




Kenya Climate Smart
Agriculture Project

Environmental and Social Impact Assessment



GPS Coordinates: Latitude: 0.81048961, Longitude: 36.26250842

Summary Project Report for Proposed Rehabilitation & Expansion of Pombo Borehole Water Sub Project, Tangulbei Sub Location, Tangulbei/Korossi Ward, Tiaty East Sub County, Baringo County

Sponsor	Government of Kenya / County Government of Baringo with support from the World Bank 
Client	Kenya Climate Smart Agriculture Project (KCSAP)
Proponent	Tangulbei Pombo Water Project

DECEMBER, 2021

CERTIFICATION

This Environmental Impact Assessment Report has been prepared by Dr Joel Sumukwo a registered lead expert. The report has been done with reasonable skills, care and diligence in accordance with the Environmental Management and Co-ordination Act, 1999 and the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019. We certify that the particulars given in this report are correct to the best of our knowledge.

LEAD EXPERT

Name of Experts: Dr Joel Sumukwo

NEMA REG. NO. 11829

Address: BOX 400 - 30300 Kapsoyel

Tel.: +254-0720322098

Email: sumukwoji@gmail.com

Signature: [Signature]

Date: 24/11/2022

ASSOCIATE EXPERT

Name of Expert: Philip Nandwa

NEMA Certificate No.: 11108

Address: P. O BOX 53, KABARNET.

Tel.: +254-720848953

Email: philipnandwa@gmail.com

Signature: [Signature]

Date: 24/11/2022

PROJECT PROPONENT

Name of proponent: Chairperson, Tangulbei Community Water Project

Nature of Project: Tangulbei Pombo Borehole Community Water Project

Date of assessment: AUGUST 2021

Specific site: Tangulbei SUB LOCATION, Tangulbei WARD, Tiaty East SUB COUNTY, Baringo COUNTY.

Coordinates: Latitude: 0.81048961, Longitude: 36.26250842

Address: P.O Box Tangulbei

CLIENT

Signature: [Signature] EVALINE KAMAN (member)

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Abbreviations/Acronyms

CESSCO	County Environment and Social Safeguards Compliance Officer
COC	Code of Conduct
COVID 19	Corona Virus Disease
CPP	Consultation, Public Involvement, and Participation
CPs	Contracting Parties
EA	Environmental Audit
EMCA	Environmental Management and Coordination Act
ESIA	Environment and social impact assessment
ESMP	Environmental and Social Management Plan
GBV	Gender Based Violence
GHG	Greenhouse Gas
GoK	Government of Kenya
GRM	Grievance Redress Management
HIV/AIDS	Human Immune Virus/Acquired Immune Disease Syndrome
IAPs	Interested and Affected Parties
KCSAP	Kenya climate Smart Agriculture Project
MoF	Ministry of Finance
MOALF	Ministry of Agriculture, Livestock and Fisheries
MW&I	Ministry of Water Irrigation
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations
NWCPC	National Water Conservation and Pipeline Corporation
SEA	Sexual Abuse and Exploitation
SH	Sexual Harassment
SOP	Standard Operating Procedure
Sq. Km	Square Kilometers
WA2016	Water Act 2016
WHO	World Health Organization
WRA	Water Resource Authority

EXECUTIVE SUMMARY

The proposed sub project Tangelbei Pombo Water Sub-project is intended to be used for community purposes (livestock, kitchen garden and domestic). The borehole which is already existing has a yield of 10.5m³/hr but is not used to its maximum due to inadequate energy provision and borehole pump, therefore not reaching the intended target. The borehole occupies 1.47Ha of land. The land for the proposed sub project is communal and has been voluntarily donated by the community. The land at which the sub project is located has been delineated in the site spatial plan as indicated by the annexed document on land ownership documentation. The proposed sub project site located Pombo trading Center in Tangelbei/Korossi ward in Tangelbei sub location, Tiati East sub county. It can be accessed through the main Marigat-loruk-Tangelbei road. The co-ordinates of the project site is Latitude: 0.81048961 Longitude: 36.26250842 on and elevation of 1180.6 m asl.

According to Environmental (Impacts Assessment and Audit) (Amendment) Regulations, 2019 the proposed project is categorized as a Low risk project based on specific activities to be conducted in the project area and requires a Project report to assess and mitigate impacts on environmental and society. The sub project is to be implemented through support from the Kenya Climate Smart Agriculture Project (KCSAP) in the third tier at the community level, and has received counter funding from the Baringo County Government besides the WB financing. The sub project is in line with KCSAP goal of increasing agricultural productivity, enhancing resilience to impacts of climate change and reducing GHG emissions.

Water shortages for domestic and agricultural use, including for livestock, are common the entire area of East Pokot (Kollowa to Tangelbei). This is caused by the low rainfall received and cyclic droughts. This has hindered development of livestock and farming activities, as people spend many hours daily looking for water. The average walking distance to the other sources is 5-10 km. The main project activities will entail pump set upgrading, construction of water supply office/store and a toilet, pipework, water kiosk, cattle troughs and installation of a water tank and additional solar panels to boost energy supply. Pipeline extensions are to be laid from the borehole to the following areas: (1) Naipokore - 3.6km (2) Kokwotigen - 3.2km, (3). Sowu - 2km, Kadogoi – 2Km. The planning of the project entailed a participatory approach where the members of the community were involved in planning, designs, and ESIA processes. This Environmental and Social Impact Assessment (ESIA) has been undertaken in compliance with the Kenya Government environmental regulation, EMCA 1999 sections 138 (b) and 58, and the World Bank Applicable Operational Policies. The ESIA process started by screening, followed by scoping, and then the actual ESIA study. The ESIA was carried out using the following methods: community barazas, Key Informant interviews, and administering of individual questionnaires. The public baraza held on 9/03/ 2021 at chief's Office ground was attended by 34 people comprising of 22 males and 12 females. A total of nine (9) stakeholders were consulted using the key informant interview. 30 filled in questionnaires were administered to the community members and 23 were filled in and returned. (see annex 3 on sample filled in questionnaire). The questionnaires were administered on 9th March 2021. Ministry of Health Guidelines for COVID-19 control, namely: keeping social distance, washing of the hands, and putting on face masks provided by the team.

Potential environmental and socio-economic benefits expected from the implementation of the proposed project will comprise; improved household nutritional status and food security, improved access to clean and safe water for household and livestock consumption, increased livestock and crop productivity, creation of employment, improved livestock prices, livelihood

diversification, improved public hygiene, reduction in water borne diseases, market for construction materials, increase in county and national government revenue, and increased business opportunities and reduced pasture & water conflicts.

The negative environmental impacts of the project comprise disturbance of vegetation, soil erosion, noise and vibration generation, accidents and health and safety concerns, electrical hazards from the installation of solar panels and lowering of the water table.

Socio-economic- cultural impacts of the proposed project are Sub Project mismanagement, Water Related Conflicts, water-borne diseases (human), outbreak of Livestock Diseases, Social evils and vandalism, spread of COVID-19, spread of communicable diseases, STIs and HIV/AIDS, sexual exploitation and abuse (SEA) and Gender-based violence at community level.

Summary Proposed Mitigation measures: Key mitigation measures proposed in this report to address the predicted environmental and social impacts are: Mitigation of soil, water and air pollution control; ensuring safety of workers, children and public through provision of protective clothing and equipment and first aid kit, fencing of the solar panel area; sensitization of the public on curbing the spread of HIV/AIDS, COVID 19 and other infectious diseases; and installation of auto-shut water taps to reduce water wastage, formation and capacity building of the GRM committee on monitoring and management of SEA/GBV and ensuring that the chosen contractor complies with all SEA/GBV measures put in place. To achieve the proposed mitigation Contractor's Health and Safety Management Plan (CHSMP) to be enforced by the Supervising Engineer, Contractors to develop SOPs for managing the spread of Covid-19 during project execution and submit them for the approval by the supervision engineer and the Client before mobilizing to site, local community members to be given priority in employment opportunities, in casual and unskilled labour, Proponent to train the local project committee, Social accountability and Integrity Committee (SAIC) and administration on GBV incidences monitoring, assessment, prevention and control, Proponent to ensure the Contractor complies with National and WB policies and rules on welfare of children and develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP.

Major Impacts to be expected in decommissioning generation of demolition waste, noise and vibration generation, conflict from the community and occupational, health and safety hazards. Depending on the reason for the decommissioning the report recommends that an environment and social impacts assessment/audit 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 project the land should be restored to its original state. The proposed sub project construction cost is **Kshs 19,010, 400.**

The estimated cost of implementing the ESMP is **Kshs 1,440,000**

The ESMP will be implemented by the selected contractor, KCSAP and other stakeholders. The monitoring of the implementation of the ESMP will be by KCSAP through its County Environment and Social Safeguard Officer (CESSCO) and NEMA officers in terms of enforcement and compliance. Considering the positive and negative impacts this project will not result to significant, cumulative, or irreversible negative impacts. All the predicted impacts will be easily mitigated through the ESMP. The CPCU will follow up and monitor implementation of the ESMP. The CPCU/ CESSCO, contractor, the supervising water engineer, the proponent will be required to ensure that the mitigation measures proposed for the construction, operation and decommissioning phases in the ESMP are followed. Based on the assessment the sub project is therefore, recommended for approval by the National Environment Management Authority (NEMA) subject to annual environmental audits after operating for one year.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Project General Overview

Tangulbei Pombo borehole community water sub project is an existing project that was developed by the Kenya government and over the years it has been sustained through other development partners. The sub project is operating below capacity due to inadequate pump set and low pipeline coverage. Water shortages for domestic and agricultural use, including for livestock, are common the entire area of East Pokot (Kollowa to Tangulbei). This is caused by the low rainfall received and cyclic droughts. The proposed sub project intends to address water problem in the area. As a result, the project through community participation and the county integrated development plan has been identified for upgrading to address the problem of water scarcity in the Tangulbei.

The proposed project is being implemented through the support of the Kenya Climate Smart Agricultural Project (KCSAP) and the County Government of Baringo. The **KCSAP project Development Objective (PDO)** is “to increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya. The proposed sub project is in line with KCSAP PDO as it will meet the agricultural and livestock water needs in the sub project area. Tangulbei location has 2 sub locations, Tangulbei and Kadokoi. Tangulbei sub location has a population of 4,979 with 2,511 males and 2,468 females and 927 households. Pipeline extensions are to be laid from the borehole to the following areas: (1) Naipeikore - 3.6km (2) Kokwotigen - 3.2km, (3). Sowu - 2km, Kadogoi – 2Km. Tangulbei and Kadokoi will form the main direct beneficiaries of the proposed sub project.

1.2 Objectives of the sub project

The overall objective of the sub project is to provide safe and clean water in Tangulbei sub-location for livestock and domestic use. The specific objectives are; reduce trekking distance to water sources, enhance nutrition through the establishment of household kitchen gardens and to improve livestock productivity.

1.3 Justification for the project

The site is located in the arid and semi-arid lands of Tiatty Sub-county in Baringo county where prolonged droughts characterized by short and unreliable amounts of rainfall are experienced all year. (Rainfall between 200 and 750 mm) – Even semi-desert (< 200 mm). The people in the proposed area trek for long distances to access water (6-10km). The available water sources at times are not clean and safe. These water sources dry off after a short while. The proposed Tangulbei borehole sub-project is meant to supply water for both Livestock, small holder irrigation involving kitchen gardening and domestic use. The project is therefore justified on socio-economic development and improved water supply infrastructure. The project will also lead to improved health standards in terms of personal hygiene particularly during incidences of communicable deadly diseases such as the COVID -19.

1.4 Justification of this ESIA SPR

The ESIA SPR was as a result of the recommendation of the County Director Environment (CDE) based on the screening report”, but also because NEMA Public Notice on ESIA and Legal Notice No. 31 on EMCA (No.8 of 1999) to the amendment of the second schedule the proposed Tangulbei Pombo BH water project categorized under community water project, is classified under Low Risk Project, thus requiring SPR.

1.5 The Objectives of this ESIA SPR

The objective of this ESIA is to predict environmental and socio-economic impact of the proposed project and to integrate the appropriate mitigation measures through the ESMMP. The ESIA has also been carried out to comply with the Environmental Management and Coordination Act, 1999 and other related laws and regulations. It was done according to World Bank Environmental and Social Safeguards policies (Environmental Assessment (OP 4.01), Physical Cultural Resources (OP 4.11), and Pest Management (OP 4.09). The resulting report will be submitted to NEMA for approval after all the necessary reviews.

The specific objectives are to: generate baseline data for monitoring and evaluation of how well the mitigation measures are being implemented during the sub-project cycle; identify potential adverse environmental and social impacts of the proposed sub-project, to ensure that they are considered during the sub-project design, construction, operation, and decommissioning stages; review the statutory and legislative conditions for the implementation of the sub-project; assess the relative importance of the impacts of alternative plans, design and sites; outline cost-effective mitigation measures to minimize possible negative impacts; assess the significance of the impacts; obtain views/opinion of the public and all key stakeholders on the impacts of the project and mitigation measures: and to develop an Environmental and Social Management Monitoring Plan (ESMMP) to guide the community in decision making and implementing the sub-project in an environmentally friendly manner and future environmental auditing.

1.6 The ESIA Approach and Methodology

This ESIA began with environmental and social screening, followed by scoping and the actual ESIA study. It involved the use of several techniques and methodologies. The methods used in the study are as discussed in the sections that follow.

1.6.1 Screening

A project screening was done as per the checklist attached (Annex 1 for screening checklist). This involved review of the proposed Tangelbei Pombo water sub project with the purpose of categorizing it by expected environmental risks and impacts, filtering out proposals grossly detrimental for the environment, and determining appropriate extent and type of Environmental Assessment to be applied to the proposed project accepted for further processing. The screening involved ESIA expert, CESSCO and NEMA Environment Officer.

1.6.2 Scoping

This was undertaken to establish the content and extent of the matters which should be covered in the environmental information in this report for the proposed sub project to be submitted to NEMA. This process involved the Proponent and the ESIA team.

1.6.3 Desktop study

This involved investigative process on desk based collation of documentary data on the nature of the project site history, geology, hydrogeology, proposed activities, project documents, designs, policy and legislative framework as well as the environmental status of the project area, beneficiary areas and adjoining sub locations, land use practices in the area, development strategies and plans and case study of similar projects as analogues and references. Key documents reviewed are Water Act 2016, EMCA 1999 Baringo County CIDP 2018-2022 and 2019 Census Reports Volumes among others.

1.6.4 Field Site Assessment

Field site assessment were meant for identification of actual project location, physical inspections of the site characteristics including vegetative cover, soil characteristics, topography, adjacent areas and respective land uses, utility and existing infrastructures and

potential problem areas, any existing natural, historical and archaeological features to determine the anticipated impacts, establish part of the environment to be affected and extent of the impacts. Field site visits were enhanced using observation checklist besides seeking clarification from the local community in the proposed project area

1.6.5 Public Participation and Stakeholders Consultation

Public participation and consultation were achieved through holding community barazas with the local stakeholders. Through public participation the sub project was explained to the community members and other local stakeholders in the project area. Oral and written comments were then received about the suitability of the project, concerns about the project that might affect them, the expectations they had about the sub project and their suggestions in addressing the negative impacts they had pointed out. In this assessment one (1) public baraza and one consultative meeting was held with the local stakeholders. The public participation Baraza was held on 9-3-2021 where 12 females and 22 males making a total of 34 participants attended. Amongst the participants, 10 were below 35 years (youth) while 24 were adults above 35 years of age. (*see annex 2 on minutes & attendance list*). Kiswahili language was used to capture information from the locals. Where language barrier became a problem, translations into the local dialect (Pokot) were conducted by the literate community members. World Bank social safeguards OP/BP 4.01 Environmental Assessment emphasizes on stakeholder and public participation to inform decision makers of the nature of environmental and social risks and to increase transparency and participation of stakeholders in the decision-making process.

1.6.6 Key informant Interviews

This method was used for key respondents including the officials of Tangulbei Pombo water sub project, the Tiaty sub-county agricultural officer, the WRA officer, livestock officer, 1 local religious leader, 1 women representative from the project area water engineers from the department of water, the local administration including the Assistant Chief for Tangulbei Sub Location and environmental officer from the county and 1 youth representatives. A total of nine (9) stakeholders were consulted.

1.6.7 Filled in Questionnaires

This involved the use of a list of questions filled in by the local stakeholders and community members in the project area. A total of 30 filled in questionnaires were administered to the community members. 23 were filled in and returned (refer to annex 3).

1.7 Chapter Outline

This ESIA has investigated and analyzed anticipated environmental impacts of the proposed development in line with the World Bank Social Safeguards and EMCA Environmental Impact Assessment and Audit Regulations, 2003. Consequently, the report is organized into substantive chapters. Following this introductory chapter, Chapter 2 presents the nature of the proposed sub-project and project designs activities Chapter 3 entails project location, the environmental and ecological and social baseline information, Chapter 4 presents the outcome of the public consultation and participation process, Chapter 5 identifies and discusses the Potential Impacts and mitigation measures of the project. Chapter 6 presents the Environmental and Social Management Plan (ESMP) while Chapter 7 wraps with the conclusions and recommendation. The References and Annexes then follows in Chapters 8 and 9.

CHAPTER TWO

NATURE OF THE PROPOSED SUB-PROJECT DESIGNS, WORKS AND ACTIVITIES

2.1 Introduction

The proposed sub project involves the rehabilitation and expansion of the Pombo Borehole water project. The main project activities will entail pump set upgrading, construction of water supply office/store and a toilet, pipework, water kiosk, cattle troughs and installation of a water tank.

2.2 Project Design and Activities

2.2.1 Project Design:

Pombo BH water sub project design comprises an already existing borehole a rising main and a distribution main to other storage tanks using a solar driven pump set. The project is designed to provide water for livestock, kitchen garden, and domestic.

2.2.2 Sub-Project Activities: The project activities will include preliminaries including site handing over, mobilization of equipment and workforce, pre start meeting between the proponent, chosen contractor and workers, site clearance, excavation, masonry work and installations.

a. Pump-Set Upgrading: This will involve installation of a new solar driven borehole submersible pump to upgrade the existing pump-set capable of delivering 7.5m³/hr of water against a total head of 290m. This will pump water from the borehole to an existing tank 100m³ masonry tank constructed on a hill about 3km away. Additional eleven (11) 280 watts' solar panels will be installed to increase power for the new pump. The solar panels steel support structure will be extended to accommodate the additional 11 panels.

b. Tank Tower and Tank: A 50 M³ pressed steel elevated tank will be installed including the necessary plumbing works. The tank tower will be made of high steel tank platform with a concrete footing.

c. Construction of Office/store/ Toilet: The office/store will be constructed starting from existing foundation to completion of dimensions 8m by 4.1m. The office/store shall be constructed of masonry wall with keyed external wall, plastered and painted internal walls. Doors and windows shall be grided steel. The toilet shall be partitioned into two to have a toilet and bath room as directed.

d. Pipework: Distribution Pipes - Pipeline Extensions: Pipeline extensions are to be laid from the borehole to the following areas: (1) Naipeikore - 3.6km (2) Kokwotigen - 3.2km, (3). Sowo - 2km, Kadogoi – 2Km. The pipelines shall be mainly HDPE but GS pipes shall be used across gullies.

e. Excavation and Backfilling: This will start with clearing of vegetation, trimming trench bottom and providing selected bedding and surround materials. Excavation and backfilling of 13.41km pipeline trench in normal material will be undertaken for GS and HDPE pipes. The trench shall be of size 600mm deep and 450mm wide.

f. Pipe Anchorage and Valve Chambers: This will involve the construction of masonry lockable valve chamber for Gate and air valves.

g. Water Kiosk, Cattle Troughs & Communal Water Points: This will involve the construction of 2 water kiosks in the main centers of the water supply area. 2 cattle troughs and

communal water points (stand pipes) will be constructed. The water kiosk and cattle troughs will be composed of masonry works. A 5,000 litres capacity plastic tank will be installed on the roof of the water kiosk.

2.3 Sub Project Cost

The proposed sub project construction cost is **Kshs 19,010, 400**

CHAPTER THREE

PROJECT LOCATION & ENVIRONMENTAL, ECOLOGICAL AND SOCIAL BASELINE INFORMATION

3.1 Project Site Location

The proposed Pombo BH rehabilitation and expansion sub project is located at Pombo trading center at Tangelbei sub-location, Tangelbei/Korossi Tiaty East Sub County in Baringo County. The borehole site is 50m from Loruk-Tangelbei road. The co-ordinates of the project site are Latitude: 0.81048961 Longitude: 36.26250842 on and elevation of 1180.6 m asl.

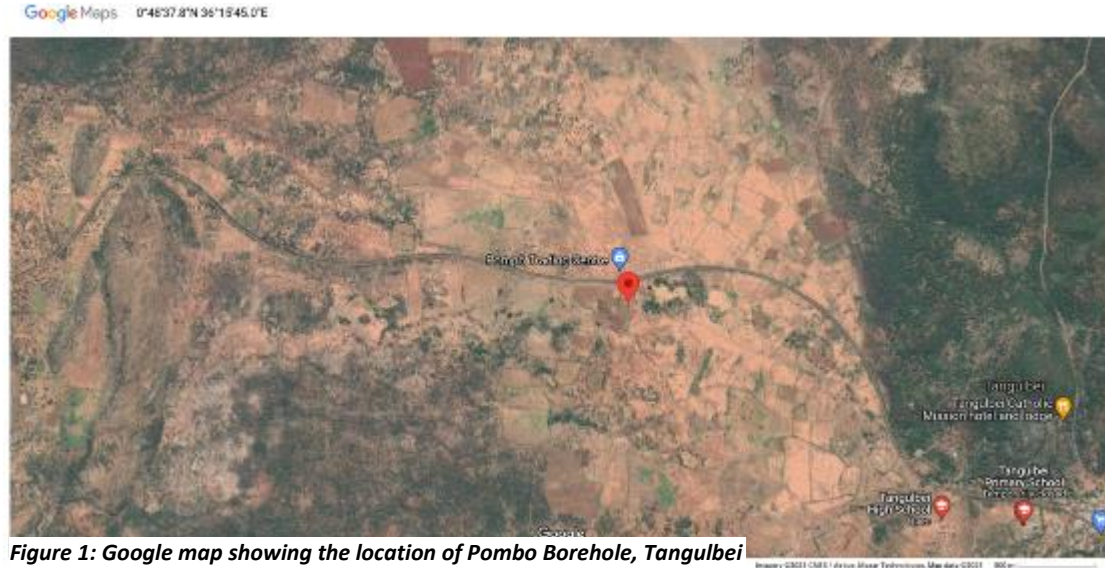


Figure 1: Google map showing the location of Pombo Borehole, Tangelbei

3.2 Proof of Land Ownership

The project Proponent is Pombo BH community. The land for the project is community land which has been set aside for the project (Refer to annex 6). The land area for the borehole is 1.47 Hectares as per the development plan of Pombo Trading Center. 1.62Ha (refer to annex 6 on Land Document). Figure 2 below shows location of the land in the Pombo Trading Center Development Plan.

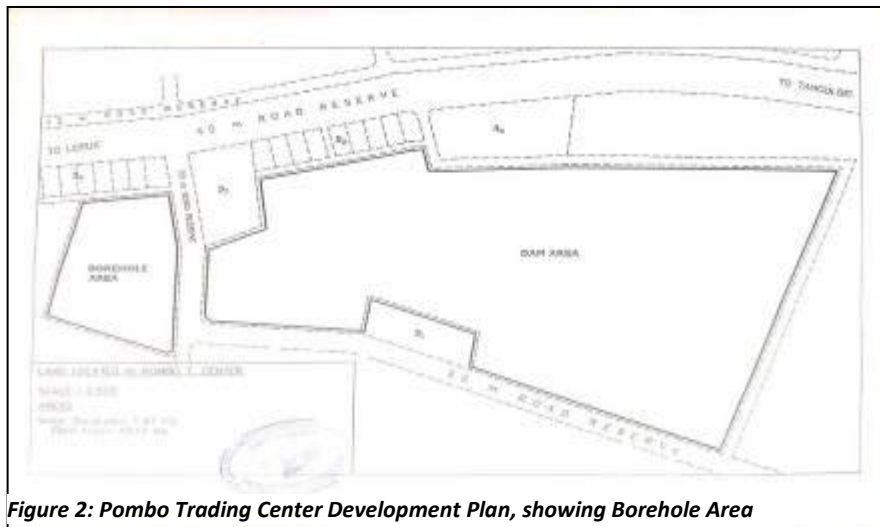


Figure 2: Pombo Trading Center Development Plan, showing Borehole Area

3.3 Any environmentally sensitive area to be affected

The project is in conformity to the environment and therefore there is no environmental sensitive to be affected.

3.4 Availability of supportive environmental management infrastructure

- Water and sanitation - Sources of water in Tangelbei sub-location include Pombo borehole and a water pan that is not operational, as well as roof rainwater harvesting. There is no conventional wet sewerage system in the project area. Latrine types in the area comprise pit latrine with an estimated coverage of 20% (field data, 2021)
- Health facilities - The community gets medical services from Marigat sub county hospital which is 43km away, Tangelbei Health center 3km away, and Tangelbei Catholic Mission Hospital. Common diseases in the area include malaria, brucellosis, typhoid, TB, pneumonia and dysentery.
- Education - The proposed water sub-project will benefit Tangelbei Primary school (3km away), Seronu primary school which is 1km away, Kadagoi Primary school and Tangelbei secondary school.
- Transport and communication - The site is accessible via Loruk-Tangelbei road or from Marigat-Mukutani-Tangelbei road. In the sub project area, the main mobile network provider is Safaricom. 90% of the total population own mobile phones. The network strength is fair. Television is only accessible through digital satellites and requires electricity or solar panels hence not all households can have them.
- Energy access - There is an electrical power supply line at the Pombo Trading Center. About 5 percent of households have electricity connections from mains for lighting. In the project area, 30% of the households use solar energy (including use of D-light for lighting. Other sources of lighting are firewood and torch (field data 2021). 99% of the households use firewood for cooking, 1% gas and charcoal.
- Trade -Trading centers include Pombo Trading Center, Tangelbei, Kadagoi and Kataelem (field data 2021). The proposed sub project is located in Pombo Trading center.

3.5 Conformity to land use plan or zonation plan

The sub project is agricultural related and is situated in rural area where it shall be used for increasing livestock productivity.

3.6 Sub Project Area Baseline Description

Water shortages for domestic and agricultural use, including for livestock, are common the entire area of East Pokot (Kollowa to Tangelbei). This is caused by the low rainfall received and cyclic droughts. This has hindered development of livestock and farming activities, as people spend many hours daily looking for water. For Tangelbei plains, the rock formations are trachytes and trachy phonolites overlain by alluvial sediments and underlain by basalts. Groundwater potential and availability in the volcanic-rock areas of the northern Rift Valley and all the north-western part of the country are generally low. This is due to the low rainfall, resulting in little recharge and relatively high evaporation rates. The project area has two water pans about 1Km away and 2 other boreholes 2km away of which one is new and not yet operational.

3.6.1 Pombo Borehole Water Discharge Yield

Pombo Borehole has a depth of 126M. Results from test pumping for the borehole by the county government of Baringo, department of water between 13th August 2021 and 15th august 2021 indicated an average discharge of 10.5m³/h. Pombo BH water sub project is expected to benefit the 1260 households in the neighbouring villages of Soromio, Kokwotugen and Sowu.

3.6.2 Physiographic and Natural Conditions

Topography

The highest point in East Pokot district is Tiaty hills with a height of 2352m above sea level. The hills are an extension of the Tugen hills in the south and extend northwards into Turkana county. To the eastern plains of the sub county are the Korossi, Paka, and Silale hills. These hills are volcanic and have craters at their tops. The eastern part of the sub county rises to the Laikipia ranges at Churo and Amaya. The lowest part of the Sub county is at Kapedo plains with an elevation of 762m above sea level.

Drainage

Drainage in the sub county is mainly northwards. Rivers to the west of Tiaty hills drain into Kerio River which drains northwards to Lake Turkana. To the east of the hills, rivers from the hills drain in an easterly direction towards Kapedo. Rivers from Tugen Hills drain northwards and converge with those from the Laikipia escarpment at Kapedo, forming Suguta River which drains into Suguta swamps. A few rivers from Tangelbei and Kokwototo areas drain into Lake Tilam in Nginyang ward. Figure 3 below illustrates the drainage pattern in Tiaty.

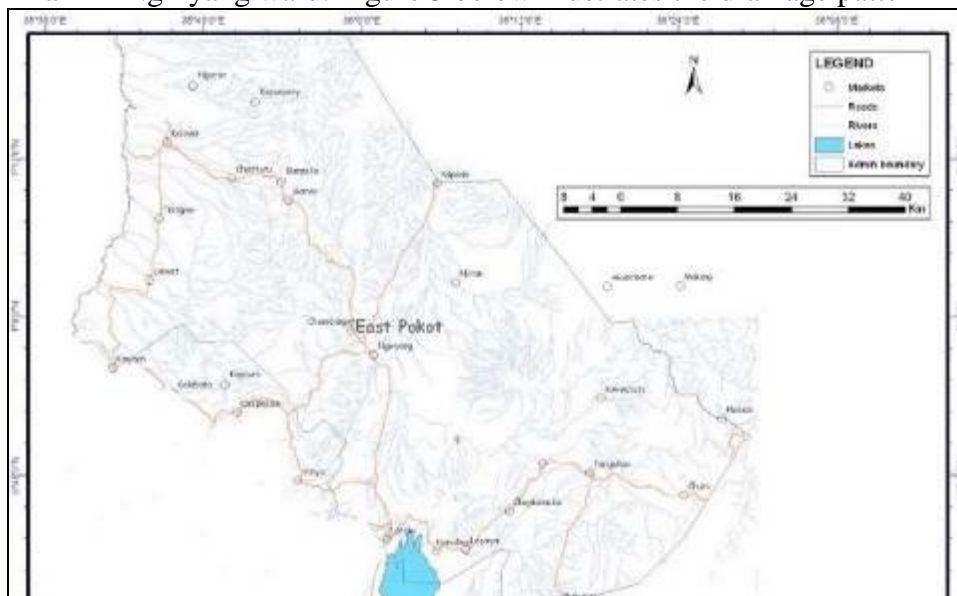


Figure 3: Drainage pattern in the area

Climate

Generally, the rainfall pattern follows the relief features. In the Lowlands rainfall averages about 750 mm. Rainfall is unevenly distributed in the district. The driest months in the Tiaty covers the period January to February while the wettest is April to May. There are two rainy seasons in the County, one normally expected between March and May and the other between July and September. A non- reliable short rain of November/December is not regular. East Pokot district receives less rainfall and therefore it is much drier. The mean annual temperature is 21.5°C with a mean maximum of 27.5°C and mean minimum of 15.3°C.

3.7 Biological Environment

3.7.1 Flora

The vegetation in Tangelbei comprise predominantly open bushland and thorny shrubs and acacia tree. Disturbance of vegetation will be minimal.

3.7.2 Fauna

The area has both livestock and wildlife. Wild animals comprise of antelopes, snakes, monkeys, baboons, hare, tortoise, warthog, monitor lizard, chameleon, butterflies, bees, hyenas, honey burger, tortoise and ostriches. The proposed sub-project site is not in a protected area and is not home to any threatened or endangered species.

3.8 Socio-Economic Environment

3.8.1 Economic activities

Tangulbei falls within the pastoral and agro pastoralism agroclimatic zone. Pastoralism is the major economic activity with all the animals that is cattle, goats, sheep, camels, donkeys and poultry kept. Distribution of households rearing livestock in Tiaty East are as follow exotic cattle 374, indigenous cattle 5,308, sheep, 5,234, goats 7,438, camels 1,165, donkeys 636, poultry 4,493 and beehives 2,293 (KNBS, 2019 Population Census). Trade is undertaken in Pombo, Tangulbei, Kadogoi and Kataelem (field data 2021).

3.8.2 Population and demographic Characteristics

Tiaty East has a population of 73,427 people with 12,153 households on an area of 2,163Km². Tangulbei ward in Taity East has population of 22,706 people (males 11,309 and females 11,397) with 4,257 households and a population density of 26 persons per square Km. Tangulbei location has 2 sub locations, Tangulbei and Kadokoi. Tangulbei sub location has a population of 4,979 with 2,511 males and 2,468 females and 927 households. It has a population density of 40 persons per sq. Km. Ethnic origin and composition of the majority of the population of the community are the Pokot. Tangulbei trading center population distribution is composed of the Samburu and Somalis who are traders (field data 2021).

3.8.3 Cultural and Religious Practices

Christianity is the main religion practiced in the project area. Churches in the sub-project area include Full Gospel Church of Kenya, Catholic and African Inland Church. Traditional African religious practices are also undertaken by the community in the area. Community rites of passage such as circumcision and making of special prayers in case of natural calamities such as drought are observed. Muslims are also found in Tangulbei Trading Center The proposed sub project will not interfere with the cultural and religious practices of the community(field data 2021).

CHAPTER FOUR

PUBLIC PARTICIPATION AND STAKEHOLDERS CONSULTATIONS

4.1 Introduction

The Constitution of Kenya 2010 (CoK 2010) has enshrined the need for public involvement in project development. This has also been set out in the EMCA 1999 and Environmental (Impact and Audit) Regulations, 2003 and is essential in all World Bank funded projects. Public participation and stakeholders' consultation brings out any contentious issues and gives a chance to those who may be affected by the proposed project to give their views. The public participation and stakeholder consultation are the best opportunity to interact with the project components and activities hence ownership is assured and thus leading to project sustainability.

4.2 Categorization of Community Participants and stakeholders

Public participation and stakeholders' consultation comprised the community members, representatives of community groups, government agencies and sub project beneficiaries. The community participants were from Tangelbei sub location (Soromio, Kokwotugen, and Sowo villages). including the officials of Tangelbei Pombo water sub project, the Tiaty sub-county agricultural officer, the WRA officer, livestock officer, 1 local religious leader, 1 women representative from the project area, sub county water engineer from the department of water, the local administration including the Assistant Chief for Tangelbei Sub Location, 1 environmental officer from the county and 1 youth representative.

4.3 Objectives of Public participation and Stakeholder Consultations

The main objective of the public consultation is to engage key stakeholders' groups and members of the public to provide their inputs into the planned development and especially on those impacts that directly affect the community.

4.4 Methods for Public Participation and Stakeholder Consultations

The techniques and methods used in the public participation and consultations were: public meetings (community barazas) for the Tangelbei Pombo community, Key Informant interviews, and administering of individual questionnaires. Mobilization of members of the public and other interested parties to attend the public baraza was done through the chief's office. The public baraza was held on 9/03/ 2021 chief's Office ground (see annex 2 for minutes). The public baraza was attended by 34 people comprising of 22 males and 12 females. (see annex 2 on minutes and attendance list). A total of nine (9) stakeholders were consulted using the key informant interview. 30 filled in questionnaires were administered to the community members and 23 were filled in and returned. (see annex 3). The questionnaires were administered on 9th March 2021.

4.5 Summary of Issues Raised by the Community and Stakeholders

The key issues raised by the community and the stakeholders are; Delays in project implementation, Gender and SEA issues, sub project mismanagement, conflict over pipeline distribution, and water-resource use conflict. A summary of issues raised and proposed mitigation are shown in table 1 below.

Table 1: Details of Concerns, Recommendations, and Issues Raised

ISSUE	CONCERN RAISED BY STAKEHOLDERS	Suggested Mitigation Measure
Project delay	There was fear that the sub project would take longer to be completed and be operational	Community was assured that the PMC; KCSAP and the County Government and all the other relevant stakeholders would make sure that the project will be implemented as planned.
GBV/SEA	Concern was raised over exploitation of women through GBV and SEA especially during construction.	Employment will be given to locals unless the required skill is lacking in the community; Contract workers will be vetted and will be required to sign code of conduct form; Women will be considered for duties they can undertake in the project. ; Community and contract workers will be sensitized on GBV
Conflict over Pipeline distribution	Concern was raised over some community members wanting the pipeline to pass close to their homestead for strategic advantage to access to water	The community and all stakeholders are involved in all phases of the sub project Involve the community beneficiaries in deciding the pipeline lay out for fair distribution
Water resource use conflict	Concern was raised over conflict over sharing of water resources in times of scarcity.	Proposed formulation of bylaws to regulate water use Support formation and training of Water Users Association for the sub project; Establish a grievance redress committee & training on conflict resolution.

4.6 Community and future Stakeholder Engagement

There will be continuous stakeholder engagement throughout the sub project cycle to ensure that the community and stakeholders continue getting vital information throughout the project cycle.

4.7 Project Acceptability

The community members all agreed to the objection question unanimously and proposed the rehabilitation of the proposed sub project should be implemented as has been designed. They pointed out that the sub project risks were low and would be easily mitigated or reversed.

CHAPTER FIVE

5.0 ANTICIPATED IMPACTS AND MITIGATION MEASURES

5.1 Introduction

The project implementation will bring about both positive and negative impacts on the environment and the beneficiary community at large.

5.2 Anticipated Positive Environmental and Social Impacts

5.2.1 Anticipated positive impacts during construction phase

1) Creation of temporal/permanent employment:

During the construction stage of the proposed sub-project, there will be direct and indirect employment opportunities for both professionals and unskilled workers. Permanent employment will be through operation and maintenance and borehole attendants benefiting mainly youths.

2) Improved businesses

During construction, there will be temporary establishment of business that will benefit the community in supplying the materials necessary in the sub project as described above. Also, the mama uji (porridge) will get an income by feeding the workers in the sub project.

3) Skills transfer

The interaction between the community and the various expertise involved at the different stages of the subproject will lead to acquired know-how and skills infusion to the Pokot community.

5.1.2 The anticipated positive impacts during operation stage

4) Reduced walking distance to water source

The expansion and rehabilitation of the proposed sub-project will promote ease of access of clean water for both livestock and domestic use. The distances covered to water sources will reduce from an average of about 6kms to 1 km. this will save on time.

5) Reduced water cost

With the reduction in distances to water access, it is projected that the cost of water for household use will reduce. This in turn lessens the burden that the community has to bare to access clean and safe water.

6) Reduced Health Related Problems of Ferrying Water

For the households that depend on man power for ferrying water from the source their households, human health problems related to water ferrying such as backaches for women will reduce as the borehole will reduce the distances covered.

7) Reduction in Outmigration and reduce pasture & water related conflicts

Due to the effect of drought and water scarcity in the proposed site, people have tended to migrate in search of the commodity. The rehabilitation and expansion of the borehole will attract a larger population as water will be available for livestock use and agribusiness activities arising from the establishment of kitchen gardens. Availability of water in the area will also attract bees which will encourage the residents to establish bee keeping as an economic activity.

8) Improved Livestock Body Condition

Availability of water in the area will lead to reduced trekking distance to watering points for livestock. This will result in improved health and body condition of the animals. This will translate to better livestock prices in the market and improved livestock productivity.

9) Increased Honey production

Bees migrate away from Tangulbei due to water shortage particularly during drought season. This greatly affects honey production in the area. With the proposed rehabilitation of the borehole, bees' migration will greatly be reduced hence resulting in increased honey productivity and household incomes in the sub project area.

10) Improved access and infrastructural development

The proposed sub project area is a rural setting where infrastructures are not well maintained, with the introduction of the investment, the roads will regularly be maintained to ease access to the water tanks, water kiosks, and the borehole.

11) Improved nutrition and food security

The proposed borehole sub-project aims at supplying water for livestock. Reduced distance in search of water will lead to improved livestock health and productivity in terms of milk and meat. Households will also be able to engage in smallholder irrigation (kitchen garden) and grow a variety of crops including fruit trees and vegetables. The outcome shall be improved food and nutrition security in the community.

12) Improved health and sanitation

Among the positive environmental impact on the community is accessibility to quality water and reduction in waterborne diseases. Increased supply of clean water to the community members will contribute to improved hygiene standards in the project area.

13) Increased land value

The availability of the borehole water in area will result in increased land value and subsequent spur in development of the area. This will boost the economy of the area.

5.2. Anticipated Negative Environmental and Social Impacts

5.2.1 Anticipated Negative Environmental During Construction Phase

1. Disturbance of vegetation

Vegetation clearance will be undertaken for the pipeline passage, excavation for tank construction, cattle troughs as well as water kiosks. However, this impact is deemed insignificant since the vegetation to be cleared is minimal. **Mitigation measures:** *Limit vegetation clearing to the proposed project site; contractor to exercise selective removal of vegetation; community to be supported to establish indigenous tree nursery for local generation of seedlings; sensitize the construction workers on ecological conservation.*

2. Soil Erosion

As workers and machines/vehicles move on the ground, the soil is compacted. This may have negative consequences on soil productivity on a localized scale. Compaction also enhances run-off during the rainy season resulting in soil erosion. Digging of pipeline, vegetation clearance and excavation for community water tanks, the proposed cattle troughs, and the community water kiosk may also result in soil erosion. **Mitigation measures:** *Strictly control construction vehicles to ensure that they operate on the designated areas to reduce chances of loosening soil particles. Rip off any compacted areas after construction to allow aeration of the soil and ease the infiltration of water into the soil. Digging of pipeline trenches to be done during the dry season. Sensitize all construction workers on ecological conservation.*

3. Risk of Noise and vibrations

Noise emission is projected during the **construction period**. The incoming vehicles delivering construction materials and communication among workers will most likely result in noise emissions. The noise could impact negatively on the workers during the construction phase. Noise can also be a nuisance to the local community if construction works begin too early in the day and continue into the night. **Mitigation measures:** *Adhere to the EMCA 1999 (Noise & Excessive Vibration Pollution Control Regulations, 2009) maximum permissible noise levels for silent zones, places of worship, residential (indoor/outdoor), mixed residential; and commercial. Properly servicing and maintaining machinery and vehicles bringing materials should be done to reduce noise generation. Additionally, construction activities should be scheduled for hours*

between 8.00am to 5.00pm to avoid disturbances to the local community. Provide workers in with ear muffles.

4. Risk of oil Spillage

The machines being used at the site could cause oil spill especially if they are not well maintained or during maintenance. However, the occurrence of these wastes is expected to be minimal. Seepage of petroleum products containing hydrocarbons such as oils, grease, and fuel if not carefully handled will result in the contamination of water thus rendering it unsuitable for both domestic and animal use. Soil contamination may also occur result to loss of micro-organic component of the soils. It may also lead to poor soil productivity. **Mitigation measures:** *The workers to be sensitized on the procedures to be followed in cases of spills and leakages; In case of any spillage, spills to be immediately removed along with all contaminated material and disposed of at an approved disposal site. Spill kit to be availed on site, to be applied to all contaminated areas that will absorb / breakdown the spills. The number of such materials shall be able to handle the total volume of the hydrocarbon stored on-site; and All contaminated material including diesel and oil drums are stored in a banded area with the respective tags like "Danger" or its pictorial representation. Have a vehicle bay for repair, maintenance, greasing of vehicles off site.*

5. Dust and motor vehicle emissions

Excavation activities are expected to cause dust emissions. Incoming carrying materials to and from the site along the rough road leading to the site are also projected to cause dust emissions. However, these activities are expected to generate minimal dust. Stockpiles arising from the excavated areas could also cause dust emissions if blown away by the wind. Smoke will be generated from the vehicles. **Mitigation measures:** *Provide dust masks to people working in the site and have extra ones for site visitors. Stockpiles of the earth should be watered if dry to minimize dust from blowing. All fuel-powered equipment and machinery should be serviced and maintained in optimal working conditions to mitigate against exhaust emissions.*

6. Solid Waste Generation

There will be some solid wastes such as cement, bentonite and gravel bags and other packets with materials and equipment to be used during the implementation of the sub-project. Other solid waste will be generated from earth excavation processes for the pipeline passage, community tanks, cattle troughs and water kiosks. **Mitigation measures:** *Contractor to provide waste bins at all work sites, sensitize workers to avoid littering, contractor to ensure sorting, reuse, recycling of waste, Use excavated materials to backfill the opened surfaces. Waste to be collected by the county waste collectors or any other registered waste handler.*

5.2.2 Negative social impacts & Occupational, Health & Safety concerns in construction

1) Increase in incidences of HIV/AIDS and STIs

The influx of people may bring communicable diseases to the project area, including sexually transmitted diseases (STDs) and HIV/AIDS or the incoming workers may be exposed to diseases to which they have low resistance. This can result in an additional burden on local health resources. **Mitigation measure** *Contractor to sensitize workers and community members on HIV/AIDS; Awareness on other communicable diseases to be instituted and implemented as part of the Contractor's Health and Safety Management Plan to be enforced by the Supervising Engineer. This will involve periodic HIV/AIDS and other communicable diseases Awareness Workshops for Contractor's Staff. Restrict access to Contractor's Workforce Camps by outsiders. Contractor to provide standard quality condoms at the construction site during the construction period*

2) Spread of COVID-19 amongst construction workers

During project execution (civil works), a number of workers will be required to assemble together in meetings, toolbox talks and even at work sites; varied number of workforce including suppliers of material and services are also expected to come in from various places in the country which may be COVID-19 hot spots; and interaction of workers with the project host community will happen as workers find accommodation close to work sites, and/or return to their homes after works. **Mitigation Measures:** *The Contractors will develop SOPs for managing the spread of Covid-19 during sub project execution (the SOPs shall be in line with the World Bank guidance on COVID-19. Ministry of Health Directives and site-specific project conditions), mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel including workers and visitors, avoid concentration of more than 15 workers at one location, where there are two or more people gathered, maintain social distancing of at least 1.5 meters, all workers and visitors accessing worksites every day or attending meetings shall be subjected to rapid Covid-19 screening which may include temperature check and other vital signs, the project shall put in place means to support rapid testing of suspected workers for covid-19, install hand washing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used, ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs, hand rails.*

3) Work related accidents, health & safety concerns

During construction/installation activities, it is expected that the construction workers may encounter occupational health hazards as a result of coming into contact and handling waste e.g. engine oil and grease. Because of the clearing water pipelines, setting up and operating machines, workers will be exposed to the risk of accidents and injuries. Such injuries can result from operation of hand tools and cuts from sharp objects, slips and fall hazards, among others. The public is also exposed to potential risks of safety from the excavated trenches waiting for pipe laying, access to the work areas by unauthorized members of public and potential road safety risks from trucks and vehicles accessing the site. Electrocution is a major concern when installing solar panels which could also be fatal. Hazards during installation and maintenance are lifting, trips and falls, electrical and ladders. **Mitigation measures:** *The trenches created to be covered before leaving the site. All workers to easily access first aid kits. All equipment to be inspected before use for appropriate safeguards and that the machine operators are trained on machine safety. Working hours be controlled and that employees are not allowed to extend the working hours beyond an acceptable limit for purposes of gaining extra pay. Appropriate road safety signage to be strategically placed and drivers adhere to the requirements of such signage (on speed limits, hoarding at or near school among others). Provide adequate manual labor to meet the requirements of the tasks. Provide appropriate barriers tape along the excavated trenches while work is in-progress. Isolate all construction sites from the children, public and their livestock through safety tapes, fixing appropriate safety signage and information. Hire a Security officer to guard the project site and equipment. The site should be fenced off from people, children, and animals. Provision of suitable PPEs (including for those undertaking installation works of solar panels) and procuring insurance covers for workers and machinery/vehicles. Test circuits to ensure they are de-energized. Safety rules on solar installation should be adhered to. All electrical works to be undertaken by a qualified and licensed person/firm.*

4) Conflict over distribution of the pipeline

Concern was also raised over some community members wanting the pipeline to pass close to their homestead for strategic advantage to access to water. This if not handled well could result in delays in sub project implementation. **Mitigation measures** *the community members should come up with a clear schedule for pipeline distribution to ensure equitable distribution of resources. involve the community and all stakeholders in all phases of the sub project.*

5.3 Negative Environmental and Social Impacts During Operation Stage

5.3.1 Negative Environmental Impacts During Operation

1) Groundwater depletion/Lowering of the water table

This may occur as a result of excessive abstraction of the water from the borehole i.e. beyond the permitted limit. This may result in the lowering of the water table. **Mitigation measures** *install a Master Meter to the borehole and an Airline/Piezometer to monitor groundwater abstraction and to facilitate regular measurements of the static water level in the borehole, respectively. The maximum groundwater abstraction permitted from the borehole to be limited to authorized volume . Install auto-shut water taps to reduce water wastage. Prompt repair of broken pipes to prevent leakages*

2) Risk of soil erosion

There are possibilities of soil erosion occurring during the operation of the boreholes resulting from livestock stamping on the ground surface leading loosening of soil particles. Overgrazing by livestock around the cattle troughs may lead to vegetation depletion exposing the bare ground to agents of soil erosion. Lost soil due to erosion is normally deposited elsewhere, and the location of the deposition could alter downstream hydrology and increase flooding. It may also interfere with water quality directly through increasing turbidity levels, siltation and indirectly from contaminants carried with or attached to eroded soil particles. The proposed sub-project is expected to have minimal risk of erosion as the area to be disturbed is quite small. **Mitigation measures** *regularly check and maintain pipes to avoid burst pipes and leakages which can lead to massive water losses (and so revenue) as well as soil loss. Apply soil erosion control measures such as levelling the sub-project site to reduce runoff. Ensure compacted areas are ripped off to reduce run-off. Encourage rainwater harvesting through roof catchment. control the number of livestock at the water points to avoid vegetation depletion, fence around the borehole to limit entry of livestock into the area. Redistribution of cattle troughs.*

5.3.2 Negative Social Economic Impacts during operation

The following social impacts are expected to arise because of the implementation of the sub-project.

1) Water Related Conflicts

There might be a possibility of community conflict on the use of this resource as some farmers might have more animals than others for this resource therefore causing conflicts. Conflicts may arise also from disagreements in the distribution of pipeline. **Proposed mitigation** *Involve the beneficiaries in establishing the pipeline routes. The PMC to design a watering protocol. Training of the management committee and the community on sustainable use of water*

2) Risk of water-borne diseases (human)

Water spillage around the taps during operation may provide a breeding ground for vectors of waterborne diseases such as mosquitos leading to an increased infection rate of malaria. **Mitigation measures** *The wastewater drainage channel be constructed to lead water away from the pump pad. The wastewater may be used for small gardening initiatives by the communities or*

directed to soak pits. Conduct continuous maintenance of the borehole, pipework, tank and water kiosk. Conduct periodic water quality checks. Sensitize communities on the need to use treated mosquito nets and to clear breeding grounds.

3) Outbreak of Livestock Diseases

Convergence of livestock at watering points from different households will increase the chance for the spread and outbreak of livestock pests and diseases. This will lead to poor animal health, reduced livestock productivity, and even livestock deaths. **Mitigation measure:** *Regular disease surveillance by the veterinary department and community, sensitization of the community on livestock health, pest and disease control, put livestock disease management plan in place to ensure disease incidences are promptly responded to and addressed, regulate the number of livestock accessing the watering at a time*

4) Vandalism and drug abuse

This include behavior such as petty theft, vandalism of the pipeline, and drug abuse due to increased household income occasioned by increased productivity in crops and livestock. Children and livestock may also cause damage to the pipeline. **Mitigation measure** *Sensitize the community on the importance of sub project ownership. Sensitize the community on alcohol and drug abuse. Increase community surveillance of the sub project area and community assets/property in collaboration with local administration. Excavation for the pipeline trenches should be according to the BOQ. Pipes should be well covered after installation.*

5) Risk of electrical hazard

The solar panels will pose electrical hazard to community members in the project site and also for those that will be undertaking maintenance. Risks associated may include thermals burns, falls from surprise shock and death. **Mitigation measures will comprise:** *securing of the solar area complete with a gate and lock; placing of warning signs in the area indicating the risks; sensitization of the community on the risks posed; use qualified persons in undertaking maintenance; train the PMC on first aid relating to electrical hazard.*

6) Sub Project Mismanagement

The borehole will be the most common source of water in the sub-project area. However, the borehole can be non-operational if there will be no proper community management framework for operation, repair, and maintenance of the same. **Mitigation measures.** *The sub project management committee to be capacity build on proper operation, management, and maintenance of the borehole to ensure sustainability. The proponent will consult on reasonable water tariffs to sustain the water supply.*

7) Increase to exposure to communicable diseases e.g. COVID 19

a. Spread of COVID-19 amongst community members during consultations

During implementation of the ESIA, various consultative activities will be undertaken. For efficient and meaningful engagement, a wide range of individual participants, groups in the local community and other stakeholders will be involved. The types of consultations to be used to pass information shall be through public Barraza's, electronic means shall be used where possible and one-on-one basis meetings while observing the COVID-19 mitigation measures to ensure safety stakeholders involved, the community at large and the client. The consultations will involve verification of PAPs covering the occupants of the affected area and vulnerable persons and groups; awareness raising, sensitization of PAPs and gauging attitude to the project; training and capacity building for livelihoods restoration, grievance redress, execution of site - specific surveys among others. If carried out conventionally, these activities would lead to close

interaction between the proponent and the community members leading to a high risk of spreading COVID-19 amongst community members during the consultation process. To minimize the risk of spread of COVID-19 amongst community members, alternative means of consultation will be required as mitigation measures to ensure social distancing and appropriate communication measures. The mitigation measures will be supervised by a communications/ stakeholder engagement / social safeguards expert in the project proponent's team.

Mitigation Measures: *encourage the use of electronic means of consulting stakeholders and holding meetings whenever feasible. One-on-one engagements for the PAPs while observing social distance and adhering to PPEs wearing shall be enforced. Avoid concentrating of more than 15 community members at one location. Where two or more people are gathered, maintain social distancing of at least 2 meters. The team carrying out engagements within the communities on one-on-one basis will be provided with appropriate PPE for the number of people they intend to meet. Use traditional channels of communications (TV, newspaper, radio, dedicated phone-lines, public announcements, and mail) when stakeholders do not have access to online channels or do not use them frequently. Allow participants to provide feedback and suggestions. Hold meetings in small groups, mainly in form of FGDs if permitted depending on restrictions in place and subject to strict observance of physical distancing and limited duration. In situations where online interaction is challenging, disseminate information through digital platforms (where available) like Facebook and WhatsApp & Chat groups. Ensure online registration of participants, distribution of consultation materials and share feedback electronically with participants.*

8) Sexual Exploitation and Abuse (SEA)

Women and girls are in most cases prone to SEA in most communities especially when they are towards accessing resources; for example, when they are looking for job opportunities.

Mitigation measures: *The contractor to Develop and implement a SEA action plan with an Accountability and Response Framework as part of the contract as contained in the ESMP. The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing. The SEA action plan will include how the project will ensure necessary steps are in place for: prevention of SEA; including CoCs and ongoing sensitization of staff on responsibilities related to the CoC and consequences of non-compliance, project-level IEC materials, response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management; engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights; management and Coordination: including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistleblower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.*

9) Gender-based violence at community level

There is possibility of discrimination on how opportunities are distributed among the community members if care is not taken. **Proposed Mitigation** *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. employment schemes for women; community level water management, representation or economic activities. Specific plan for mitigating these known risks, by sensitizing around gender-equitable approaches to compensation and 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*

5.4 Decommissioning Phase

Decommissioning could result from the abandoning of the borehole due to water becoming diminished in the borehole or development of another more reliable source of water such as a Pan.

5.4.1 Positive Environmental and Social Impacts

The positive impacts associated with the decommissioning of the project are direct employment for those involved in the demolition work and restoration of the land for other productive purposes

5.4.2 Negative Environmental and Social Impacts

The negative impacts of decommissioning are: generation of demolition waste; noise and vibration generation; dust generation and motor vehicle emissions and risk of occupation health and safety for the workers and the community.

5.4.3 Mitigation Measures for the Decommissioning

Depending on the reason for the decommissioning this ESIA recommends that the mechanisms proposed to mitigate the impacts of decommissioning include due diligence survey, where the proponent will undertake safety and environmental audit to identify and mitigate any impacts that may arise from any left-over material and substances that could be harmful to people and/or the environment. In any case, the hole left behind should be completely filled up and covered.

CHAPTER SIX

6.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT & MONITORING PLAN

6.1 Introduction

This chapter presents the Environmental and Social Management and monitoring Plan (ESMMP) that will be implemented by the proponent to prevent or reduce significant negative impacts to acceptable levels. This plan will be fully followed throughout the sub-project life cycle. Table 2 below shows the ESMMP for the mitigation, monitoring, implementation period and cost for mitigation of the predicted impacts during the implementation of the sub project.

Table 2: Environment and Social Management & Monitoring Plan

Potential Environmental Social impacts	Proposed Mitigation	Indicator	Responsibility	Time Frame	Estimated Cost
Potential environmental impacts during construction phase					
Disturbance of vegetation	Limit vegetation clearing to the proposed project site: contractor to exercise selective removal of vegetation; community to be supported to establish indigenous tree nursery for local generation of seedlings; sensitize the construction workers on ecological conservation.	No. of tree nursery established; No. of trees planted; NO. of workers sensitized	Proponent/PMC/Panel of Experts (PoE)	2 months	150,000
Soil erosion	control construction vehicles to ensure that they operate on the designated areas to reduce chances of loosening soil particles. Rip off any compacted areas after construction to allow aeration of the soil and ease the infiltration of water into the soil. Digging of pipeline trenches to be done during the dry season. Sensitize all construction workers on ecological conservation.	NO. of designated routes for vehicles; Area rehabilitated; time of laying pipeline.	Contractor; Proponent CPCU	2 months	10,000
Noise and vibration generation	Avoid noise above 80db at the sub project site especially during the night; Properly servicing and maintaining machinery and vehicles bringing materials should be done to reduce noise generation. Additionally, construction activities should be scheduled for hours between 8.00am to 5.00pm to avoid disturbances to the local community. Provide workers in with ear muffs.	The noise levels; Frequency of servicing; Time scheduled for operations and activities; No of ear muffs procured & used by the workers	Contractor	2 month	30,000

Oil spillage	The workers to be sensitized on the procedures to be followed in cases of spills and leakages; In case of any spillage, spills to be immediately removed along with all contaminated material and disposed of at an approved disposal site. Spill kit to be availed on site, to be applied to all contaminated areas that will absorb / breakdown the spills. The number of such materials shall be able to handle the total volume of the hydrocarbon stored on-site; and All contaminated material including diesel and oil drums are stored in a banded area with the respective tags like “Danger” or its pictorial representation. Have a vehicle bay for repair, maintenance, greasing of vehicles off site.	Presence of designated yards and servicing bays at site, Number of oil sump at the servicing yard, Number of workers sensitized on spillage handling procedures.	Contract or	2 month	15,000 for oil sumps
Dust & motor vehicle emissions	Provide dust masks to people working in the site and have extra ones for site visitors. Stockpiles of the earth should be watered if dry to minimize dust from blowing. All fuel-powered equipment and machinery should be serviced and maintained in optimal working conditions to mitigate against exhaust emissions. Workers and any other people at the site should wear facemasks at all times to avoid carbon monoxide poisoning	No. of times of water sprays, No of suitable PPEs procured, No of drivers trained/advised, NO. of workers using dust masks.	Contract or	2 months	40,000 for spraying water
Solid and liquid waste generation	Contractor to provide waste bins at all work sites, Sensitize workers to avoid littering, contractor to ensure sorting, reuse, recycling of waste, Use excavated materials to backfill the opened surfaces. Waste to be collected by the county waste collectors or any other registered waste handler.	Number of waste bins installed; No. of sensitization meetings conducted; No. of waste handlers engaged; NO. of workers sensitized	Contract or PoEs	2 months	50,000
Negative social impacts & Occupational, Health & Safety concerns in construction					
Risk of HIV/AIDS	Contractor to sensitize workers and community members on HIV/AIDS; Awareness on other communicable diseases to be instituted and implemented as part of the Contractor’s Health and Safety Management Plan to be enforced by the Supervising Engineer. This will involve periodic HIV/AIDS and other communicable diseases Awareness Workshops for Contractor’s Staff. Restrict access to Contractor’s Workforce Camps by outsiders. Contractor to provide standard quality condoms at the construction site during the construction period	Number of training and sensitization meeting; number of materials developed; Number of partners identified; No of persons attending VCT; No. of clinics providing VCT and ARVs	Contract or CPCU PMC	2 months	50,000
Spread of COVID-19 amongst workers	Contractors will develop SOPs for managing the spread of Covid-19 during sub project execution (the SOPs shall be in line with the World Bank guidance on COVID-19. Ministry of Health Directives and site-specific project conditions), mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel including workers and visitors, avoid concentration of more than 15 workers at one location, where there are two or more people gathered, maintain social distancing of at least 1.5 meters, all workers	Number of SOPs; No. of; Trainings conducted ; No. of correct PPE provided and used; No. of sanitizing facilities provided; No. of installed hand washing equipment etc.	Supervising Eng. & Contractor, PMC, PUBLIC, department of	2 months	75,000

	and visitors accessing worksites every day or attending meetings shall be subjected to rapid Covid-19 screening which may include temperature check and other vital signs, the project shall put in place means to support rapid testing of suspected workers for covid-19, install hand washing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used, ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs, hand rails.		public Health		
Work related accidents and health and safety concerns	The trenches created to be covered before leaving the site. All workers to easily access first aid kits. All equipment to be inspected before use for appropriate safeguards and that the machine operators are trained on machine safety. Working hours be controlled and that employees are not allowed to extend the working hours beyond an acceptable limit for purposes of gaining extra pay. Appropriate road safety signage to be strategically placed and drivers adhere to the requirements of such signage (on speed limits, hoarding at or near school among others). Provide adequate manual labor to meet the requirements of the tasks. Provide appropriate barriers along the excavated trenches. Isolate all construction sites from the children, public and their livestock through safety tapes, fixing appropriate safety signage and information. Hire a Security officer to guard the project site and equipment. The site should be fenced off from people, children, and animals. Provision of suitable PPEs(including for those undertaking installation works of solar panels) and procuring insurance covers for workers and machinery/ vehicles. Test circuits to ensure they are deenergized. Safety rules on solar installation should be adhered to. All electrical works to be undertaken by a qualified and licensed person/firm.	Length of trenches filled; number of workers provided with PPEs; number of inspections conducted; number of trainings on machine operation safety and first aid; the time schedule of activities; number of signage installed; number of people employed; No of sites fenced and number of sensitization meetings; type of PPEs and number people on insurance covers	Contract or, proponent and CPCU DOSH	2 months	75,000
Conflict over pipeline distribution	Involve the community and all stakeholders in all phases of the sub project. A written agreement should be provided to avoid issues with pipeline distribution	No. People involved in each phase of the project A copy of written agreement	Proponent, CPCU, engineer, contractor.	7 months	15,000 sensitize community on project ownership & sustainability
Negative Environmental Impacts During Operation					

Lowering of the water table	The borehole should be installed with a Master Meter and an Airline/Piezometer to monitor groundwater abstraction and to facilitate regular measurements of the static water level in the borehole, respectively; Limiting the maximum groundwater abstraction permitted from the borehole; Install auto-shut water taps to reduce water wastage; Prompt repair of broken pipes to stop leakages	Number and type of water taps installed; Number and type of water meter installed; Volume of water abstracted per day	Sub-project Management Committee and WRA	12 months	50,000
Soil Erosion	regularly check and maintain pipes to avoid burst pipes and leakages which can lead to massive water losses (and so revenue) as well as soil loss. Apply soil erosion control measures such as levelling the sub-project site to reduce runoff. Ensure compacted areas are ripped off to reduce run-off. Encourage rainwater harvesting through roof catchment. control the number of livestock at the water points to avoid vegetation depletion, fence around the borehole to limit entry of livestock into the area. Redistribution of cattle troughs.	NO. of cattle troughs & distribution NO. of reported leakages & duration taken to repair. Number of households with rainwater harvesting systems	PMC Sub county water officer	quarterly	10,000 for M & E
Negative Social Economic Impacts during operation					
Water Related Conflicts	The management committee to provide enough watering troughs at strategic points; Involve the beneficiaries in establishing the pipeline routes; Training of the management committee, SAIC and the community on sustainable use of water	No of watering troughs; No of trainings; Pipeline layout	Proponent/Contractor	yearly	50,000 training of SAIC & PMC
Water-borne diseases (human)	The waste water drainage channel to be constructed to lead water away from the pump pad; The wastewater may be used for small gardening initiatives by the communities or directed to soak pit; Sensitize the community on the use of treated mosquito nets; Conduct continuous maintenance of the borehole, pipework, tank, and water kiosk ;Conduct periodic water quality checks; Clear mosquito breeding ground and drain stagnant water	No of channels for drainage constructed; No of households with mosquito nets; No of people trained on health and safety and use of mosquito nets; No of households practicing safety rules; No of households using waste water for gardening; Number of water quality checks done	Proponent Sub-project Management Committee department of public Health	12 months	50,000 for sensitization on malaria control
Outbreak of Livestock Diseases	Regular disease surveillance by the veterinary department and community; Sensitization of the community on livestock health and disease control; 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 conducted; NO. of Sensitization meetings held; NO. of livestock disease management plan put in place	Department of livestock and veterinary/community	12 months	120,000

Social evils (drug abuse) and vandalism	Sensitize the community on the importance of sub project ownership. Sensitize the community on alcohol and drug abuse. Increase community surveillance of the sub project area and community assets/property in collaboration with local administration. Excavation for the pipeline trenches should be according to the BOQ. Pipes should be well covered after installation.	Number of sensitization meetings; Number of community surveillance; Surveillance team in place; Number security personnel engaged	Local administration Proponent	annually	20,000 for sensitization on drug & alcohol abuse
Risk of electrical hazard	securing of the solar area complete with a gate and lock; placing of warning signs in the area indicating the risks; sensitization of the community on the risks posed; use qualified persons in undertaking maintenance; train the PMC on first aid relating to electrical hazard.	NO. of warning displays; NO. of community members sensitized on electrical hazard; NO. of reported electrical risk occurrences; NO. of PMC trained	DOSH	annually	75,000
Sub Project mismanagement	training of the PMC on proper operation, management, and maintenance of the borehole to ensure sustainability; The proponent will consult on reasonable water tariffs to sustain the water supply.	No of trainings done; The amount of money charged per 20litre container or collected per month; Number of beneficiaries paying the water fees	Proponent and PMC Panel of Experts	annually	80,000
Spread of COVID-19 amongst community members during consultations processes	Electronic means of consulting stakeholders and, holding meetings, whenever possible, shall be encouraged whenever feasible. One-on-one engagements for the PAPs while observing social distance, and adhering to PPE wearing shall be enforced; Avoid concentrating more than 15 community members at one location. Where there are two or more people gathered, maintain social distancing at least 1.5 meters; The team carrying out engagements within the communities on one-on-one basis will be provided with appropriate PPE for the number of people they intend to meet; Use traditional channels of communications (TV, newspaper, radio, dedicated phone-lines, public announcements, and mail) when stakeholders do not have access to online channels or do not use them frequently; Ensure to provide and allow participants to provide feedback and suggestions; Hold meetings in small groups, mainly in form of FGDs if permitted depending on restrictions in place and subject to strict observance of physical distancing and limited duration; In situations where online interaction is challenging, disseminate information through digital platforms (where available) like Facebook and WhatsApp & Chat groups; Ensure online registration of participants, distribution of consultation materials and share feedback electronically with participants	No of SOPs; No of Training material; No. of PPE, and sanitizing facilities provided; No. of participants registered online; No of Electronic media used in dissemination/engagement e.g. printed electronic mails, addresses of video links created; No. of participants in any meeting; Type of media adopted	department of public Health Supervising Eng. & Contract or (s Communication/engagement expert in the Team	annually	150,000

Sexual exploitation and abuse (SEA)	CoCs (Code of Conduct) and ongoing sensitization of staff on responsibilities related to the CoC and consequences of non-compliance; project-level IEC materials; Response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management; Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights; Management and Coordination: including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistleblower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers; Develop and implement a SEA action plan with an Accountability and Response Framework as part of the ESMP; The SEA action plan will follow guidance on the World Bank's	No of SEA Action Plan; No of staff signed Code of Conduct; Number of staff trainings in SEA FP; No of Community Liaison trained in PSEA; No of IEC materials for workers' sites and community; No of discrete SEA reporting pathway; Relevant policies, e.g. investigations and discipline and whistleblower protection	Proponent and Sub-Project Management Committee CPCU GBV expert	12 months	100,000
Gender-based violence at community level	effective and on-going community engagement and consultation, particularly with women and girls; Ensure employment equality schemes for women; community level water management, representation or economic activities etc.; Sensitization around gender-equitable approaches to compensation and employment; etc.; 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	No of Mitigation plan for GBV occurring at the community level because of project implementation; Number of GBV cases happening at the community level that receive survivor-centered referral and care; Number of trainings for PMC, SAIC, CESSCO on GBV and SEA	Proponent and Sub-Project Management Committee/contractor GBV expert	8 months	130,000
Decommissioning Phase					
Decommissioning Impacts	Proponent to undertake environmental and social impacts of the proposed decommissioning	Duration of investigation; Number of Decommissioning Plans ESMP developed	PMC	1 week	75,000

conflict Managem ent	Proponent to notify all the Project Affected Persons (PAP)	NO. of methods of notification	PMC	2 week	20,000
		NO. of PAPs notified			
TOTAL COST					1,440,000

NOTE:

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

6.2 Institutional Arrangement for Monitoring Compliance with ESMMP

The environmental and social issues included within the mitigation measures will be monitored and supervised by the project beneficiaries, chosen contractor, engineering team and the KCSAP County Environment and Social Safeguards Compliance Officer (CESSCO) and the Projects Monitoring and Evaluation Officer (M & E). The importance of monitoring is to ensure that the ESMMP has been effectively implemented, furnish information on the progress and results of mitigation and provide early detection of conditions that necessitate particular mitigation measures. Although the environmental and social impacts are expected to be moderate or low, the potential negative environmental and social impacts are planned to be prevented or mitigated during the construction/installation and operation stages.

Environmental and social monitoring system started from the preparation phase of the sub project and will continue through the operation phase in order to prevent negative impacts of the project and observe the effectiveness of mitigation measures. The monitoring system will provide technical assistance and supervision when needed, early detection of conditions related to mitigation measures, follows up on mitigation results, and provides information of the project progress.

The ESMMP has provided information about the key environmental and social aspects of the sub project including the mitigation measures to be monitored. The KCSAP Project Coordinating Unit in Baringo will comply with the provisions of any other environmental and safeguard requirement provided by legislation and conditions of the main funding agency (WB).

6.3 Audits and Reviews

Annual environmental, health, and safety audits and reviews as required by NEMA will be conducted to assess the performance of the environmental, health and safety policies and operational procedures implemented. The CESSCO is expected to carry out quarterly reporting of the sub project together with the M & E officer. These quarterly reports will form the basis for effective auditing and review of the ESMP of the proposed sub project.

CHAPTER SEVEN

7.0 CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

This study has ascertained that the construction of the proposed Tangelbei Pombo water sub project will have both positive and negative impacts on the physical and the surrounding human environment. Positive impacts include availability of water for livestock, casual employment, improved agricultural productivity, improved sanitation, and health standards in the area and a reliable source of water. The negative impacts include dust pollution, disturbance of vegetation to create space for concrete water storage tanks, soil erosion, socio-economic impacts such water related conflicts, GBV/SEA issues among others.

The project design has integrated measures to mitigate the adverse impacts with a view to ensuring compliance with applicable laws and procedures.

An Environmental and Social Management Plan provided in chapter six charts the path for sustainable sub-project implementation. The plan provides strategies and activities that need to be implemented so as to alleviate the negative impacts. Implementation timelines, responsibilities and cost estimates are also provided where applicable.

7.2 Recommendation


It is recommended that the Proponent, contractor and all the stakeholders mentioned in the ESMMP implement the recommendations in the environmental and social management plan. This is to ensure that the potentially affected environment is well managed and that accidents are prevented in the course of sub-project implementation. The Proponent is expected to comply with the relevant legal and policy requirements with regard to sub-project implementation. It was established that all the identified negative impacts will be effectively mitigated through the full implementation of the ESMMP. It is therefore, recommended that upon fulfillment of all requirements the Proponent be issued with the ESIA license from NEMA for the implementation of the sub project.

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Annexes

Annex 1: Environmental and Social Screening Report



**Kenya Climate Smart Agriculture Project
(KCSAP)**

BARINGO COUNTY PROJECT COORDINATING UNIT

Attendance List

Activity: Site visit & Screening
 Venue: Tangulbei/Koris Borehole Date: 28/1/2020

	Name	Gender	IDP/No	Designation- station	Department	Station	Phone no/email address	Sign
1.	Moses	M	366826	Member			0726455511	[Signature]
2.	Lutari	M		Member				[Signature]
3.	Rimokamer	M		"				[Signature]
4.	Mariach	M		"				[Signature]
5.	Lutak	M	2135497	"			0712703406	[Signature]
6.	Lorus Rimonera	M	20852316	"			0725472799	[Signature]
7.	Thuma Chami	M	2124486	"			0722928145	[Signature]
8.	MUSA MATTA	M	9777814	"			0721140099	[Signature]
9.	ROBERT L KAMOI	M	0486691	SCWO			0722873940	[Signature]
10.	John Kiprop	M	1186741	CEB	KCSAP	ELK	0712783707	[Signature]
11.	Hadi Kido	F	0058	BO	NEMA	B26	0708795719	[Signature]
12.	Philip Nandwa	M	1345674	SHWRO	Environment	KBT	0700848953	[Signature]

Activity: DO VISIT AND SCREENING
 Venue: Tangulbei Date: 28/1/2020

	Name	Gender	IDP/No	Designation- station	Department	Station	Phone no/email address	Sign
1.	Julius Pawa	M	2972859	Member			0715797740	[Signature]
2.	Leibet	M		"			0718798864	[Signature]
3.	Perkong	M		"				[Signature]
4.	Wesering	M		"				[Signature]
5.	Lungel	M		"				[Signature]
6.	Luma	M		"				[Signature]
7.	Isert	M		"				[Signature]
8.	Lamwaring	M	3165196	"			072761926	[Signature]
9.	Mawaring	M		"			072587794	[Signature]
10.	Molon	M		"				[Signature]
11.	Lomator	M		"				[Signature]

1. Nicholas Kipron
 2. ...
 3. ...
 4. ...
 5. ...
 6. ...
 7. ...
 8. ...
 9. ...
 10. ...
 11. ...
 12. ...

ward - TANHULBEI/ICOROKI
 Sublocations - TANHULBEI
 villages - 5 villages - Pombolmain

ENVIRONMENTAL AND SOCIAL SCREENING CHECK LIST

GPS -
 0°48'38"N, 38°15'
 elevation 1181m

(Sub-projects screening process by benefitting communities/Agencies)

Section A: Background information

Name of County	Baringo
Name of CPCU/Monitoring Officer/Researcher	Philip Nandungu
Sub-project location	TANHULBEI
Name of CBO/Institution	Pomba Tangulbei Pomba Water Project
Postal Address	176 MARUAAT 20401
Contact Person	MUSA MATTA
Cell phone	0721540091
Sub-project name	Tangulbei Pomba Water Project
Estimated cost (KShs.)	550,000
Approximate size of land area available for the sub-project	
Objectives of the sub project	Provide water for livestock
Activities/enterprises undertaken	livestock rearing
How was the sub-project chosen?	Community proposal
Expected sub project duration	

Section B: Environmental Issues

Will the sub-project:	Yes	No
Create a risk of increased soil erosion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Create a risk of increased deforestation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Create a risk of increasing any other soil degradation soil degradation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Affect soil salinity and alkalinity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Divert the water resource from its natural course/location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cause pollution of aquatic ecosystems by sedimentation and agro-chemicals, oil spillage, effluents, etc.?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Introduce exotic plants or animals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Involve drainage of wetlands or other permanently flooded areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cause poor water drainage and increase the risk of water-related diseases such as malaria?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce the quantity of water for the downstream users?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Result in the lowering of groundwater level or depletion of groundwater?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater?	<input type="checkbox"/>	<input type="checkbox"/>
Reduce various types of livestock production?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Affect any watershed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Focus on Biomass/Bio-fuel energy generation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the answers to any of the above is 'yes'; please include an EMP with sub-project application.

Section C: Socio-economic Issues

Will the sub-project:	Yes	No
Displace people from their current settlement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Interfere with the normal health and safety of the worker/employee?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce the employment opportunities for the surrounding communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce settlement (no further area allocated to settlements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce income for the local communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
→ Increase insecurity due to introduction of the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Increase exposure of the community to HIV/AIDS?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Induce conflict?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have machinery and/or equipment installed for value addition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Introduce new practices and habits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lead to child delinquency (school drop-outs, child abuse, child labour, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lead to gender disparity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lead to poor diets?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lead to social evils (drug abuse, excessive alcohol consumption, crime, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the answers to any of the above is 'yes', please include an EMP with sub-project application.

Section D: Natural Habitats

Will the sub-project:	Yes	No
Be located within or near environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Adversely affect environmentally sensitive areas or critical habitats - wetlands, woodlots, natural forests, rivers, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Affect the indigenous biodiversity (Flora and fauna)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cause any loss or degradation of any natural habitats, either directly (through project works) or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Affect the aesthetic quality of the landscape?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce people's access to the pasture, water, public services or other resources that they depend on?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Will the sub-project:	Yes	No
Involve the use of pesticides or other agricultural chemicals, or increase existing use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cause contamination of watercourses by chemicals and pesticides?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cause contamination of soil by agrochemicals and pesticides?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Experience effluent and/or emissions discharge?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Export produce? Involve annual inspections of the producers and unannounced inspections?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

due to
agronomy
work

for harm of
disease
control in
livestock

Require scheduled chemical applications?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Require chemical application even to areas distant away from the focus?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Require chemical application to be done by vulnerable group (pregnant mothers, chemically allergic persons, elderly, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use irrigation system in its implementation?		

for control/ prevention of diseases & pests. as weather does.

If the answers to any of the above is 'yes', please include an EMP with sub-project application.

Section E: Pesticides and Agricultural Chemicals

This questionnaire will be used with the farmers groups for purpose of implementing the IPMF

1) Pest Control practices

a) Do you use any pesticides to control pests (Insects, diseases, weeds) of crops each season?

Yes <input checked="" type="checkbox"/>	Name of pesticide	Name of pest, disease, weed controlled	Number of times applied/ season	When did you apply (growth stage or month) Quantity purchased
No <input type="checkbox"/>				
If yes, name them:				

If No, WHY?

b) If you use any of the above pesticide types, do you keep records of the:

Application location Yes..... No ☒

Date of application Yes..... No ☒

Pesticide product trade name

Yes..... No ☒

Operator name Yes..... No ☒

If No, WHY?

c) How do you decide when to use the pesticides (tick all that apply)?

(i) We use pesticides at regular intervals throughout the season (calendar)

☒ (ii) We use pesticides when we see pests in the field (control)

(iii) We use pesticides after field sampling and finding a certain number of pests or a certain level of damage (scouting)

(iv) Told by someone to apply (specify who) _____

(v) Other (specify) _____

d) Do you use a knapsack sprayer? Yes _____ No _____

If yes,

☒ (i) Do you own it Yes _____ No _____

☒ (ii) Do you rent it Yes _____ No _____

☒ (iii) Do you borrow it Yes _____ No _____

e) From your experience, are there any negative/harmful effects of using pesticides?

Yes ☒ No ☐

Section F: Vulnerable and Marginalized Groups meeting requirements for OP 4.10

	Yes	No
Are there:		
People who meet requirements for OP 4.10 living within the boundaries of, or near the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Members of these VMGs in the area who could benefit from the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VMGs livelihoods to be affected by the sub project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the answer to any of the above is 'yes', please consult the VMGF that has been prepared for the project.

Section G: Land Acquisition and Access to Resources

Will the sub-project:	Yes	No
Require that land (public or private) be acquired (temporarily or permanently) for its development?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Displace individuals, families or businesses?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Result in temporary or permanent loss of crops, fruit trees and pasture land?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Adversely affect small communal cultural property such as funeral and burial sites, or sacred groves?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Result in involuntary restriction of access by people to legally designated parks and protected areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Be on monoculture cropping?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the answer to any of the above is 'yes', please consult the mitigation measures in the ESMF, and if needed prepare a (Resettlement Action Plan) RAP.

Section H: Proposed action

(i) Summarize the above:	(ii) Guidance
<input type="checkbox"/> All the above answers are 'No'	<ul style="list-style-type: none"> • If all the above answers are 'No', there is no need for further action; • If there is at least one 'Yes', please describe your recommended course of action (see below).
<input checked="" type="checkbox"/> There is at least one 'Yes'	

(iii) Recommended Course of Action

If there is at least one 'Yes', which course of action do you recommend?

- ☒ CPCUs and County Director of Environment (CDE) will provide detailed guidance on mitigation measures as outlined in the ESMF; and
- ☐ Specific advice is required from CDE and CPCUs regarding sub-project specific ELA(s) and also in the following area(s)

f) If yes, list the negative effects:

- (i) headache
- (ii) dizziness
- (iii) irritation of lung
- (iv) _____
- (v) _____

g) Do you use any kind of protective clothing while applying or handling pesticides? Yes No
Why? _____

a) If YES, what kind? _____

2. Knowledge of pesticide handling and storage (tick one in each row)

a) Do you read labels on the pesticide container before using?

Sometimes _____ Always _____ Never ✓

b) How often do you wear protective clothing and other accessories like nasal mask, eye goggles, and boots when applying the pesticides?

Sometimes _____ Always _____ Never ✓

c) Do you mix pesticides with your hands?

Sometimes _____ Always _____ Never ✓

d) Do you observe the pre-harvest waiting periods after applying the pesticides?

Sometimes ✓ Always _____ Never _____

e) After spraying, do you wait 12 hours before entering the field? N/A

Sometimes _____ Always _____ Never _____

f) Do you store pesticides in a secure, sound and well-ventilated location?

Sometimes _____ Always _____ Never _____

g) Do you make a cocktail before applying the pesticides? (i.e., mix more than one chemical and only apply them at once?) by men

Sometimes _____ Always _____ Never ✓

h) Where do you store your pesticides? _____

Why do you store them there? away in the bush by men

i) What do you do with your pesticide containers after they are empty? _____

j) Do you know of any beneficial insects (insects that eat harmful insects)?

Yes ✓ No _____

k) If yes, name them:

i) _____

ii) _____

iii) _____

3. Pesticides and Health

a) Do you find that pesticide application is affecting the health of: Persons regularly applying pesticides?

☐ All sub-project applications/proposals MUST include a completed ESMF checklist. The KCSAP-CPCU and CDE will review the sub-project applications/proposals and the CDEs will sign off;

☐ The proposals will then be submitted to KCSAP PIU for clearance for implementation by communities in the proposed subprojects.

Expert Advice

☐ The National Government through the Department of Monuments and Sites of the National Museums of Kenya can assist in identifying and, mapping of monuments and archaeological sites; and

☒ Sub-project specific EIAs, if recommended, must be carried out by experts registered with NEMA and be followed by monitoring and review. During the process of conducting an EIA the proponent shall seek views of persons who may be affected by the sub-project. The WB policy set out in OP 4.01 requires consultation of sub-project affected groups and disclosure of EIA's conclusions. In seeking views of the public after the approval of the sub-project, the proponent shall avail the draft EIA report at a public place accessible to project-affected groups and local NGOs/CSOs.

Completed by:

Name:

Position / Community:

Date:

Field Appraisal Officer

Signature:

Date:

Note:

Project category	Characteristics
A	Full and extensive EIA needed- irreversible environmental impacts; impacts not easy to pick or isolate and mitigation cost expensive; EMP design not easily done; Must have the EIA done and future annual EAs instituted
B	Site specific environmental impacts envisaged; mitigation measures easy to pick, not costly and EMP design readily done; need an EIA and future EAs
C	Have minimal or occasionally NO adverse environmental impacts; exempted from further environmental processes save environmental audits

Annex 2: ESIA Public Participation Minutes and Attendance list

ESIA Public Participation Minutes for proposed Tanguketi
Pombo Water Project held at Bereketo site on 9/3/2021
2021

Present - Report Attached attendance list

Agenda

1. Preliminaries
2. Project overview
3. Project benefits
4. Project negative impacts (social & economic)
5. Way forward

Minute 1/2021 Preliminaries

Meeting was opened with prayers from volunteer.

Minute 2/2021 Project overview.

Hybrid solar system installed as emergency response to drought.
Other components not addressed. 4) Distribution lines to be laid with
water tanks to be installed, water pump (Pombo) to be desilted,
Distribution lines over from the BSh.

Minute 3/2021 Benefits of the proposed project

- Leads to employment opportunity to youth
- Increased businesses due to food availability
eg selling of fuel
- During construction members will acquire
new skills
- Reduction in water borne diseases
- Reduction of distances from 6km to
1km
- Reduction of congestion from one
point

minute shows impacts of the proposed project.
Project benefits

- (a) Safetime for mothers
- (b) production of vegetables e.g. ^{Kitchen} garden
- (c) help animals and other uses at home
- (d) Without water bees disturbance during dry season
- (e) ~~Water~~ frame consumptions
- (f) Introductory new schools

Negative Impacts.

- (1) more people will be increased hence more crime
- (2) Increased population of animals hence caused soil erosion
- (3) Grazing areas which leads destruction of the place
- (4)

- Safe time and able to do other things
- Water availability will help animals & livestock
- Establishment of Kitchen garden hence improve businesses for women

Negative Impact

(a) during construction

- pollution from dust during scraping
- Destruction of habitat from small animals
- Destruction of about 20 small trees
- Oil spillage can also cause a lot of destruction
- people from other places can lead to the spread of diseases eg COVID-19 and other diseases eg HIV/AIDS
- Risk of accident in the process of handling Machines
- Conflict over distribution ^{and buying} of pipelines to the storage tank

How to solve the Negative Impacts

- Committee together with the chief to handle arising cases
- Agreement among the parties

① Musa Ngoletum chairperson (Bombo water Project.)

[Signature]

Date - 9/3/2021

(2) James Lookong
S012 48/Chief Tangelsee S/Loc.
— e f

CHOR ASS. ONE
WALL BEI SUB-1 OF

Attendance List for Public Baraza

ATTENDANCE LIST

County BARISSA Sub County TIATY EAST Ward TANVULBEI Location TANVULBEI Sub Location TANVULBEI

ACTIVITY Public Baraza

DATES 9/3/2021 VENUE Community meeting ground

S/N O	NAME	ID.NO	Sub Location/Vill age	AGE		SEX		PHONE NO.	SIGN
				BELOW 35 YRS	ABOVE 35 YRS	M	F		
1	CHEPUSAIT LOMUWA								
2	CHEPTENGOR KIRANWA	31801490	KORWOTKON	✓		✓		0794220815	KIR
3	CHEPUSAIT LOMUWA	EE93996	KORWOTKON		✓	✓		N/A	KIR
4	KACHEPOS LODIA	N/A	SOWO		✓	✓		N/A	CH
5	CHEPCHERWA LOKILE	N/A	KORWOTKON		✓	✓		N/A	CH
6	CHEPUSAIT LOMUWA	N/A	SOWO		✓	✓		N/A	CH
7	LIONA JEREMIAH ANGEL	20377467	POMBO	✓	✓	✓		0791378145	ANG
8	JENNIFER K. SAMARA	13066076	PILL		✓			0799495682	ANG
9	ELIZABETH LOMUWA	20346494	POMBO		✓	✓		0709842999	ANG
10	CHEPKOCHO NAKWANGI	N/A	KORWOTKON		✓	✓		N/A	KIR
11	CHEPKOMOI MAKAL	3E983637	KORWOTKON	✓		✓		N/A	KIR
12	CHEPUT LODIA	N/A	POMBO	✓		✓		N/A	CH
13	CHEPLEKE KIRWA	29012263	KORWOTKON	✓		✓		N/A	KIR
14	KENTEL SIMON	35654041	POMBO	✓		✓		0789712553	ANG
15	PETER AMALE	11379276	SOROMO		✓	✓		0791931672	ANG
16	JAMES LOMUWA	0123622	TANVULBEI		✓	✓		0225546300	ANG
17	MUSA MATIA	9777816	CHEPUSAIT		✓	✓		0768147107	ANG

ATTENDANCE LIST

County BAROTSE Sub County TATU EAST Ward TANWULBEI Location TANWULBEI Sub Location TANWULBEIACTIVITY EIA Public HearingDATES 9/3/2021 VENUE Community meeting ground

S/N O	NAME	ID.NO	Sub Location/Vill age	AGE		SEX		PHONE NO.	SIGN
				BELOW 35 YRS	ABOVE 35 YRS	M	F		
1	CHEPOSAT LOMUWA								
2	CHEPENGDA KIRANWA	31801490	KOKWOTKON	✓			✓	0794220815	KMC
3	CHEPOSAT LOMUWA	8E93996	KOKWOTKON		✓		✓	N/A	KP
4	KACHEPOS LODEA	N/A	SONO		✓		✓	N/A	Ch
5	CHEPCHERWA LOKILE	N/A	KOKWOTKON		✓		✓	N/A	Ch
6	CHEPCHERWA LOKILE	N/A	SONO		✓		✓	N/A	Ch
7	WILSON JEREMIAH ANSOL	20377467	Pombo	✓	✓		✓	0791378145	Ch
8	JENNIFER K. SAMALI	18066056	PILL		✓			079495689	Ch
9	ELIZABETH LOMUWA	20346494	Pombo		✓		✓	0709842999	Ch
10	CHEPKOCHO NUKUWA	N/A	KOKWOTKON		✓		✓	N/A	KP
11	CHEPKOMOI MAKAL	3E983637	KOKWOTKON	✓			✓	N/A	KP
12	CHEPUT LODEA	N/A	Pombo	✓			✓	N/A	Ch
13	CHEPLEKE KIRWA	29012263	KOKWOTKON	✓			✓	N/A	Ch
14	KENTEL SAMIRACK	35654821	Pombo	✓			✓	0704912863	Ch
15	PETER AMANLE	11379276	SOROMBO		✓	✓		0701931672	Ch
16	JAMES LOMUWA	9173622	TANWULBEI		✓	✓		0728546706	Ch
17	MUSA MATJA	9777816	Chokwotkon		✓	✓		0768147107	Ch

Annex 3: Individual Filled-in Questionnaires

STAKEHOLDERS' PERCEPTIONS ON THE POTENTIAL SOCIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED <u>PERMISO</u> PROJECT IN <u>RASINLETO</u> COUNTY			
SUB-COUNTY <u>TAT-PA</u>	WARD <u>TANUVER</u>	LOCATION <u>TANUVER</u>	SUB-LOCATION <u>PERMISO</u>
<p>This project is anticipated to have effects on the physical, biological and socio-economic environments of the surrounding area and the community. It is important, therefore, to determine these impacts and public participation is a requirement of Environmental Management and Coordination Act, 1999 (Section 58 on Environmental Impact Assessment) in this process. Therefore, as a key stakeholder (i.e. local leader/ surrounding institution or organization/ interested person or group), we request for your comments on the potential socio-economic and environmental impacts of the proposed <u>PERMISO</u>.</p>			
<p>1. Are you a resident of the proposed project area? Yes <input checked="" type="checkbox"/>, No <input type="checkbox"/>.</p> <p>2. How far is your place of residents from the proposed project area? <u>3km</u></p> <p>3. For how long have you resided in this area? <u>born place</u></p> <p>4. Are you aware of the proposed project? Yes <input checked="" type="checkbox"/>, No <input type="checkbox"/>.</p> <p>5. (a) Do you agree with the proposed project activity? Yes <input checked="" type="checkbox"/>, No <input type="checkbox"/>.</p> <p style="margin-left: 20px;">(b) If NO why? <u>N/A</u></p>			
(c) If YES			
<p>✓ (i) In your view, What are the Positive socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed activity?</p> <p style="margin-left: 20px;">(a) <u>Reduced distancing from water pond</u></p> <p style="margin-left: 20px;">(b) <u>No congestion at water pond</u></p> <p style="margin-left: 20px;">(c) <u>Reduced animal disease through watering animals</u></p>			
<p>✓ (ii) In your view, What are the Negative socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed demolition?</p> <p style="margin-left: 20px;">(a) <u>Human in Malawi die</u></p> <p style="margin-left: 20px;">(b) <u>Emergence of water-borne disease</u></p> <p style="margin-left: 20px;">(c) <u>East coast fever will affect</u></p>			
<p>iii) How can the negative impacts identified above be mitigated?</p> <p style="margin-left: 20px;">(a) <u>Treating water by boiling</u></p> <p style="margin-left: 20px;">(b) <u>Avoiding Malawi places by staying in water sources</u></p> <p style="margin-left: 20px;">(c) <u>Watering animals</u></p>			
<p>6. Should the project be implemented? Yes <input checked="" type="checkbox"/>, No <input type="checkbox"/>.</p> <p style="margin-left: 20px;">If no, why?</p>			
<p>7. Respondent Name: <u>KUMON KOKO</u> ID No/phone No. <u>2141841</u> sign <u>[Signature]</u> Date <u>9/3/21</u></p>			
<p>THANK YOU FOR YOUR COOPERATION</p> <p style="margin-top: 10px;">1</p>			

6 copies

STAKEHOLDERS' PERCEPTIONS ON THE POTENTIAL SOCIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT IN..... COUNTY

SUB-COUNTY Tsim WARD Tamulbei / Iluvu LOCATION Tamulbei SUB-LOCATION Tamulbei

This project is anticipated to have effects on the physical, biological and socio-economic environments of the surrounding area and the community. It is important, therefore, to determine these impacts and public participation is a requirement of Environmental Management and Coordination Act, 1999 (Section 58 on Environmental Impact Assessment) in this process. Therefore, as a key stakeholder (i.e. local leader/ surrounding institution or organization/ interested person or group), we request for your comments on the potential socio-economic and environmental impacts of the proposed.....

1. Are you a resident of the proposed project area? Yes [☒] No [☐]
2. How far is your place of residents from the proposed project area? about 1.5 km
3. For how long have you resided in this area? 10 years
4. Are you aware of the proposed project? Yes [☒] No [☐]
5. (a) Do you agree with the proposed project activity? Yes [☒] No [☐].
(b) If NO why?

(c) If YES

- i) In your view, What are the **Positive** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed activity?
- will create opportunity to have kitchen garden
- increase economy by selling vegetable

- ii) In your view, What are the **Negative** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed demolition?
- there will be a breeding place for mosquito
- leading to malaria cases

- iii) How can the negative impacts identified above be mitigated? introduction of net to prevent
mosquito

6. Should the project be implemented? Yes [☒] No [☐].
If no, why?

7. Respondent Name Thurman ID No/phone No 3224886 sign [Signature] Date 1/3/2021

THANK YOU FOR YOUR COOPERATION

STAKEHOLDERS' PERCEPTIONS ON THE POTENTIAL SOCIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT IN RARIN COUNTY

SUB-COUNTY TATU WARD Tanwaka Ward LOCATION Tanwaka SUB-LOCATION Tanwaka

This project is anticipated to have effects on the physical, biological and socio-economic environments of the surrounding area and the community. It is important, therefore, to determine these impacts and public participation is a requirement of Environmental Management and Coordination Act, 1999 (Section 58 on Environmental Impact Assessment) in this process. Therefore, as a key stakeholder (i.e. local leader/ surrounding institution or organization/ interested person or group), we request for your comments on the potential socio-economic and environmental impacts of the proposed

1. Are you a resident of the proposed project area? Yes [☒], No [☐]
2. How far is your place of residents from the proposed project area? 5 km
3. For how long have you resided in this area? about 30 years
4. Are you aware of the proposed project? Yes [☒]; No [☐]
5. (a) Do you agree with the proposed project activity? Yes [☒]; No [☐]
- (b) If NO why?

(c) If YES

- i) In your view, What are the **Positive** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed activity?
people will have better availability near or Hall
reduction of diseases and introduction of better garden
when selling vegetables, society balance will
- ii) In your view, What are the **Negative** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed demolition?
Having an dam will influence mosquito when
by malaria will affect people
- iii) How can the negative impacts identified above be mitigated?
through introduction of Nets and to prevent
mosquitoes leading to malaria spreading

6. Should the project be implemented? Yes [☒], No [☐]
- If no, why?

7. Respondent Name Much Kotuma ID No/phone No 071 000 0000 sign [Signature] Date 9/03/2021

THANK YOU FOR YOUR COOPERATION

STAKEHOLDERS' PERCEPTIONS ON THE POTENTIAL SOCIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT IN..... COUNTY

SUB-COUNTY Tanganyika WARD Tanganyika LOCATION Tanganyika SUB-LOCATION Tanganyika

This project is anticipated to have effects on the physical, biological and socio-economic environments of the surrounding area and the community. It is important, therefore, to determine these impacts and public participation is a requirement of Environmental Management and Coordination Act, 1999 (Section 58 on Environmental Impact Assessment) in this process. Therefore, as a key stakeholder (i.e. local leader/ surrounding institution or organization/ interested person or group), we request for your comments on the potential socio-economic and environmental impacts of the proposed

1. Are you a resident of the proposed project area? Yes ☒ , No ☐.
2. How far is your place of residents from the proposed project area? 2 km away
3. For how long have you resided in this area? more than 10 years
4. Are you aware of the proposed project? Yes ☒ , No ☐.
5. (a) Do you agree with the proposed project activity? Yes ☒ , No ☐.
- (b) If NO why?

(c) If YES

- (i) In your view, What are the **Positive** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed activity?

I have participated from the beginning up to date. I have agreed the project to continue.

- (ii) In your view, What are the **Negative** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed demolition?

Breeding places of mosquitoes due to malaria and other diseases. Disrupt environment by disturbing trees.

- (iii) How can the negative impacts identified above be mitigated?

Spreading of mosquito nets. Use of mosquito net.

6. Should the project be implemented? Yes ☒ , No ☐.

If no, why?

7. Respondent Name Musa Ngobutu ID No/phone No. 11842977 sign Musa Date 9/3/2021

THANK YOU FOR YOUR COOPERATION

STAKEHOLDERS' PERCEPTIONS ON THE POTENTIAL SOCIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT IN..... COUNTY

SUB-COUNTY Zirang WARD Tambora LOCATION Tambora SUB-LOCATION Tambora

This project is anticipated to have effects on the physical, biological and socio-economic environments of the surrounding area and the community. It is important, therefore, to determine these impacts and public participation is a requirement of Environmental Management and Coordination Act, 1999 (Section 58 on Environmental Impact Assessment) in this process. Therefore, as a key stakeholder (i.e. local leader/surrounding institution or organization/ interested person or group), we request for your comments on the potential socio-economic and environmental impacts of the proposed.....

1. Are you a resident of the proposed project area? Yes ☒ , No ☐
2. How far is your place of residents from the proposed project area? 1 km
3. For how long have you resided in this area? 20 years
4. Are you aware of the proposed project? Yes ☐ , No ☐
5. (a) Do you agree with the proposed project activity? Yes ☒ , No ☐
- (b) If NO why?

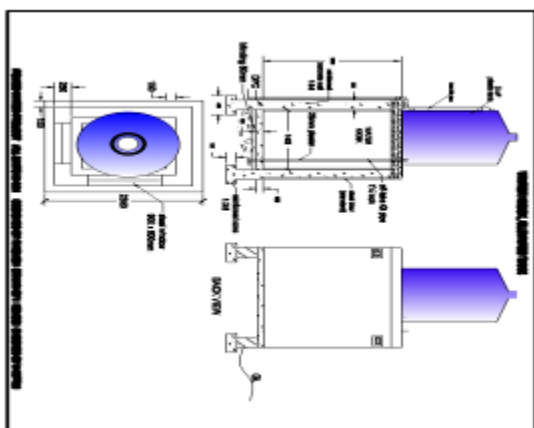
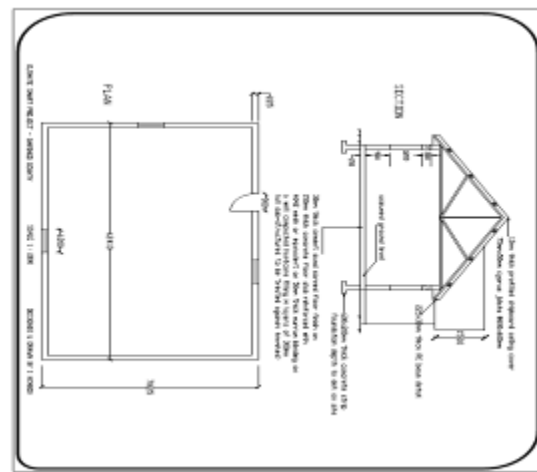
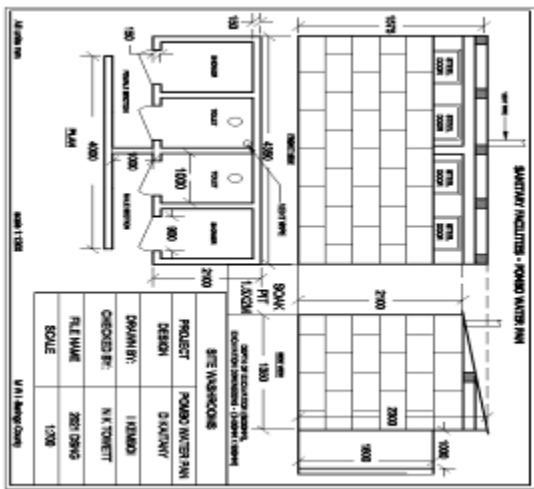
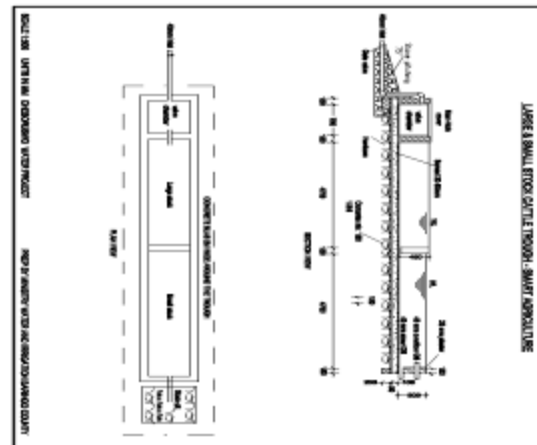
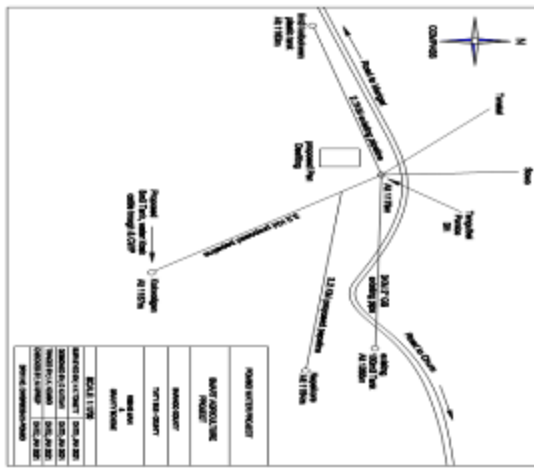
(c) If YES

- (i) In your view, What are the **Positive** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed activity?
It promote the living standard of the people and also promote economic status.
It reduce the distance that people and animals walk.
 - (ii) In your view, What are the **Negative** socio-economic and environmental impacts (i.e. to people, land/soil, water, forest, air, wetlands, livestock, wildlife, etc) do you anticipate from the proposed demolition?
During construction there might be alot of dust to people and livestock and causes disease.
 - (iii) How can the negative impacts identified above be mitigated?
No solution to dust.
The government should be informed about so that to eradicate the same and control.
6. Should the project be implemented? Yes ☐ , No ☐
- If no, why?

7. Respondent Name Union ID No/phone No 07 913785191 Date 9/1/2024

THANK YOU FOR YOUR COOPERATION

Annex 4: Designs and plan drawings



Annex 5: Bill of Quantities for Tangulbei Pombo Water Sub Project

PROJECT	TANGULBEI POMBO BH WATER PROJECT BoQ				PAGE 1
TITLE	PRELIMINERIES & GENERAL				BILL No. 1
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh.)	AMOUNT (Ksh.)
1.0	BILL No. 1 – PRELIMINERIES & GENERAL				
	The rates are inclusive of handling charges, levies, taxes mobilization and demobilization				
1.1.	Signboards				
	Allow for a prime cost sum of Ksh. 50,000 for provision, erection and maintenance of signboard as directed by Engineer	No.	2	50,000	100,000
1.2	Supervision of works by Engineer				
	Provide prime cost for Ksh.500,000 for, supervision to be expended as directed by Engineer to include checking levels, airtime, progress reports, photographs, publicity and community mobilization and sensitization	Item	1	500,000	500,000
1.3	Environmental and Social Management Plan (ESMP)				
	This shall consist of the following activities to be undertaken before, during & after the construction of the proposed water facility:1Disturbance of vegetation cover, soil erosion, water pollution, Occupation and health safety, Physical/cultural resource, Decrease of water flow, spillage of hazardous wastes, dust emissions, solid & liquid waste generation, accidents, HIV/AIDS & STDs, Covid 19,Gender based violence, Sexual exploitation & abuse, Water users conflicts, water borne diseases, population change impact and Livestock diseases during operations and maintenance phase				
	TOTAL CARRIED TO SUMMARY– BILL No.1				600,000
PROJECT	TANGULBEI POMBO BH BoQ				Page 2
TITLE	TANGULBEI POMBO BH WATER PROJECT BoQs				BILL No. 1
1.4	Community/Staff Sensitization/Training				
	Allow a sum of Ksh. 300,000 for community sensitization and training on water management as shall be directed by the project supervisor/ manager	Item	1	300,000	300,000
TITLE	TANGULBEI POMBO BOREHOLE EQUIPPING				BILL No. 2
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh.)	AMOUNT (Ksh.)
2.0	BILL No. 2 – TANGULBEI POMBO BOREHOLE EQUIPPING IMPROVEMENT				
2.1.0	PUMP-SET UPGRADING				
	Pump-set upgrading shall include: 1. purchase,				

	delivery, installation and testing of a new pump-set that can push water from the borehole to an existing 100m ³ masonry tank constructed on a hill about 3km away. 2. Supply and installation of additional solar panels that can increase the deficit power required 3. Extension of solar panels steel support structure for additional solar. 4. Quoted price to include for any required accessories				
2.0	BILL No. 2 – TANGULBEI POMBO BOREHOLE IMPROVEMENT/EXPANSION				
2.2.0	50 M ³ PRESSED STEEL ELEVATED TANK - TANK TOWER AND TANK				
2.3.0	OFFICE/STORE AND TOILET				
	The activities shall involve i. Construction of water supply office/store and a toilet on foundations that have been constructed to slab level				
3.0	PIPEWORK - BILL No.3				
	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh.)	AMOUNT (Ksh.)
3.2	Excavation and Backfilling				
	Rates for excavation and backfilling in trench shall include for clear of vegetation, trimming trench bottom and for providing selected bedding and surround materials				
1	Excavation and backfilling 13.41km pipeline trench in normal material for GS and HDPE pipes DN 63mm, 50mm, 40mm, 32mm and to a depth not exceeding 1 m. The trench shall be of size 600mm deep and 450mm wide.	M ³	3,740		
3.3	Pipe Anchorage and Valve Chambers				
1	Provide materials and construct Masonry lockable valve chamber of size 1.5 mx1.2 m x1.2 m for Gate and Air valves	No.	10		
2	Provide materials and construct R.C. anchor blocks/Thrust blocks along the pipeline as directed average 0.1M ³ per anchorage	No.	80		
3	Provide 50mm & 40mm GS class "B" pipes, cut or fabricate and use them as pipe anchorage along the pipe line as directed. Include for footing excavations and plain concrete under pipe footing for the anchorage pipes (260m)				
(a)	DN 50 (2") mm class "B" pipe	No.	10		
(b)	DN 40 (1½") mm class "B" pipe	No.	10		
3.4	Transport of materials using human labour				
	Allow a provisional sum of 200,000 for transporting of materials using human labour from area reached	item	1		

	by a vehicle to point of use				
	SUB-TOTAL CARRIED TO SUMMARY				
	SUMMARY - PIPEWORK				
	PAGE 5				
	PAGE 6				
	PAGE 7				
	TOTAL CARRIED TO SUMMARY– BILL No.3				
PROJECT	TANGULBEI POMBO WATER PROJECT BoQ				Page 8
TITLE	WATER KIOSKS & CATTLE TROUGHS				Bill No. 3
	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh.)	AMOUNT (Ksh.)
4 .0	WATER KIOSKS & CATTLE TROUGHS				
1	PRELIMINERIES - BILL No.1				
2	BOREHOLE REHABILITATION/ IMPROVEMENT - BILL No. 2				
3	PIPE WORK - BILL No. 3				
4	WATER KIOSKS & CATTLE TROUGHS - BILL No. 4				
	TOTAL - TANGULBEI, POMBO W/P PROPOSAL				19,010,400

Annex 6: Land Document



File



Kenya Climate Smart Agriculture Project (KCSAP)

County Project Coordinator
Baringo County

REF: KCSAP/ESS 1/VOL. 1

Date 8th DECEMBER, 2021

The CECM

Department of lands, Housing and urban development

Baringo County

Thro'

Chief Officer

Agriculture

Baringo County

RE: REQUEST FOR LAND DOCUMENTATION FOR SAGAT AND TANGULBEI WATER PROJECT.

The two sub projects mentioned above applied for support from the department of agriculture under a World Bank funded project KCSAP.

However, the projects cannot be implemented until environment and social impact assessment (ESIA) approval by our National project office, owing to lack of formal land ownership documents.

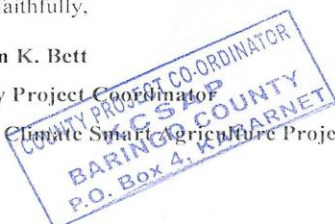
Kindly assist with the following documents in respect of each of the water projects:

1. Sagat water project: land ownership is under county council. Kindly assist with a written document authorizing the community to use the parcel of land for Sagat water project.
2. Tangulbei Pombo community water project: Kindly provide a copy of spatial plan and a letter authorizing the community to use it for the water project.

Yours faithfully,

Samson K. Bett

County Project Coordinator
Kenya Climate Smart Agriculture Project



REPUBLIC OF KENYA
BARINGO COUNTY GOVERNMENT



OFFICE OF THE COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, HOUSING AND URBAN DEVELOPMENT
P. O. BOX 53 – 30400 KABARNET

COUNTY PROJECT COORDINATOR
KCSA
BARINGO COUNTY
P.O. Box 4, KABARNET
9/12/2021

REF: BCG/LHUD/CEC/AGRI/70/VOL.1/ 2

DATE: 8TH DECEMBER, 2021

To
County Project Coordinator,
Kenya Climate Smart Agriculture Project,
BARINGO COUNTY

noted
9/12/2021
CPC

REF: WATER BOREHOLE SITE & DAM AREA LAND AT POMBO CENTRE

Reference is made to your letter Ref: KCSAP/ESS1/VOL.1 Dated 8th December, 2021 on the above matter,

This is to confirm that the said land is located in Pombo Trading Centre and set aside for water borehole area and a dam area as per the development plan of the centre.

The land occupies **1.47 Hectares** for the water borehole area and **10.12 Hectares** for the dam area as shown in the plan attached.

Kindly accord them the necessary support.



Hon. Thomas Ole Nong'onop, **Hsc,**
CEC, DEPARTMENT OF LANDS, HOUSING & URBAN DEVELOPMENT



NATIONAL LAND COMMISSION

COUNTY COORDINATOR BARINGO
P.O. BOX 07-30400
KABARNET.

REF: NLC/BAR/ADM/14

11/01/2022

TO
COUNTY PROJECT COORDINATOR
KENYA CLIMATE SMART AGRICULTURE PROJECT,
BARINGO COUNTY.

REF: WATER BOREHOLE SITE AND DAM AREA LAND AT POMBO CENTRE.

Refer to your letter Ref KCSAP/ESSI/VOL.1 dated 8th December 2021.

This office has appraised the above project and given consent for utilization of the land for the benefit of the community; since the development plan of the town had set aside the site for water borehole and a dam. This should be used as per the development plan.

J.G M'NKANATA
COUNTY COORDINATOR
BARINGO COUNTY

NATIONAL LAND COMMISSION
COUNTY COORDINATOR
BARINGO
P.O. BOX 7 - 30400, KABARNET
DATE: 11/01/2022

Annex 7: ESIA Practicing License

FORM 7 (r.15(2))



nema
nachigito ymo / otar wemo / wogito wemo

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No - NEMA/EIA/ERPL/15469
Application Reference No: NEMA/EIA/EL/20485

M/S **Joel Sumukwo**
(individual or firm) of address
P.O Box 400 - 30300 Kapsabet

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **11829**

in accordance with the provision of the Environmental Management and Coordination Act Cap 387.

Issued Date: **6/16/2021** Expiry Date: **12/31/2021**



Signature.....

(Seal)

Director General
The National Environment Management
Authority

P.T.O.



Annex 8: Photo gallery of field activities



Photo 1: Chief Officer Environment during public participation



Photo 2: Male community members giving views during baraza



Photo 3: female participant contributing during ESIA Public Baraza



Photo 4: Pump assessment, pump to be upgraded



Photo 5: Women participants following session.