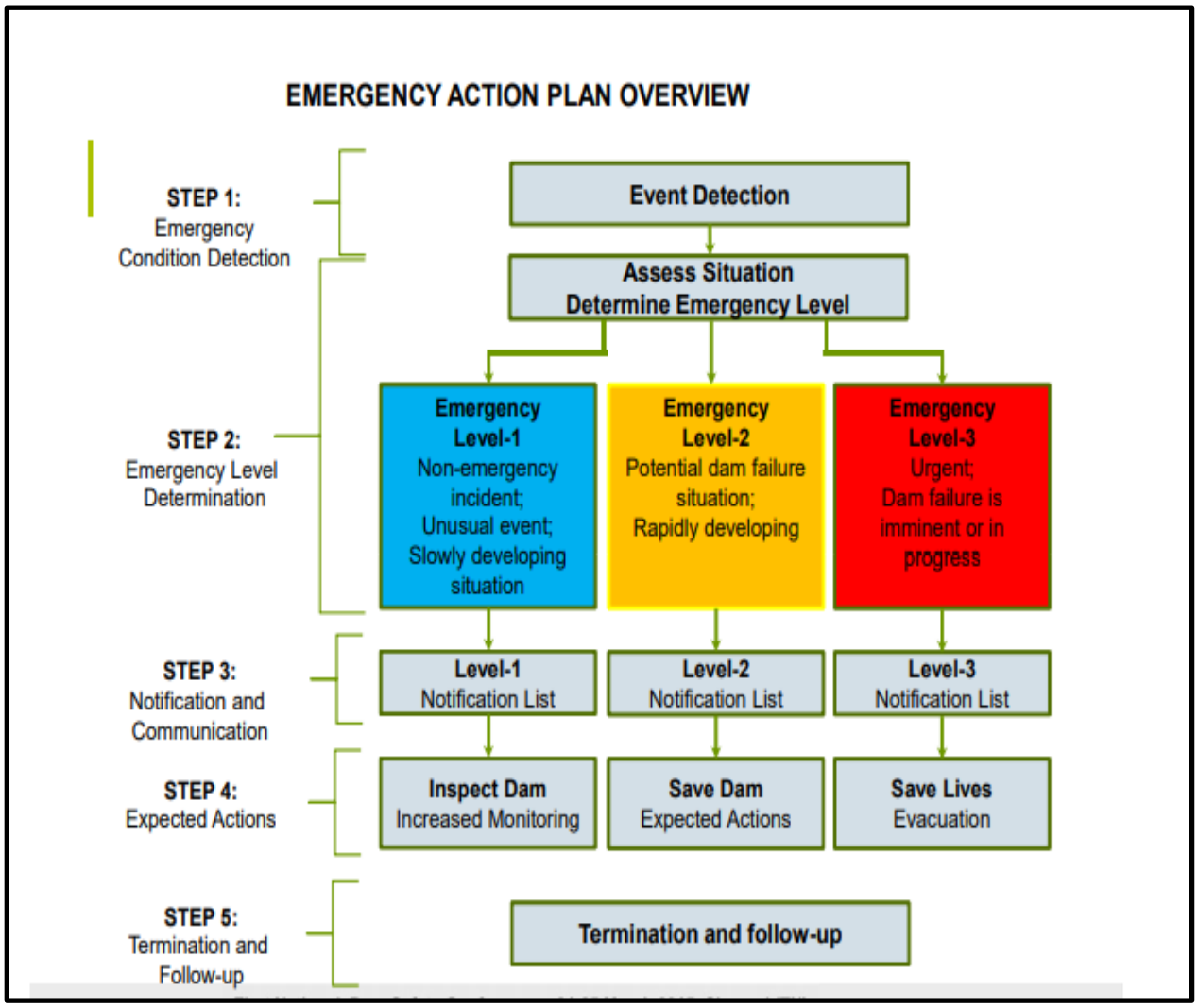
3. A list of names, addresses and telephone numbers (keep this up to date) of inhabitants living immediately downstream of the pan and within the estimated area of inundation.

4. The CAP should be periodically updated to consider changes in land use downstream and any changes to the catchment upstream.

5. Plans for warning and emergency evacuation, including the provision of safe routes to follow in case of flooding/pan failure. Immediate evacuation should take priority over any other action should the stability of the pan be threatened.

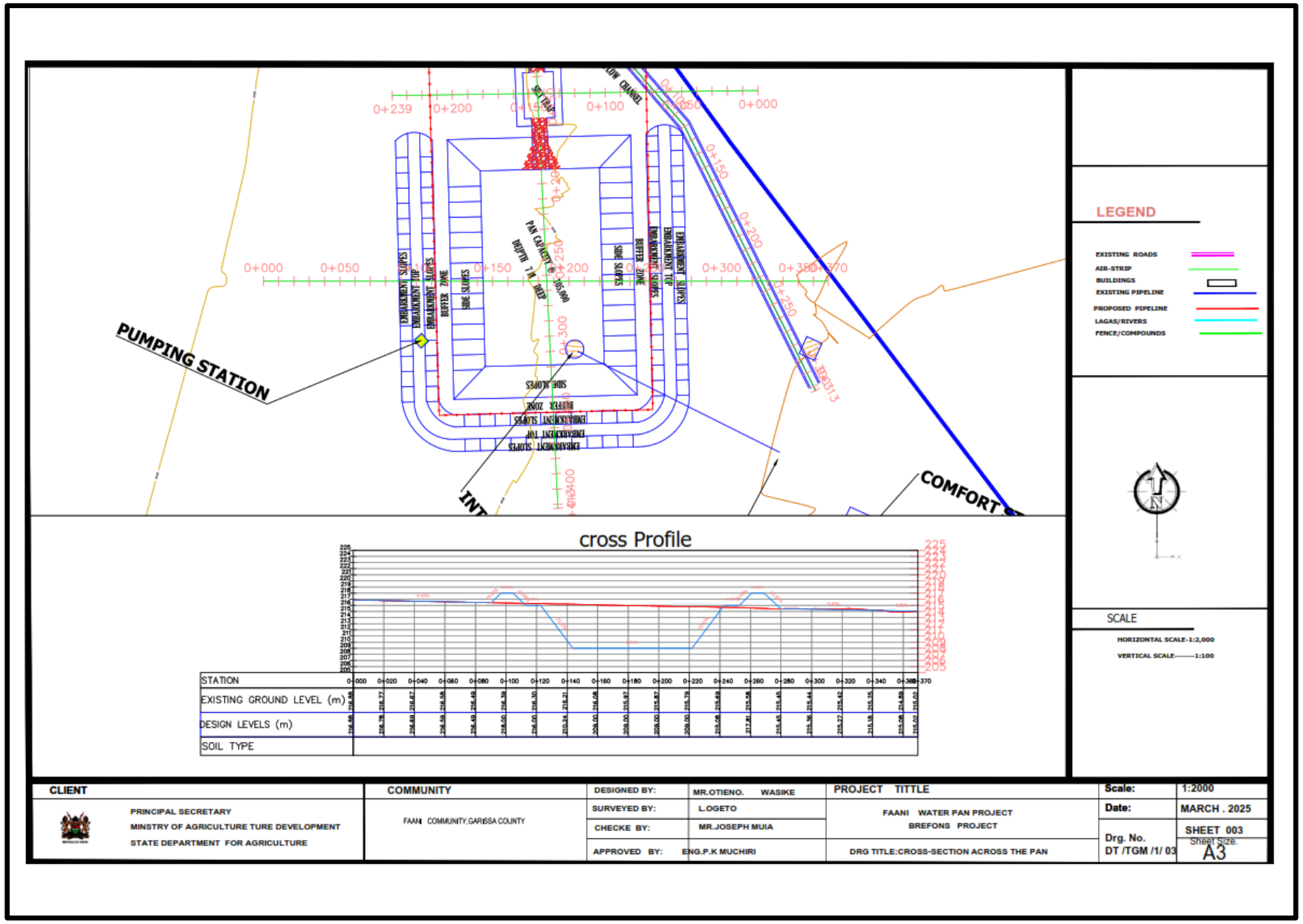
6. Information on resources to use and procedures to follow for emergency repairs. This should include a list of civil engineering contractors, equipment and materials' suppliers and engineers available locally.

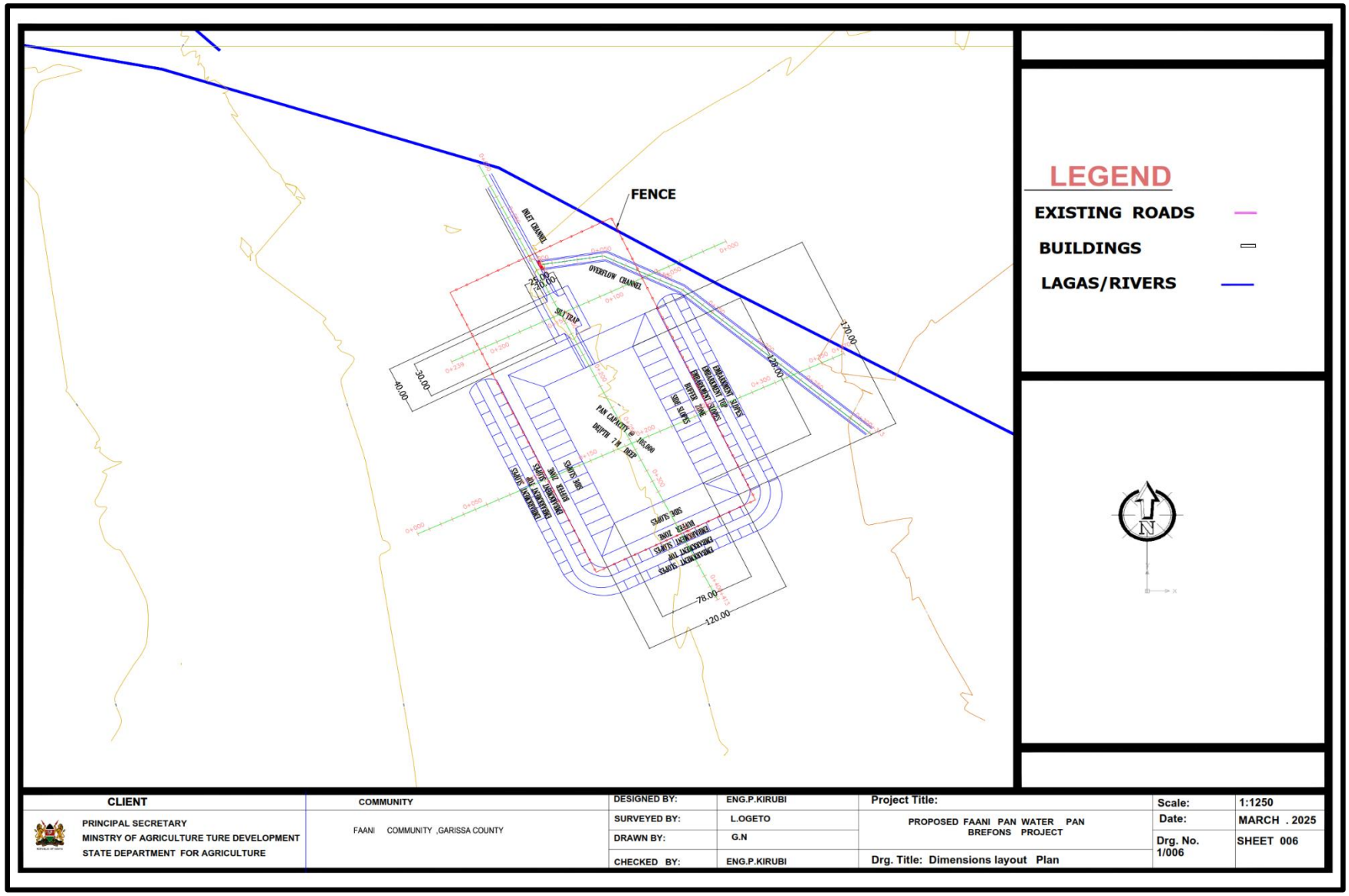
Appendix X: Overview of Emergency Action Plan



Source EGIS

ATTACHED


PUMPING STATION
COMFORT
LEGEND
EXISTING ROADS
AIR-STRIP
BUILDINGS
EXISTING PIPELINE
PROPOSED PIPELINE
LAGAS/RIVERS
FENCE/COMPOUNDS
SCALE
HORIZONTAL SCALE-1:2,000
VERTICAL SCALE-------1:100
cross Profile
STATION
EXISTING GROUND LEVEL (m)
DESIGN LEVELS (m)
SOIL TYPE
CLIENT
PRINCIPAL SECRETARY
MINSTRY OF AGRICULTURE TURE DEVELOPMENT
STATE DEPARTMENT FOR AGRICULTURE
COMMUNITY
FAAN COMMUNITY,GARISSA COUNTY
DESIGNED BY: MR.OTIENO. WASIKE
SURVEYED BY: L.OGETO
CHECKE BY: MR.JOSEPH MUIA
APPROVED BY: ENG.P.K MUCHIRI
PROJECT TITTLE
FAANI WATER PAN PROJECT
BREFONS PROJECT
DRG TITLE:CROSS-SECTION ACROSS THE PAN
Scale: 1:2000
Date: MARCH . 2025
Drg. No. DT /TGM /1/ 03
SHEET 003
Sheet Size. A3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INLET CHANNEL
OVERFLOW CHANNEL
SILT TRAP
30.00
40.00
170.00
126.00
78.00
120.00
PAN CAPACITY @ DEPTH 7 M DEEP
185,000
EMBANKMENT SLOPES
EMBANKMENT TOP
BUFFER ZONE
SIDE SLOPES
LEGEND
EXISTING ROADS
BUILDINGS
LAGAS/RIVERS
N
CLIENT
PRINCIPAL SECRETARY
MINSTRY OF AGRICULTURE TURE DEVELOPMENT
STATE DEPARTMENT FOR AGRICULTURE
COMMUNITY
FAANI COMMUNITY ,GARISSA COUNTY
DESIGNED BY: ENG.P.KIRUBI
SURVEYED BY: L.OGETO
DRAWN BY: G.N
CHECKED BY: ENG.P.KIRUBI
Project Title:
PROPOSED FAANI PAN WATER PAN
BREFONS PROJECT
Drg. Title: Dimensions layout Plan
Scale: 1:1250
Date: MARCH . 2025
Drg. No. 1/006
SHEET 006