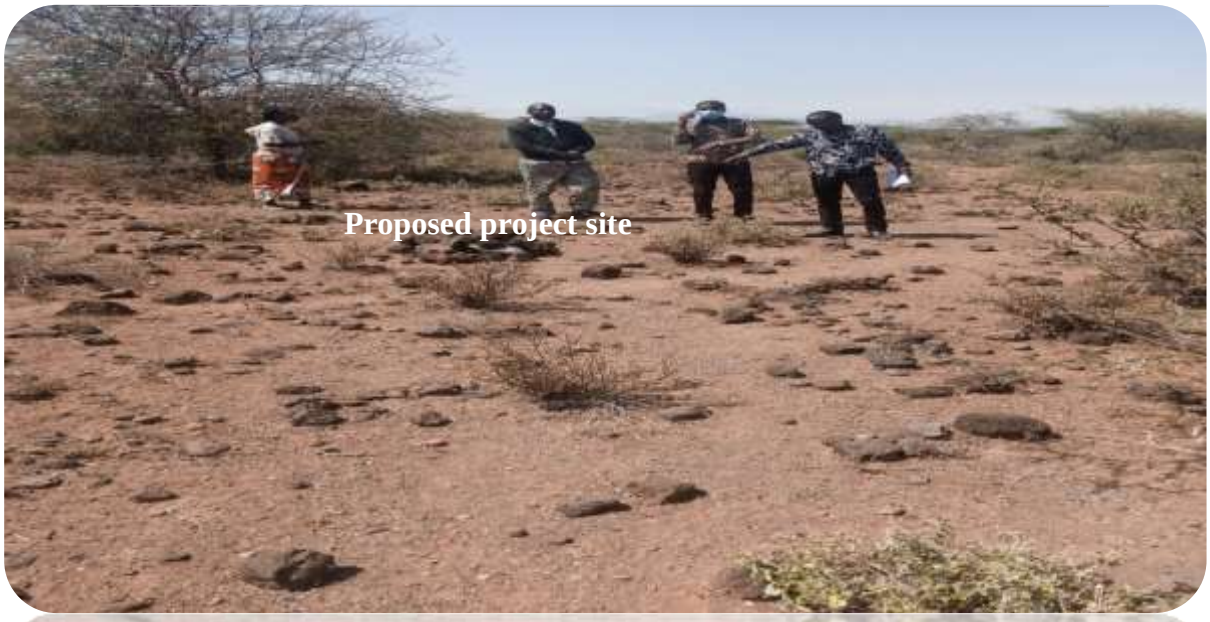
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY SUMMARY PROJECT REPORT

THE PROPOSED SUKUMA INTEGRATED COMMUNITY BOREHOLE PROJECT ON COMMUNITY LAND WITHIN SUKUMA VILLAGE, NGARE MARA WARD, ISIOLO COUNTY



Sponsor	Government of Kenya / County Government of Isiolo with support fro the World Bank
Client	Kenya Climate Smart Agriculture Project (KCSAP)
Proponent	Ngaremara Community
Lead expert	Bonface Manyara
Submitted To	County Director for Environment-Isiolo County

June, 2021

CERTIFICATION

The Proposed Summary Environmental Impact Assessment (SPR) Report for the Proposed Sukuma Irrigation Project in Garamara, Isiolo County. The SPR has been carried out according to the Environmental Management and Coordination Act, 2015, Environmental (Impact Assessment and Audit) Regulations, 2019 and the NEMA public notice 31 on processing of EIA reports of 12th March 2020. To my knowledge, all information contained in this report is accurate and a truthful representation of all findings as relating to the proposed infrastructural development.

CERTIFICATION BY EXPERTS

1. Name: BONFACE MANYARA Designation LEAD EXPERT

Signature. _____ Date 12/08/2021

THE PROPONENT

Name: MATHIAS NGAI EBONGO Designation: Chair

Signature. _____ Date 12/08/2021

PROJECT SPONSOR

Name: Salad Tultana Designation: Chief Officer

Signature. _____ Date 12/8/2021

CHIEF OFFICER
DEPARTMENT OF AGRI
COUNTY GOVT OF IS
Date:.....Sign.....

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ACKNOWLEDGEMENT

Our sincere appreciation goes to the proponent through whom this study was feasible. The proponent provided all the related information of the project including a fully compiled hydrogeological report on the project site under study.

Besides the proponent and the community, we wish to thank all the County Departments who shared with us their policy insights and experience earned as the sub project was being proposed and first studies being done. In this list is County NEMA Office, County NLC Office, WRA, Department of Water, Livestock and Agriculture. The list will not be complete without us acknowledging the Isiolo CPCU for working with us: taking us to the field, providing relevant secondary data and organizing public and stakeholder meetings, which were successful.

We thank also the KCSAP POE whose insights helped polish the entire report into a more user-friendly volume and content.

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ABBREVIATIONS AND ACRONYS

2D	two-dimensional
3D	three-dimensional
BOP	Blow-out Preventer
CRS	Comments Registration Sheets
CSR	Corporate Social Responsibility
EHS	Environmental, Health and Safety
ESIA	Environmental and Social Impact Assessment
EMCA	Environmental Management and Coordination Act
EP	Equator Principles
ESIA-SPR	Environmental and Social Impact Assessment
ESF	Environmental and Social Framework
ESMP	Environmental and Social Management Plan
FGD	Focused Group Discussions
GBV	Gender Based Violence
IFC	International Finance Corporation
MSDS	Material Safety Data Sheets
NADF	Non-Aqueous Drilling Fluids
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
OSH	Occupational safety and health
PPE	Personal protective equipment
PSC	Production Sharing Contract
SBM	Synthetic Based Mud
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
SOP	Standard Operating Procedures
UNESCO	United Nations Educational, Scientific, and Cultural Organization
KCSAP	Kenya Climate Smart Agriculture

EXECUTIVE SUMMARY

The proposed borehole project is located within Sukuma area of Ngaremara location, Isiolo North constituency, Isiolo sub-county, Isiolo County. The water will essentially be for domestic water use of the residents at a maximum depth of 250 metres deep, and will provide the necessary water supply of at least 29m3/day. This is based on the needs of the beneficiaries, weighed against the assessed groundwater potential in the area and the requirements for other users.

This project report provides relevant information and an environmental consideration on the proponent herein referred to as KCSAP in liaison with Sukuma Integrated Community Borehole of Isiolo County with intention to seek approval from National Environment Management Authority (NEMA); for the proposed: Borehole drilling with associated infrastructure i.e., solarized water pumps, water kiosk, fence, basic training hall and sanitation facilities. The proposed project activity is classified as a low-risk project under Section 58(1) The Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 category 1c.

As part of the project, an Environmental and Social Impact Assessment needs to be performed the objective of which is to ensure that any interventions and ongoing operations of the project would not cause any long-term negative environmental and social impacts. Therefore, this ESIA-SPR has been prepared according to the requirements and procedures of the Environment Management and Coordination Act (EMCA, 1999) through the Environmental Impact Assessment (EIA) regulations as stipulated under the Gazette Notice No. 56 of 13th June 2003 and the EMCA (Amendment) 2015.

The ESIA-SPR relies on information already available concerning environmental and socio-economic conditions in the area through literature review; information learned through engagement of the public and relevant stakeholders; and primary sources of information such as socio-economic survey, ecological survey, noise assessment and hydrological survey undertaken. A public meeting was held at the proposed site and the project area on 22/10/2020. 19 community members attended the public participation meeting of which 14 were males and 5 females. Main Questionnaires were administered on 15 randomly selected community members within the catchment of the proposed borehole. Main Questionnaires were administered on 15 randomly selected community members within the catchment of the proposed borehole. This is done using detailed study, information from previous similar studies, developed checklist, and professional knowledge. The checklist focused on information gained from the screening process and other cross-sectorial issues such as health and safety, biodiversity, air pollution, noise, among others. Several methods and processes were undertaken to enable the achievement of the study's objectives as per NEMA and World Bank requirements.

As required by regulations, stakeholders were identified and engaged as part of this ESIA-SPR Study. It is also very beneficial in incorporating the views of the public into the design process for the adoption of the best workable models and systems. Stakeholders identified were grouped into two categories: Primary Stakeholders and Secondary Stakeholders. Some of the key issues, concerns and comments raised during the stakeholder consultation exercise include concerns on the project's impact on biodiversity, waste generation and the methods that will be used to dispose of waste and concerns on sharing of water resource. In response, the participated were informed that these issues will be addressed during project implementation especially in the process of implementation of the ESMMP.

The major anticipated negative environmental impacts of the proposed project include: loss of flora and fauna, soil erosion, solid waste generation, Occupational Health and Safety

(OHS) hazards, noise and dust. The social impacts include: conflict over water resource, mismanagement, altered social and cultural norms that support undesirable behavior, increased cases of HIV and AIDs, risk of transmission of the COVID - 19 disease, labor risks including labor influx and associated Gender Based Violence (GBV) in form of Sexual Exploitation and Abuse and Sexual Harassment (SH) and Child Abuse.

The proposed mitigation measures as outlined in the ESMMP in chapter 7 of this SPR include: Use of well-maintained machines and equipment, use of appropriate personal protective equipment, establishment of project management committee to oversee the implementation of the proposed project, strict adherence to Ministry of Health protocols and guidelines on prevention of spread of COVID – 19 that entails washing hands regularly, sanitizing, keeping social distance and wearing face masks, practicing Integrated Solid Waste Management (ISWM), soil and land management practices, putting in place a Grievance Redress Mechanism (GRM), capacity building the project management committee and developing and implementing a Sexual Exploitation and Abuse (SEA) action.

An environmental and social management and monitoring plan (ESM&MP) has been developed to manage the identified potential impacts and to keep the impacts at an acceptable level throughout the project's lifecycle whose activity budget is KES 1,610.000.

The SPR study finds the project is acceptable if the identified and developed environmental and social management plan and best practices are implemented accordingly. It also recommends appropriate monitoring of the project development and operational activities to ensure that adverse impacts that were unforeseen are identified and addressed in a timely fashion. NEMA is advised to approve the project since it is a viable project. The ESM&MP will also be shared with the winning contractor so that the contractor domesticates it to C-ESMMP.

CHAPTER ONE: INTRODUCTION

1.1 Background Information

Specifically, and in a participative manner the Ngare Mara Ward community arrived at the following set of objectives: To improve access to water for irrigation & livestock.; Increase acreage under irrigation from 5 to 50 Acres; Improve household nutrition; Reduce distance to water source from 20KM to 10 Km; Improve Agricultural productivity & pastoral resilience and Improve food security.

The Sukuma Borehole proposed under Sukuma integrated community project (SICP) is a World Bank sponsored project in collaboration with the government of Kenya in achieving vision 2030. This project, if successful will be fully funded by KCSAP. The project was identified during the Participatory Integrated Community Driven Development Process conducted by KCSAP in Ngare Mara Ward at Sukuma village in March 2019. During the process water for livestock and crop production ranked number one priority of the development needs of Sukuma Community. The community has also been engaging in small scale agricultural production and this has dwindled over the years due to drying up of Ngare Natir River. The project is expected to revive this small-scale irrigation using the river waters during the rains and supplementing with the bore when the river dries up. Once completed, the borehole will serve about 2300 beneficiaries (1580 females and 720 males).

The development objective of KCSAP is **"***to increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya, and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response."* Stepping from this PDO, This proposed borehole, will access quality and quantity domestic, livestock and for small-scale irrigation water especially for kitchen gardening thus contributing to productivity and resilience to climate change.

1.2 Justification of the Project

The project was identified during the Participatory Integrated Community Driven Development (PICD) Process conducted by KCSAP team in Ngara Mara Ward at Sukuma village in March 2019. During this process water for livestock and crop production ranked number one priority of the development needs of Sukuma Community. The community has also been engaging in small scale agricultural production which has since dwindled over the years due to drying up of Ngare Natir River. The project is expected to revive this small-scale irrigation by using the river waters during the rains and supplementing with the borehole water when the river dries up.

The total target beneficiaries in Sukuma village are 2,300 with males being 720 while females are 1,380. The vulnerable persons are 580 (25.2%) of the total target population. In addition, there are about 2,000 assorted livestock numbers to benefit from this water project.

1.3 Justification of conducting the Summary Project Report (SPR)

This Summary Project Report (SPR) was undertaken under requirements of Environmental Management and Coordination Act (EMCA) of 1999 schedule II as stipulated by National Environment Management Authority (NEMA), the Environmental Impact Assessment (EIA) regulations and EMCA (Amendment) 2015 and Legal Notice No. 31 of April 30, 2019 on the EMCA No. 8 of 1999 (Amendment of the Second Schedule) followed by the Public Notice on Processing of ESIAs of March 12, 2020 and Legal Notice No. 32 The Environmental Management And Coordination Act (No. 8 Of 1999), and administrative procedures issued by NEMA thereof where an investment of this nature is (1) reclassified as Low Risk Project

(c) ***community water projects including boreholes****, water pans, sand dams and sub-surface dams and Legal Notice No. 32 The Environmental Management And Coordination Act (No. 8 Of 1999) The Environmental (Impact Assessment And Audit) (Amendment) Regulations, 2019, (7)(1) where a proponent shall prepare a Summary Project Report (SPR) to be submitted to NEMA for screening and assessment*.

1.4 The SPR Objectives

The main objective of the SPR is to determine the impact on the environment and social effects by the proposed investment. Specifically, the SPR covers the following objectives to:

a) Identify the main environmental and social effects of the proposed project, both in the project area and in the surrounding area and the timescale of the impacts.
b) Determine the size and extent of the impacts based as much as possible on quantitative data rather than qualitative assessment highlighting certain topics (i.e., ecosystem sensitive areas, watersheds, waterlogging, flooding, resettlement, etc.)
c) Establish the community groups that will benefit and those disadvantaged (if any) by the project.
d) Assess the impact on any rare species of plant or animal in the area.
e) Identify the impact on human and livestock health.
f) Identify mitigating measures needed and how they should be incorporated into the project design and procurement bids.
g) Develop an environmental and social management and monitoring plan with mechanisms for monitoring and evaluating the compliance and environmental and social performance which shall include the cost of mitigation measures and the time frame of implementing the measures across the project cycles/phases.
h) Explain the monitoring and evaluation activities that are required to ensure that mitigating measures are implemented, and future problems are avoided.
i) Assist Isiolo County in submission of the finalized ESIA/Summary of Project Report (SPR).

1.5 SPR approach and methodology

The study involved collection of preliminary data first through desktop studies at national and county levels, and then finally scoping down to the study area and review of the screening report on the proposed project. The team concretized its findings using relevant, information from previous similar studies, developed checklist and professional knowledge. The checklist focused on information gained from the screening process and other cross-sectorial issues such as: health and safety, biodiversity, pollution among others. Several methods and processes were undertaken to enable the achievement of the study's objectives. The ESIA-SPR process that was employed is detailed below:

In summary, this environmental and social impact assessment – SPR is based upon desk review studies, field assessments, discussions with the proponent and stakeholders; undertaken in the following key steps:

1.5.1 Screening

This was conducted to determine the degree of risk posed by the proposed project on the environment. The environmental and social impacts depend on the type, location, sensitivity, and scale of the project, as well as the nature and magnitude of its potential impacts. *See annexed screening checklist (Annex No. 2).*

1.5.2 Scoping

This helps to narrow down on the most critical issues during assessment. The environmental and social issues were categorized into physical, natural/ecological and social, economic and cultural aspects.

1.5.3 Desk top Review

This entailed reviewing the current and past literature related to the proposed project. Secondary sources of information reviewed included sub-project documents such as proposal, hydrogeological survey report, reports of similar projects and policy and legal frameworks among others.

1.5.4 Public participation and stakeholders' consultation

This was guided by a standard questionnaire and Key informant developed by ESIA/EA experts with key focus on the area environment, social aspects, potential risks, and benefits of the project. Also public barazas were conducted to engage more community members within the project area.

1.5.5 Observation

This is based on the experts' wide experience in Environmental and Social Impact Assessment study. The data collected using this technique included the soil type, vegetation cover, environmental risks, and potential waste management strategies among others.

1.5.6 Reporting structure

The structure of this ESIA-SPR Report is as follows:

- Executive Summary
- Introduction (Chapter 1)
- Nature of the Project (Chapter 2)
- The Location of the Project (Chapter 3)
- Public Participation and Stakeholder Consultation (Chapter 4)
- Potential Impacts and Mitigation Measures (Chapter 5)
- Environmental and Social Management and Monitoring Plan (ESM&MP) (Chapter 6)
- Conclusion and Recommendations (Chapter 7)
- Reference
- Annexes

CHAPTER TWO: NATURE OF PROJECT

2.1 Introduction

This Chapter provides a description of the key Project components and details regarding activities throughout the life of the Project.

2.2 Project description

Proposed borehole activities include the following:

- Drilling and casing of a borehole
- Development of the borehole.
- Installation of solar pumping system
- Construction of tank & troughs for livestock use
- Construction of Drip irrigation

2.2.1 Exploratory Drilling Components

Exploratory drilling is a temporary and short duration activity and includes site preparation, equipment assemblage, well site and drilling pad construction, erection of the rig, drilling, testing and restoration of the well site. Mobilization and establishment will involve transportation to the project site of the drilling rig, drill pipe, casing, camp and other supporting equipment, drilling materials and consumables including fuel, drilling mud, among others.

2.2.2 Borehole Layout

A borehole will be constructed at the drilling site to accommodate the following, but not limited to: the rig, ancillary drilling equipment, accommodation and offices, among others and it will cover an area of approximately 200 metres (m) by 200m. The camp will hold contractor's machinery, equipment, and workers. The mobilization and establishment phase is expected to last up to 60 days.

The type of well pad to be contracted will depend on terrain, soil conditions, and seasonal constraints. A land well is normally drilled with freshwater; however, this is dependent on the abundance of fresh water supply in the area.

2.2.3 Power source

The drilling process requires rotation of a drill bit through the draw works which requires power. This power will be provided by generators either Caterpillar SR4 1500KVA x 4 or equivalent) or any other fit for the work.

2.3 Well Drilling and Operation

The initial well will be a vertical well to a target depth of 250 metres below ground level. The drilling process of one borehole is expected to take one month.

2.3.1 Drilling Process

Once the land has been prepared, several holes are dug to make foundations for the rig and the main well hole. A rectangular pit, called a cellar, is dug around the location of the actual drilling hole, which provides a workspace for the workers and drilling accessories. Drill bits, attached on a drill string, that vary in size are used to drill the hole in the ground. When these holes are finished and the Derrick (rig mast) erected, the rig equipment can be brought

in and set up**.** The first part of the hole is larger and shallower than the main portion and is lined with a large-diameter conductor pipe.

Once the hole extends to a reasonable depth the drill pipe is removed and replaced with steel pipe called, surface. Cement is then added around the sides of the well to permanently set the casing in place. Casing will be used to provide structural support and isolate underground rock formations to prevent natural gas or other substances from leaking out into any surrounding freshwater aquifers, and to facilitate movement of equipment up and down the hole.

2.3.2 Appraisal Drilling and Well Evaluation/ Testing

During the drilling operations for different depths logging operations are undertaken to get information on the potential type and quantities of hydrocarbons present in the target formations. If the results of logging indicate a potential for hydrocarbon/gas bearing formations, the well may be tested. The hydrocarbons will be flowed through a test package where the pressures, flow rates, and hydrocarbon types will be characterized and sampled, and excess hydrocarbons flared. The escaping gas will be flared or vented out in the open. The gas flaring or venting will create a flame and noise from the burning of the gas. Testing is important in order to determine the pressure, flow and composition of the gas in the well. Flaring is also done for safety during emergencies, maintenance, equipment repairs, where equipment or piping becomes over-pressured. This is done to avoid risk of fires and explosions. Flare gas systems are also used to manage waste gas that cannot be efficiently captured and returned to the system for processing.

2.4 Project Completion and Operation

Upon completion, the borehole will handed over to the target community be managed by elected community water management committee. The willingness of the community to contribute in-kind such as unskilled labor, security, and management of the project among others is an indicator of community broad-based ownership for the project.

2.5 Project Schedule and Cost

The borehole is expected to take 3- 4 months to drill and there may be a standby period between drilling to analyze the data results from the previous boreholes. The estimated cost of drilling, casing, water tanks, kiosks and reticulation is KES 27m while the budget for M&E is estimated at KES 1,053,500.

CHAPTER THREE: THE LOCATION OF THE PROJECT

3.1 Introduction

This chapter describes the proposed project location, proof of the land ownership where the project is located, environmental support infrastructure, environmental sensitive area to be affected; availability of environmental management infrastructure and conformity of land use plan of the area/zonation.

3.2 Project Location

The project site is located in Sukuma Village, Ngaremara Ward, Isiolo sub-county, Isiolo County. The geographic location of the site is UTM 37N 351187 E 53701 N (longitude 37.662734^0 East, latitude 0.485718^0 North) and elevation of approximately 962 meters above sea level (WGS 1984).

3.2 Proof of Land ownership

The proposed Sukuma Integrated Community borehole is located on communal land and the community have signed a letter of no objection. See attached letter of no objection (No Annex No. 1)

3.3 Environmental Sensitive area to be affected

The study has established that there is no any fragile ecosystem or environmental sensitive area that will be affected by the project during its implementation.

3.4 Supportive Environmental Management Infrastructure

3.4.1 Telecommunication

The project area is well covered by communication facilities landline and mobile telephony services being adequately covered by Safaricom, Airtel and Telkom. This will facilitate communication during project implementation.

3.4.2 Transport

The project area has a relatively good road networks maintained by Isiolo County Government and Kenya Rural Roads Authority (KeRRA). The proposed project area can be accessed through Isiolo – Archers Post road branching at Ngare Mara mission road

3.4.3 Electricity Connection

The area is served by electricity supplied by Kenya Power and Lighting Company (KPLC) and most of the households in the project area are connected including learning institutions, health centres and business premises. This will provide a reliable source of energy during the project implementation.

3.4.4 Health Facilities

The area is served by a health facilities located within the project area and therefore minor health conditions and injuries during the project implementation would be adequately handled by the facility.

3.4.5 Waste Management

The most dominant waste disposal method in the area is burning in the open, burning in a pit, burying in deep pits and dumping in pit latrines. Households have a pit latrine for management of human waste.

3.5 Conformity to Land Use

Predominant land uses include crop and animal farming. Farming within the project area is rain fed and there boreholes development within the area supplying water mainly for domestic and watering animals. Based on the fact that there are similar projects within the project area, the proposed project conforms to the land use plan of the area.

CHAPTER FOUR: PUBLIC PATICIPATION AND STAKEHOLDER CONSULTATIONS

4.1 Introduction

The stakeholder engagement exercise provides NEMA with the necessary information to assist it in making an informed decision about the Project. EMCA amendment Act 2015 and The EMCA 1999 and the World Bank Environmental and Social Safeguard Policies call for effective stakeholder participation and public consultation in the ESIA process. This chapter describes the Stakeholder Engagement Exercise that was carried out for the proposed Sukuma Integrated Community project borehole

4.2 Objectives of Community and Stakeholders Consultation

The main objective of the exercise was to inform stakeholders about the project and its likely effects, which in turn would incorporate their inputs, views, and concerns, and thus enable their views to be considered during the decision-making. The specific objectives of the consultations were to:

i) Obtain local and traditional knowledge that may be useful in decision-making including any Indigenous Knowledge Systems (IKS) (if any);

ii) Ensuring that important impacts are not overlooked, and benefits are maximized.

iii) Reducing chances of conflict through early identification of contentious issues.

iv) Provide an opportunity for the public to influence the project design and operational plan in a positive manner.

iv) Improving transparency and accountability of decision-making; and

v) Increasing public confidence in the ESIA-SPR.

4.3 Categorization of Community Participants and Stakeholders

Stakeholder identification was to determine all organizations and individuals who may be directly or indirectly (positively or negatively) affected by the proposed project. In the end, the stakeholders were grouped into two main categories depending on their various needs, interest, and potential influence on the project: which are:

Primary Stakeholders: These are stakeholders directly affected by the project such as the local residences/ communities.

Secondary Stakeholders: These are stakeholders indirectly affected by the project but influence development through project implementation. These include but not limited to: National Government, Isiolo County Government, Local Government, non-governmental organization (NGOs).

4.4 Methodology of Public Participation and Consultation

4.4.1 Stakeholder Engagement Interview

Enumerators were employed during the stakeholder consultation period to undertake socio-economic questionnaires with key community members and stakeholders. The interviews were expected to obtain socio-economic characteristics of the area. This information was used to corroborate and verify data obtained from other sources, such as the literature review and the quantitative household survey and impacts of the project on the social, cultural and community settings

Focused grouped discussions involved meetings with representatives from different sectors from the National Government, County Government, Local Government, NGOs, Community

Based Organizations (CBOs). The main aim of the community baraza's was to target local communities from the location in Ngaremara. The FGD and Community Baraza's were held in order to obtain: Information on community expectations and social risk associated with the project; Insight on the challenges faced in the County; Environmental and Socio-economic baseline characteristics of the project area; Assess impact of the project on the environment and communities, both positive and negative impacts and Establish mitigation measures for the negative for the negative impacts

4.4.2 Stakeholders Consulted

The stakeholder consultation process was conducted from October 20th – 11th Nov 2020. Generally, all teams who were separately met agreed with the proposal and support the proposed Borehole. A public meeting was held at the proposed site and the project area on 22/10/2020. 19 community members attended the public participation meeting of which 14 were males and 5 females. See annexed minutes and general comments from community and their leaders. Main Questionnaires were administered on 15 randomly selected community members within the catchment of the proposed borehole. Main Questionnaires were administered on 15 randomly selected community members within the catchment of the proposed borehole.

4.64.3 Community Meeting

The environmental and social assessment public participation exercise was conducted on 22nd October 2020 by the expert in collaboration with KSCAP and County team. The public meeting was organized by the area chief and was held at the project site. The meeting was conducted in accordance with the COVID_19 guidelines where social distancing was observed and all those present had put on nose/mouth masks. 59 community members attended the public participation meeting of which 34 were male and 25 were female. The lead expert explained to those present in the meeting what ESIA was and the reason for the meeting. The community members were given opportunity to express their views which were documented. Community members were aware of the proposed project because several meetings had been held earlier on regarding the same project and the community agreed on the proposed site.

Plate 1: Some of community meeting participants

CHAPTER FIVE: POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

5.1 Introduction

In all phases of underground water abstraction, the environment is likely to be affected at certain degrees; if not properly monitored and regulated, it may pose pollution risks to the underground water, depletion of the aquifer and degradation of the environment through various factors like soil compaction.

5.2 Anticipated Positive Environmental and Social Impacts

✓ a) Employment

The works of the Borehole and associated infrastructures offer various job creation opportunities in the project area that include unskilled, semi-skilled and the skilled worker categories that leads to increment of income of the local community. Along with this is the hawkers who will be supplying commodities, drinks and foodstuffs. Such vendors will be taking home some reasonable income which otherwise was not there.

✓ b) Exchange / Transfer of skills

During the construction of the Borehole, the local community who will be involved in the project implementation will gain new skills from the construction workers.

✓ c) Empowerment

Ensure that the local community gets opportunities to work at the site.

✓ d) Improving the Aesthetic Value

With the drilling of the Borehole, there is a high chance that the area will be vegetated with fast growing trees which will change the way the area look like boosting the aesthetic value of the land as compared to the current almost bare situation.

5.4 Anticipated Negative Impacts and Mitigation Measures during Construction phase

5.4.1 Potential Environmental Impacts

a) Soil Compaction

Soil compaction will be minimal as the drilling will only take place within a period of 2 days and the project site is a built-up area. However, for future reference material, the following are the mitigation measures.

Mitigation measures:

- ✓ The contractor will always use a predetermined route to the site.
- ✓ Unnecessary heavy machines will be avoided.
- ✓ Operations will be timed to take place during the dry season when the soils are dry to reduce the risk of soil compaction.

b) Soil pollution

Soil pollution may arise due to spillages of oil/grease and drilling materials during drilling, operation or decommission stage.

Mitigation measures:

- ✓ Spillages will be minimized by using right machinery that is regularly serviced and operators who are qualified following the operations instructions strictly.
- ✓ In case of accidental spillages, the leaking fluid should be tapped into a container and later dumped in a safe manner.
- ✓ The contractor and the management will ensure effective wastewater management.

- ✓ Foreign material will be removed from the site as soon drilling is complete.

c) Soil Erosion

Soil erosion may occur during the drilling phase though this is minimal since this is a built up area. During drilling, the site will be dug out and top soil exposed. Erosion would probably be minor for this project due to the flat terrain, permeable soils and lack of proximity to surface water drainages.

Mitigation measures:

- ✓ Control earthworks especially if works begin in the rainy season.
- ✓ Loose soils will be compacted when necessary.
- ✓ Provide soil erosion control structures on the steep sides during drilling.

d) Loss of biodiversity

There are little vegetation in the project area and especially where the proposed borehole will be drilled and therefor minimal vegetation disturbance.

Mitigation Measures:

- ✓ Avoid felling trees unless it has to; establish a woodlot in the school (0.5 acre).

e) Noise pollution

The commencement of drilling will be accompanied by a lot of noise. It is prudent to notify all the affected persons.

Mitigation measures:

- ✓ Inform the neighboring establishment 3 days before drilling commences.
- ✓ Maintain plant equipment to avoid annoying noises.
- ✓ Drilling activities to be restricted to daytime.
- ✓ Workers in the vicinity of high-level noise to wear safety and protective gears.

f) Air quality/particulate matter (dust)

Vehicular/equipment engine exhaust emissions will be minor and temporary during drilling. Air quality impacts will be temporary during drilling. The project will not generate significant vehicle trips to the area. Vehicular and equipment exhaust emissions during project operations will, thus, have a minor incremental/cumulative impact locally and regionally.

Particulate matter (dust) would be generated by drilling vehicles/rig. It is not possible to accurately estimate the particulate concentration that might occur at the site because it is dependent on meteorological conditions and soil moisture.

Mitigation measures:

- ✓ If drilling takes place in the dry season, vehicle speeds in the drilling area will be limited to minimize dust in the area.
- ✓ Discourage idling of vehicles i.e. vehicle and equipment engines will be turned off when not in direct use to reduce exhaust emissions.
- ✓ Regular maintenance of drilling plant and equipment.
- ✓ Engage well trained drilling workers.
- ✓ Provide Personal protective Equipment full gear including the recent due to COVID nose masks and Sanitizers to the workers on site.
- ✓ The drilling contractor will water the site with exposed soil surfaces twice each day during dry weather.

5.4.2 Potential Social Impacts

a) Safety Hazard

Hazards due to falls are likely if the borehole is not well sealed and electric shock when pumping the water.

Mitigation measures:

- ✓ The borehole will be well sealed by the contractor by providing an exclusion zone for all.
- ✓ The management will ensure that electric wiring is checked and that shocks are prevented at all costs.

b) Child labor

Child labour is work that children should not be doing because they are too young, or if they are old enough to work, because it is dangerous or unsuitable for them. Whether or not work performed by children is defined as child labour depends on the child's age, the hours and type of work involved. In this area, it is not uncommon to find children working for pay because their parents asked them to do it. And therefore, the CPCU and contractor should be keen on this and avoid it through due diligence.

Mitigation measures:

- ✓ Community sensitization; putting the clause on child labour in the bidding documents for the contractor(s) to ensure mitigation through avoidance; and work with the County children's Department.

c) Labor influx

It is a common scenario in the ASALs. At the outset, it is important to understand the types of social impacts associated with/caused by labour influx and why it matters to address it. This is a security fragile area; new faces arouse fear and tension and may result in unnecessary conflicts. Secondly, the community is vulnerable and allowing immigration of labour may make them imagine more marginalization is in practice.

Mitigation measures:

- ✓ Contractor to adopts a labour management procedure of the project; plan to reduce/avoid influx during construction; timely stakeholder engagement and communication; and adopt local employment.

d) Gender-based violence (GBV) at Community level

GBV constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties and/or termination of employment.This also refers to other GBV-related risks incurred as a result of project implementation that do not adequately consult women and adolescent girls in the community.

Mitigation measures:

- ✓ The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the project, including:
  - Effective and on-going community engagement and consultation, particularly with women and girls;
  - Review of specific project components that are known to heighten GBV risk at the community level, e.g. employment schemes for women; etc.
  - Specific plan for mitigating these known risks, e.g. sensitization 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
- Continuous awareness creation on reduction of GBV;
- Awareness creation to the community on the availability of gender desks at the police stations and also the ministry of gender and social services and the need to seek for their services when necessary.

e) Sexual Exploitation and Abuse (SEA) of community members by project workers

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

Mitigation measures:

- ✓ Develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMMP. The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).

The SEA action plan will include how the project will ensure necessary steps are in place for:

- ✓ **Prevention of SEA:** including Codes of Conducts (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 Protection against Sexual Exploitation and Abuse (PSEA) awareness-raising in all community engagement activities; community-level Information Education and Communication (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.

g) HIV /AIDS & other STIs

During the construction phase, there will be migration of people from different regions which will increase social risks such as increased illicit behaviour and crime, increased risk in the spread of diseases such as HIV/AIDS and communicable diseases.

Mitigation measures:

- ✓ Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS through staff training, awareness campaigns, multimedia and workshops or during community Barazas.
- ✓ Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members.
- ✓ Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members.

- ✓ The contractor should provide quality condoms to personnel on site.
- ✓ Access to the contractor's camps by outsiders should be strictly controlled.

h) Security

Conflicts over grazing land and water resources, joblessness and drug abuse are some of the main security threats in Ngaremara.

Mitigation Measures:

- ✓ Creating employment opportunities, reducing tribalism, reduce inequality.

5.5 Anticipated Negative Impacts and Mitigation Measures on Operational Phase

5.5.1 Potential Environmental Impacts

a) Underground water depletion

Ground-water depletion is primarily caused by un-sustained ground-water pumping. Some of the negative effects of ground-water depletion include increased pumping costs, deterioration of water quality, reduction of water in streams and lakes, and land subsidence. Such effects, while variable, happen to some degree with any ground-water use.

The borehole is expected to yield approximately 2.00 m3/ Hr (if drilled up to 250 m to exhaust the whole of the series. If the recommended reserve amount is not exceeded the borehole will not have adverse effect on the aquifer.

Mitigation measures:

- ✓ Proper monitoring of number of boreholes being authorized by the Water Resources Authority within the proposed area.
- ✓ The project proponent should not exceed the water usage limit per day.
- ✓ Encourage water conservation in restrooms or work areas where water is used.
- ✓ Encourage rainwater harvesting and use that water for non-domestic uses like cleaning floors, watering flowers. Store the rainwater in tanks for future use.
- ✓ Monitor and meter the water system to determine the largest water consumption areas and monitoring to help detect leaks in water systems.

a) Reduced surface-water flows

In most areas, the surface- and ground-water systems are intimately linked. Ground-water pumping can alter how water moves between an aquifer and a stream, lake, or wetland by either intercepting ground-water flow that discharges into the surface-water body under natural conditions, or by increasing the rate of water movement from the surface-water body into an aquifer. In either case, the net result is a reduction of flow to surface water, though the full effect may take many years to develop.

Mitigation Measures:

- ✓ Sensitize community to conserve the catchment through tree planting;
- ✓ Excavate a retention ditch around the Borehole site, so that water runoff is harvested accordingly.

5.5.2 Potential Social Impacts

a) Water Contamination

Typically, groundwater is naturally clean and safe for consumption. Because the overlying soil acts as a filter, groundwater is usually free of disease-causing microorganisms. However,

contamination may occur following improper installation of well casings or caps, after a break in the casing or as a result of contaminated surface water entering the well. Contamination can also occur if boreholes are drilled in fractured bedrock without an adequate layer of protective soil and with less than the recommended minimum casing length.

Mitigation measures:

- ✓ Maintain borehole properly.
- ✓ Undertake regular water testing and analysis for the presence of microbial contaminants and other foreign contaminants.
- ✓ Ensure proper maintenance of the borehole for this minimizes the likelihood of water contamination.
- ✓ Direct surface drainage away from the borehole casing, and surface water should not collect near the borehole.

b) Health and Safety

Hazards generally attributed to conventional drilling methods, with special provisions anticipated for high noise levels and site-specific contamination issues.

Mitigation measures:

- ✓ Worksite monitoring and personal protective equipment (PPE) required, as appropriate, for mechanical, noise, and potential contaminant exposure hazards.
- ✓ Typically, 3-5 people operate drilling equipment.
- ✓ Supply appropriate PPEs including First Aid Kits.
- ✓ Train workers on emergency preparedness and response.
- ✓ Access medical and insurance covers for workers.

c) Child labor

Child labour is work that children should not be doing because they are too young, or if they are old enough to work, because it is dangerous or unsuitable for them. Whether or not work performed by children is defined as child labour depends on the child's age, the hours and type of work involved. In this area, it is not uncommon to find children working for pay because their parents asked them to do it. And therefore, the CPCU and proponent should be keen on this and avoid it through due diligence.

Mitigation measures:

- ✓ Community sensitization;
- ✓ Putting the clause on child labour in the bidding documents for the proponent to ensure mitigation through avoidance; and
- ✓ Work with the County children's Department.

d) Labor influx

It is a common scenario in the ASALs. At the outset, it is important to understand the types of social impacts associated with/caused by labour influx and why it matters to address it. This is a security fragile area; new faces arouse fear and tension and may result in unnecessary conflicts. Secondly, the community is vulnerable and allowing immigration of labour may make them imagine more marginalization is in practice.

Mitigation measures:

- ✓ Proponent to adopt a labour management procedure of the project;
- ✓ Plan to reduce/avoid influx during operational phase ;
- ✓ Timely stakeholder engagement and communication; and
- ✓ Adopt local employment.

e) Gender-based violence (GBV) at the Community level

GBV constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties and/or termination of employment. This impact refers to gender-based violence at the community level that women and girls may experience as a result of project implementation. This includes, for example, an increase in Intimate Partner Violence (IPV) when compensation schemes that share funds equally among husband and wife at the household level do not provide adequate sensitization and safety measures to reduce potential for increased tensions due to females receiving funds. This also refers to other GBV-related risks incurred as a result of project implementation that do not adequately consult women and adolescent girls in the community about safety and security issues related to the delivery of water and sanitation services.

Mitigation measures:

- ✓ The proponent will implement provisions that ensure that gender-based violence at the community level is not triggered by the project, including:
- Effective and on-going community engagement and consultation, particularly with women and girls;
- Review of specific project components that are known to heighten GBV risk at the community level, e.g. employment schemes for women; etc.
- Specific plan for mitigating these known risks, e.g. sensitization around gender equitable approaches to compensation and employment.
- The proponent will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation
- Continuous awareness creation on reduction of GBV;
- Awareness creation to the community on the availability of gender desks at the police stations and also the ministry of gender and social services and the need to seek for their services when necessary.

f) Sexual Exploitation and Abuse (SEA) of community members by project workers

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

Mitigation measures:

- ✓ Develop and implement a SEA action plan with an Accountability and Response. The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).
- ✓ The SEA action plan will include how the project will ensure necessary steps are in place for:
  - **Prevention of SEA:** including Codes of Conducts (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 Protection against Sexual Exploitation and Abuse (PSEA) awareness-raising in all community engagement activities; community-level Information Education and Communication (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.

g) Community leadership issues

Some of the challenges that cut across in community leadership include failure to communicate; lack of accountability; inadequate educational level and proper skills that came with education; lack of alignment and coordination within teams that are expected to share leadership philosophy; lack of clear vision; and poor execution.

Leadership is a skill you can learn. By avoiding these seven common leadership problems, you can lead your team—and your company—to greatness.

Mitigation measures:

- ✓ Electing the right leaders;
- ✓ Sensitization/training; 3-
- ✓ Educational tours; and PM&E activities And
- ✓ Avoid common leadership weaknesses.

a) Borehole water-use conflicts

The impact of conflicts can range from a temporary reduction in the efficiency of resource management and use, to a complete collapse of initiatives or abandonment by sponsor. In extreme cases conflicts over resources may escalate into physical violence between clans and communities. These conflicts may be both intra and inter micro–micro conflicts and micro–macro conflicts.

Mitigation measures:

- ✓ Calendar of use/watering of livestock;
- ✓ Employing community committees and locals to manage the water-use;
- ✓ Sensitization/capacity building of communities;
- ✓ Train the water resource users on O&M;
- ✓ Operational GRM committee; and
- ✓ Efficient M&E activities.

b) Spread of COVID-19

During operational phase, if the workers within the project do not strictly adhere to ministry of health guidelines and protocols of prevention of spread of COVID – 19 there will be increased cases of COVID - 19.

Mitigation measures:

- ✓ The proponent should ensure that worker strictly adheres to the Ministry of Health

guidelines and protocols on prevention on spread of COVID – 19.

c) HIV /AIDS & other STIs

During the construction phase, there will be migration of people from different regions which will increase social risks such as increased illicit behaviour and crime, increased risk in the spread of diseases such as HIV/AIDS and communicable diseases.

Mitigation Measures:

- ✓ Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS through staff training, awareness campaigns, multimedia and workshops or during community Barazas.
- ✓ Use of existing clinics to provide VCT services to workers and provision of ARVs for vulnerable community members

d) Project Beneficiaries' Complaints

Supporting communities in developmental initiatives always has its own challenges in terms of beneficiaries' dissatisfaction. Understanding when and how a GRM may improve project outcomes can help both project teams and beneficiaries improve results.

Mitigation measures:

- ✓ Sensitize communities; train beneficiaries;
- ✓ Establish GRM Committee for the sub project;
- ✓ Train GRM committee; adopt a PM&E for the sub project.

5.6 Anticipated Impacts during the Decommissioning Phase

This section provide information pertaining to the decommissioning of the project at the end of its life cycle and associated impacts, proposed measures to return the site as far as possible to its suitable state, or rehabilitation measures.

5.6.1 Anticipated Positive Impacts

- ✓ **Reuse of reusable materials:** The demolished materials that can be reused should be put aside for reuse such materials can be donated to the members of the community so that they can use.
- ✓ **Creation of employment:** skilled and unskilled labour will be required to undertake the decommissioning works. This will create employment opportunities especially for the jobless youth in the area.
- ✓ **Promote transport sector:** Trucks will be required to transport demolished materials for disposal or donation. These trucks they will be hired or the contractor to use their trucks at a cost.

5.5.2 Anticipated Negative Impacts

a) Generation of solid waste

During the decommissioning phase a lot of waste is generated that include the demolition waste such as stones, metals, woods among others. The material that can be re-used can be donated to the community members for reuse and those cannot be reused should be properly disposed.

Mitigation measure:

- ✓ Integrated Solid Waste management (ISWM) practice by the decommission personnel during decommissioning process.

- ✓ Sensitizing the decommissioning workers on proper disposal of solid wastes
- ✓ Proponent and decommissioning contractor to liaise with Tharaka-Nithi County Government and NEMA office for guidance on licenced waste collector and suitable site for dumping the wastes.

b) Impact on Air Quality (Mainly from dust and fumes from decommissioning machinery

The decommissioning vehicles/trucks and machinery will result into dust pollution and exhaust emissions that will lead to environmental pollution.

Mitigation measures:

- ✓ Ensure proper working conditions of exhaust systems of the vehicles/trucks and machinery involved in decommissioning of the store.
- ✓ Water earth stockpiles and dusty surfaces to suppress the generated dust during decommissioning process.
- ✓ Provide work crew with Personal Protective Equipment (PPEs) particularly dust masks.

c) Noise and Vibrations

Relatively low noise levels are expected in the area during the decommissioning phase. Noise control measures should be implemented in the construction area if the noise levels exceed 90dB (A) for a continuous 8 hours exposure. In addition, protection against the effect of the noise exposure among the workers should be effected.

Mitigation Measures

- ✓ Decommissioning work should be undertaken during the specific time of the day (i.e from 0730 hrs. to 1700hrs.).
- ✓ Sensitize the drivers of vehicles/trucks and operators' machinery involving in decommissioning process to switch engines off when not in use.
- ✓ Regular and prompt maintenance of vehicles/trucks and machinery involved in decommissioning process to reduce noise resulting from friction.
- ✓ Prioritise use of manual labour as much as possible as opposite to use of machinery.

d) Loss of vegetation

The decommissioning phase involves demolition of the facility and a lot of movement of demolishing machineries and vehicles/trucks within the project site. This at end results into loss of vegetation planted during operation and maintenance phase.

Mitigation Measures

- ✓ Re-planting of vegetation of affected areas after decommissioning.

e) Impacts on Public health & occupational safety

During decommissioning phase there will be increased dust, air and noise pollution. These are considered as negative impacts as they significantly lower the quality of the environment.

Mitigation measures

- ✓ Capacity building and training of staff/workers with respect to Occupational Health, Safety and Environment.
- ✓ A first aid kit should be provided within the site and should be fully equipped (as per the First Aid Rules, 1977).
- ✓ The decommissioning contractor should initiate and develop effective emergency response plans-ERPs to cater for various.
- ✓ Proper documented possible action plans (ERPs) need to be put in place in case of any

incidences occurring.

- ✓ Ensure that the site is accessed by the work crew or authorized personnel only.
- ✓ All project participants should have insurance and workmen's compensation.
- ✓ Where the workforce exceeds 20, the contractor should facilitate formation of a Safety and Health Committee, in accordance with the Health and Safety Committees Rules, 2004.

CHAPTER SIX: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESM&MP)

6.1 Introduction

The Environmental and Social Management Monitoring Plan (ESMMP) developed for the proposed drilling of borehole will have to be implemented and operationalized by Project proponent to ensure smooth implementation of the proposed ESMMP. Environmental and Social Management Plan (ESMMP) for developing projects is usually to provide a logical framework within which identified negative environmental impacts can be mitigated and monitored. In addition, the ESMMP assigns responsibilities of actions to various actors, gives monitoring indicators and means of verification.

Table 1: Environmental and Social Management and Monitoring Plan (ESMMMP)

Anticipated Impacts	Mitigating Measure(s)	Monitoring Indicator(s)	Means of verification	Responsible person	Time frame	Estimated Cost (Ksh)
Construction Phase						
Soil compaction	✓ The contractor will always use a predetermined route to the site. ✓ Unnecessary heavy machines will be avoided.	No. of vehicles using predetermined route	Records Photos	Contractor Proponent	Throughout construction	50,000
Soil pollution	✓ Spillages will be minized by using right machinery. ✓ Tapping the leaking fluid into container and dumping in a safer manner ✓ Effective waste water management ✓ Remove foreign materials as soon as drilling is complete	Presence of effective waste management strategy	Copy of strategy Photos	Contractor Proponent	Throughout construction	100,000
Soil erosion	✓ Control earth works especially during rainy season. ✓ Compact loose soils ✓ Provide soil erosion control structures	Presence of: Controlled earth work and compacted loose soils;	Photos	Contractor Proponent	Throughout construction	90,000
Loss of biodiversity	✓ Ensure only the part under construction is cleared	Presence of vegetation on the site parts not under construction	Photos	Contractor Proponent	Throughout construction	50,000
Noise Pollution	✓ Informing neighborurs prior to drilling exercise. ✓ Maintenance of plant equipment ✓ Restrict activities to day time ✓ Provide PPE to the workers	No. of machines maintained No. of workers using PPEs	Purchase orders Records	Contractor Proponent	Throughout construction	150,000

Air quality impacts/Particulate matter	✓ Limited drilling vehicles to minimize dust in the area. ✓ Discourage idling of vehicles ✓ Regular maintenance of drilling plant and equipment. ✓ Engage well trained drilling workers. ✓ Provide PPEs ✓ Water the site with exposed soil surfaces twice each day during dry weather.	No. of well service vehicles No. trained workers No. of workers using PPEs Presence of watered services	Purchase orders Records	Contractor Proponent	Throughout construction	100,000
Safety Hazard	✓ Borehole will be well sealed ✓ Ensure that electric wiring is checked and that shocks are prevented	A well-sealed borehole Well covered electric cables	Photos	Contractor Proponent	Throughout construction	50,000
Child labor	✓ Community sensitization; ✓ Putting the clause on child labour in the bidding documents for ✓ Work with the County children's Department.	No of sensitization meetings No. of documents with child labour clause	Minutes of the meetings Copy of documents	Contractor Proponent	Throughout construction	50,000

Gender-based violence at community level	✓ Implement provisions that ensure that GBV at the community level is not triggered by the Project, including ✓ Effective and continuous community engagement and consultation; ✓ Review of specific project components that are known to heighten GBV risk at the community level,; ✓ Specific plan for mitigating these known risks, ✓ Ensuring adequate referral mechanisms are in place in case of GBV.	No. of awareness creation meetings Strategy in place for GRM	Reports of awareness meetings Copy of strategic document	Contractor Proponent	Throughout construction	100,000
SEA of community by project workers	✓ Develop SEA action plan will include how the project will ensure necessary steps are in place for: • Prevention of SEA • Response to SEA: • Engagement with the community: • Management and Coordination:	Presence of SEA action plan	A copy of SEA action plan	Contractor Proponent	Throughout construction	100,000

COVID-19 amongst workers	✓ Ensure strict adherence to Ministry of Health guidelines and protocols on prevention of spread of COVID - 19	No. of workers using PPEs No. of hand washing facilities in place No. of sanitizers provided	Purchase orders Photos	Contractor Proponent	Throughout construction	50,000
HIV/AIDs and other STIs	✓ Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS and sexual health and rights ✓ Use existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members	No. of sensitization meetings	Reports of the meetings	Contractor Proponent	Throughout construction	50,000
Security	✓ Creating employment opportunities ✓ Reducing tribalism, ✓ Reduce inequality,	No. of locals employed No. of males and female employed	Record of employees	Contractor Proponent	Throughout construction	50,000
Operational Phase						

Underground water depletion	✓ Proper monitoring of number of boreholes being authorized by the WRA ✓ Do not exceed water usage limit per day. ✓ Encourage water conservation in restrooms or work areas ✓ Encourage rainwater harvesting and use that water for non-domestic uses. ✓ Monitor and meter the water system to determine the largest water consumption areas	No. of monitoring conducted No. of water meters installed No. of trainings on water conservation	Purchase orders Reports of trainings	Proponent	Quarterly	50,000
Reduced surface water flows	✓ Sensitize community to conserve the catchment through tree planting; ✓ Excavate a retention ditch around the Borehole site.	No. of sensitization meetings	Reports of meetings Photos	Proponent	Quarterly	50,000
Water Contamination	✓ Maintain borehole properly. ✓ Undertake regular water testing and analysis of water. ✓ Ensure proper maintenance of the borehole. ✓ Direct surface drainage away from the borehole casing,	No. of water testing and analysis done No. of PPEs provided No. of trainings conducted No. of workers accessing medical and insurance cover	Water testing and analysis report Reports of the trainings Medical cover and insurance record	Proponent	Quarterly	70,000

Health and Safety	✓ Provide PPEs to the workers. ✓ Train workers on emergency preparedness and response. ✓ Access medical and insurance covers for workers.	No. of PPEs No. of trainings No. of workers accessing medical cover and insurance	Purchase orders Training reports Medical and insurance cover records	Proponent	Quarterly	70,000
Child Labour	✓ Community sensitization; ✓ Putting the clause on child labour in the bidding documents ✓ Work with the County children's Department	No. of sensitization meetings No. of bidding documents with child labour clause	Reports of meetings Copies of documents	Proponent	Quarterly	80,000
Labor influx	✓ Adopt a labour management procedure of the project; ✓ Plan to reduce/avoid influx; ✓ Timely stakeholder engagement and communication; ✓ Adopt local employment.	Presence of plan to reduce/avoid influx No. of locals employed	Copy of plan Record of employee	proponent	Quarterly	50,000

Gender-based violence (GBV)	✓ Implement provisions that ensure that GBV at the community level is not triggered by the project, including: • Effective and on-going community engagement and consultation,; • Review of specific project components that are known to heighten GBV risk at the community level, • Specific plan for mitigating these known risks, • Ensure adequate referral mechanisms are in place if a case of GBV at the community level • Continuous awareness creation on reduction of GBV; • Awareness creation to the community on the availability of gender desks at the police stations and he ministry of gender and social services.	Strategy in place to ensure GBV is not triggered No. of awareness creation meetings conducted	Copy of the strategy	Proponent	Quarterly	100,000

Sexual Exploitation and Abuse (SEA)	✓ Develop SEA action plan will include how the project will ensure necessary steps are in place for: • Prevention of SEA • Response to SEA: • Engagement with the community: • Management and Coordination:	Presence of SEA action plan	A copy of SEA action plan	Proponent	Quarterly	50,000
Community leadership issues	✓ Electing the right leaders; ✓ Sensitization/training; 3- ✓ Educational tours; and PM&E activities And ✓ Avoid common leadership weaknesses.	No. of right leaders elected No. of education torus and PM& E conducted	List of leaders elected Record of tours and PM&E	Proponent	Quarterly	50,000
Borehole water-use conflicts	✓ Calendar of use/watering of livestock; ✓ Employing community committees and locals to manage the water-use; ✓ Sensitization/capacity building of communities; ✓ Train the water resource users on O&M; ✓ Operational GRM committee; and ✓ Efficient M&E activities.					

Spread of COVID-19	✓ Ensuring that worker strictly adheres to the Ministry of Health guidelines and protocols on prevention on spread of COVID – 19.	No. of workers using PPEs No. of hand washing facilities in place No. of sanitizers provided	Purchase orders Photos	Contractor Proponent	Throughout construction	No. of workers using PPEs No. of hand washing facilities in place No. of sanitizers provided
HIV /AIDS & other STIs	✓ Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS ✓ Use of existing clinics to provide VCT services to workers and provision of ARVs for vulnerable community members	No. of sensitization meetings	Reports of the meetings	Proponent	Quarterly	50,000
Social Conflicts	✓ Sensitize communities; train beneficiaries; ✓ Establish GRM Committee for the sub project; ✓ Train GRM committee; adopt a PM&E for the sub project.					
Decommissioning Phase						
Generation of solid waste	✓ Practice ISWM. Sensitizing workers on proper disposal of solid wastes.	No. of ISWM strategy in place.	Reports and attendance list Photos	Proponent	Throughout decommissioning phase	To be determined

Impact on Air Quality (Mainly dust and fumes from decommissioning machinery)	✓ Ensure proper working conditions of exhaust systems. ✓ Water earth stockpiles and dusty surfaces. ✓ Provide work crew with dust masks.	No. of workers PPEs. No. of vehicles/trucks and machinery serviced.	Purchase order/receipts Photos	Proponent Contractor	Throughout decommissioning phase	To be determined
Noise and Vibrations	✓ Decommissioning work should be carried out during the day. ✓ Vehicles and machinery engines should be switched off when not in use. ✓ Provide PPEs. ✓ Regular maintenance of vehicles and machinery. ✓ Use manual labour is as much as possible.	No. of worker using PPEs No. of vehicles maintained	Purchase orders Vehicle service records Photos	Proponents	Throughout decommissioning phase	To be determined
Loss of vegetation	✓ Re-planting of vegetation of affected areas.	No. of trees and other vegetation planted	Purchase orders Photos	Proponent	Throughout decommissioning phase	To be determined
Impacts on Public health & occupational safety	✓ Provide proper PPEs. ✓ Ensure that there are no source of ignition and proper use of warning signs in risky places. ✓ Provide fully equipped first aid kit at site. ✓ Ensure the availability of Emergency contacts.	No. of PPEs No. of first aid kits provided Presence of emergency contacts	Purchase orders Photos	Proponent	Throughout decommissioning phase	To determined
TOTAL						**1,610,000**

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.2 Conclusion

The measures proposed herein in the report need to be implemented to enhance the good utilization of our environment sustainably. It is hereafter reinforced that project specifications, guidelines, licenses and permits must be in the possession of the contractor and the contracting department prior to commencement of construction. There is evidence of the occurrence of the aquifer at the proposed project site. Given that the impacts of Climate Change, it is important to go for the deepest economical aquifer at this stage of groundwater development in the area.

7.1 Recommendation

The WRA, NEMA and County Department of Water are given the task of monitoring the groundwater abstraction hence ensuring that boreholes are drilled sustainably for now and the future generations. The proponent has made all the necessary applications with WRA and this ESIA- SPR is one of the requirements by the WRA before drilling commences. The borehole should be drilled to a depth not exceeding 250 meters as per hydrogeological survey report. If the recommended reserve amount is not exceeded the borehole will not have adverse effect on the aquifer. The lead expert considers that the development will have an insignificant impact on the environment and is unlikely to have a substantial influence on underground water, if the proposed mitigation measures are strictly adhered to by all the parties involved. No major impact on the geological conservation value of the site is involved. The ESIA-SPR Team also recommends that the project ESMMP is shared with the winning contractor so that the C-ESMMP is prepared. Overall, the Lead Experts conclude that the borehole drilling and construction will not have any considerable impact on landforms, landscape, and built-up environment; and therefore, NEMA is advised to approve and issue approval letter.

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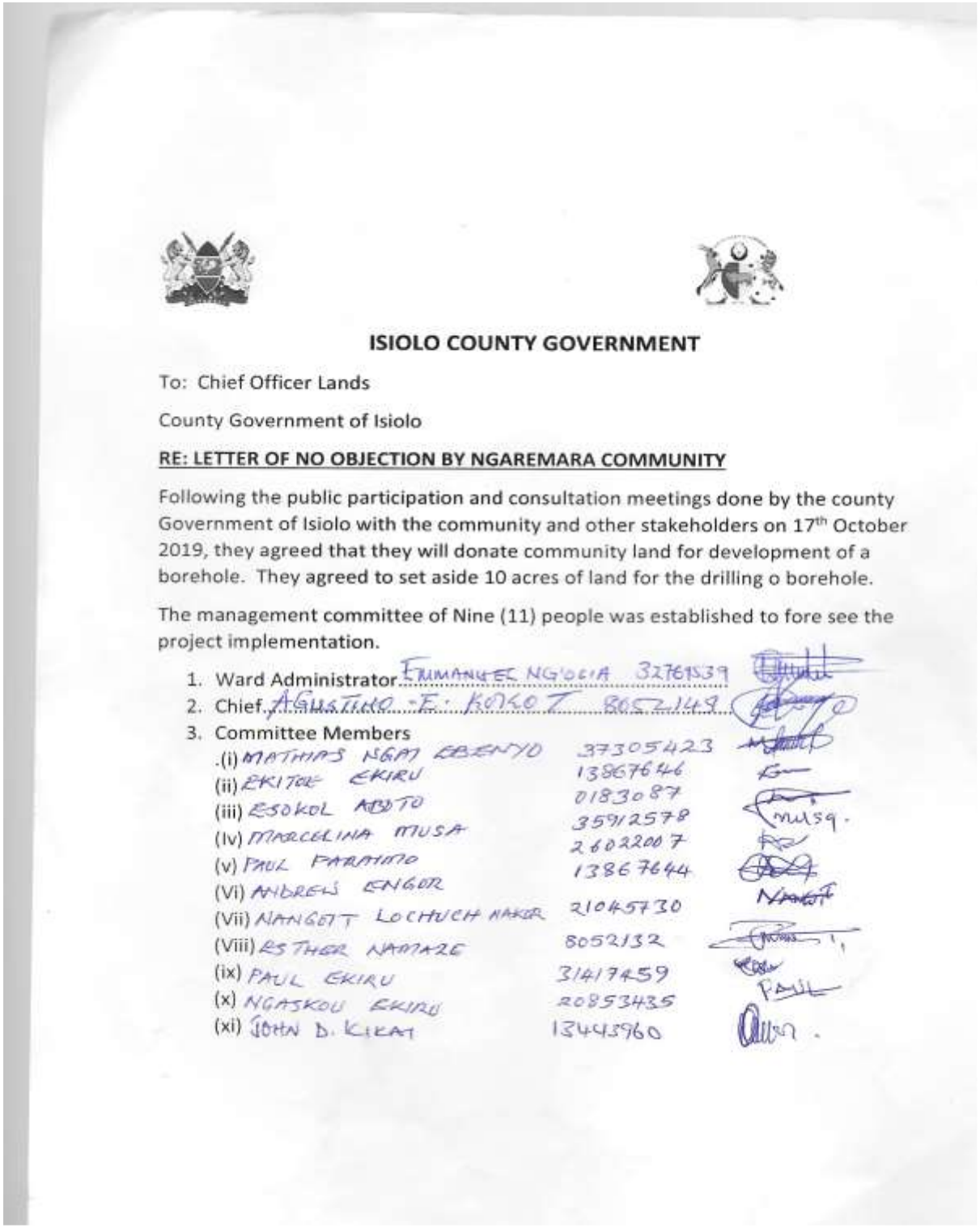
The Public Health Act - Cap 242

The Water Act 2016

The Physical and Land Use Planning Act, 2019

ANNEXES

Annex 1: Land ownership document



ISIOLO COUNTY GOVERNMENT

To: Chief Officer Lands

County Government of Isiolo

RE: LETTER OF NO OBJECTION BY NGAREMARA COMMUNITY

Following the public participation and consultation meetings done by the county Government of Isiolo with the community and other stakeholders on 17th October 2019, they agreed that they will donate community land for development of a borehole. They agreed to set aside 10 acres of land for the drilling o borehole.

The management committee of Nine (11) people was established to fore see the project implementation.

1. Ward Administrator. EMMANUEL NG'OLIA 32769539
2. Chief. AGUSTINO .E. KOKOT 8052149
3. Committee Members
   - (i) MATHIAS NGAT EBENYO 37305423
   - (ii) EKITOR EKIRU 13867646
   - (iii) ESOKOL ABETO 0183087
   - (Iv) MARCELINA MUSA 35912578
   - (v) PAUL PARAMITO 26022007
   - (Vi) ANDREW ENGOR 13867644
   - (Vii) NANGOTT LOCHUCH NAKER 21045730
   - (Viii) ESTHER NAMAZE 8052132
   - (ix) PAUL EKIRU 31419459
   - (x) NGASKOU EKIRU 20853435
   - (xi) JOHN D. KIKAT 13443960

Annex 2: Screening Checklist

ENVIRONMENTAL AND SOCIAL SCREENING CHECKLIST
ESM SUB-PROJECTS SCREENING CHECKLIST
(SUB-PROJECTS SCREENING PROCESS BY BENEFITTING COMMUNITIES/AGENCIES)

Section A: Background information

Name of County..Isiolo	
Name of CSU/Monitoring Officer/Researcher ..Michael S. Alenga	
Sub-project location.....Ngaremara Name of CBO/Institution....Sukuma Water project Postal Address:..232-60300 Contact Person..Raphael Chamulu Cell phone:..0704584530. Sub-project Name....Sukuma	
Estimated cost (KShs.).....	
Approximate size of land area available for the sub-project...10 acres. Objectives of the subproject.....	
Activities/enterprises undertaken.....	
How was the sub-project chosen?..... Expected subproject duration:.....	

Section B: Environmental Issues

Will the sub-project:	Yes	No
Create a risk of increased soil erosion?	☐	☑
Create a risk of increased deforestation?	☐	☑
Create a risk of increasing any other soil degradation	☐	☑
Affect soil salinity and alkalinity?	☐	☑
Divert the water resource from its natural course/location?	☐	☑

Cause pollution of aquatic ecosystems by sedimentation and agro-chemicals, oil spillage, effluents, etc.?	☐	☑
Introduce exotic plants or animals?	☐	☑
Involve drainage of wetlands or other permanently flooded areas?	☐	☑
Cause poor water drainage and increase the risk of water-related diseases such as malaria?	☐	☑
Reduce the quantity of water for the downstream users?	☐	☑
Result in the lowering of groundwater level or depletion of groundwater?	☐	☑
Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater?	☑	☐
Reduce various types of livestock production?	☐	☑
Affect any watershed?	☐	☑
Focus on biomass/bio-fuel energy generation?	☐	☑

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

Section C: Socio-economic Issues

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

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? ***NB: If the answer is yes, the sub-project should not proceed.***	☐	☑
Adversely affect environmentally sensitive areas or critical habitats – wetlands, woodlots, natural forests, rivers, protected areas including national parks, reserves or local sanctuaries, etc.)? ***NB: If the answer is yes, the sub-project should not proceed.***	☐	☑
Affect the indigenous biodiversity (flora and fauna)? ***NB: If the answer is yes, the sub-project should not proceed.***	☐	☑
Cause any loss or degradation of any natural habitats, either directly (through project works) or indirectly? ***NB: If the answer is yes, the sub-project should not proceed.***	☐	☑
Affect the aesthetic quality of the landscape?	☐	☑
Reduce people's access to the pasture, water, public services or other resources that they depend on?	☐	☑
Increase human-wildlife conflicts?	☐	☑
Use irrigation system in its implementation?	☑	☐

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

SECTION E: Pesticides and Agriculture Chemical

Will the sub-project:	Yes	No
Involve the use of pesticides or other agricultural chemicals, or increase existing use?	☑	☐
Cause contamination of watercourses by chemicals and pesticides?	☐	☑
Cause contamination of soil by agrochemicals and pesticides?	☐	☑
Experience effluent and/or emissions discharge?	☐	☑
Export produce? Involve annual inspections of the producers and unannounced inspections?	☐	☑
Require scheduled chemical applications?	☑	☐
Require chemical application even to areas distant away from the focus?	☐	☑
Require chemical application to be done by vulnerable group (pregnant mothers, chemically allergic persons, elderly, etc.)?	☐	☑

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

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

Are there:	Yes	No
People who meet requirements for OP 4.10 living within the boundaries of, or near the project?	☐	☑
Members of these VMGs in the area who could benefit from the project?	☐	☑
VMGs livelihoods to be affected by the subproject?	☐	☑

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?	☐	☑
Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests)	☐	☑
Displace individuals, families or businesses?	☐	☑
Result in temporary or permanent loss of crops, fruit trees and pasture land?	☐	☑
Adversely affect small communal cultural property such as funeral and burial sites, or sacred groves?	☐	☑
Result in involuntary restriction of access by people to legally designated parks and protected areas?	☐	☑
Be on monoculture cropping?	☐	☑

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
☐ All the above answers are 'No'	• If all the above answers are 'No', there is no need for further action;

☐ There is at least one 'Yes'	• If there is at least one 'Yes', please describe your recommended course of action (see below).

(iii) Recommended Course of Action

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

☐ CPCUs and CDE will provide detailed guidance on mitigation measures as outlined in the ESMF; and

☐ Specific advice is required from CDE[1], Lead Officer and CPCUs regarding sub-project specific EIA(s) and also in the following area(s)

☐ 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 NPCU 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: [illegible] NGPY EGENYO

Position / Community: SECRETARY

Date 12TH JUNE 2021

[1] County Director of Environment and the County Technical Team

Recommendation by County director of Environment (CDE)

The Project may proceed as scheduled

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY ISIOLO COUNTY 13 JUN 2021 COUNTY DIRECTOR OF ENVIRONMENT

Name of CDE Hunsa Mohamed

Signature: [signature] **Date** 13/6/2021

Note:

Project category	Characteristics
A	Full and extensive ESIA needed- irreversible environmental impacts; impacts not easy to pick or isolate and mitigation cost expensive; ESMP 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 ESMP design readily done; need an ESIA and future EAs
C	Have minimal or occasionally NO adverse environmental impacts; exempted from further environmental processes save environmental audits

Annex 3: Minutes of public participation meeting

Annex 4: Attendance list of Public Participation Meeting

Kenya Climate Smart Agriculture Project

Kenya Climate Smart Agriculture Project
(KCSAP)
Office of the County Coordinating unit

ACTIVITY Public participation DATE 12/6/2024

S/No	NAME	ID NO	GENDER	ORGANIZATION	CONTACT	SIGN
1.	Tatiana Golicha			Community member	Telephone: Email:	
2	Mary Akiru	34954927	F	// //	0741372747	
3	Jamardse Nalachou	13967653	F	// //	N/A	
4	Emily Namukuny	34564434	F	// //	0740442761	
5	Tridu Nakinyu	=	F	// //	0704368602	
6	Paulina Logiabar	12275131	F	// //		
7	Regina Etir	29998824	F	// //	0792567500	
8	Eunice Akeno		F	// //		

Sukellia

Kenya Climate Smart Agriculture Project

Kenya Climate Smart Agriculture Project
(KCSAP)
Office of the County Coordinating unit

ACTIVITY Public participation DATE 12/16/2021

S/No	NAME	ID NO	GENDER	ORGANIZATION	CONTACT	SIGN
1.	Tabuna Golicha			Community member	Telephone: Email:	
2	Mary Akiru	34954927	F	// //	0741372747	
3	Jamardso Nalachau	13967653	F	// //	N/A	
4	Emily Namukuny	34564434	F	// //	0740442761	
5	Fridah Nakinyu	=	F	// //	0704368602	
6	Paulina Logalang	12275131	F	// //		
7	Regina Etir	29998824	F	// //	0792567500	
8	Eunice Akeno		F	// //		

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Kenya Climate Smart Agriculture Project

Kenya Climate Smart Agriculture Project
(KCSAP)
Office of the County Coordinating unit

LIST OF ATTENDANCE

Activity: Public Participation in Decision Making (Agreed) - Sukuma

Date: 12/6/2021

S/No	NAME	ID NO	GENDER	CONTACT Telephone: Email:	SIGN
1.	Itunga Yarenimo Augustino	33463047	Male	076844857	[signature]
2.	Irine Longorkit	34466976	Female	074185545	[signature]
3.	Julieta Napeyok	36028362 34932886	Femal	0713898722	[signature]
4.	Daina Nachi	[illegible]	Female	0700184728	[signature]
5.	Beatrice Ngatwasa	34791331	Female	0795531314	[signature]
6.	Rose Akinyi	24076256	Female	0725243886	[signature]
7.	Catherine Bahati	24076372	Femal	0729509886	[signature]
8.	Pauline Kiyonga	24076463	Femal	0729844388	[signature]

S/NO.	NAME	ID/NO.	GENDER	CONTACT EMAIL/PHONE	SIGNATURE
9.	PAULINA NGALEA	24216670	Female	0729695329	
10.	JOSPHINE NANGOLI	21045730	FEMALE	0723817387	
11.	FRIDAH EKISELLA ARIDO	24078205	Female	0795482909	
12.	MODESTA NANYE	30472944	FEMALE	0743505227	
13.	ROBERT NKAKUTAN	31603505	MALE	0706899140	
14.	JAMES AKUYEN	0367385	MALE	0798696525	
15.	AGNES LOKWAWI	21575621	FEMALE	0707826696	
16.	JOSPHINE NABENYO	34893329	FEMALE	0741639706	
17.	STEPHEN ERUPE	11275357	MALE	0702-369911	
18.	JOSEPH ELIMLIM	12875177	MALE	0707005118	
19.	ROBERT LOPACHO	21046221	MALE	0714119696	
20.	LOKOTE LOCHOMI	0367469	MALE	0719463908	
21.	BENJAMIN EKIRU	31767093	MALE	0791540629	
22.	LOBENYO E. SAMUEL	22907339	MALE	0791021485	

S/NO.	NAME	ID/NO.	GENDER	CONTACT EMAIL/PHONE	SIGNATURE
9.	[illegible]	32210651	F	0742044212	[illegible]
10.	JOSHUA EKUWAM	31406215	M	0745317578.	[illegible]
11.	MATHIAS NGAM EBENYO	37305423	M	0743315240	[illegible]
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					

MITIGATION

a) In your own opinion how can the negative impacts you have listed above be mitigates?

- Conflicts can be resolved by holding peace resolution meetings
- Wildlife Menace call for KWS intervention

Name of the respondent Salad Atonya
Address .... phone number 0710443954
Identity card number .... Signature ....
Approximate distance from the proposed site ....
Date ....

Annex 5: Sample filled questionnaire

PUBLIC PARTICIPATION AND CONSULTATION QUESTIONNAIRE

Environmental Impact Assessment study for the proposed Bulesa Community irrigation Project

To whom it may concern:

Kenya Climate Smart Agriculture has proposed to rehabilitate Bulesa irrigation project in Charri Ward, Merti Sub-County of Isiolo County, Bulesa location It is in this regard that the proponent has engaged a team of experts led by a Nema licensed lead expert to carry out an environmental impact assessment for the proposed project. The project activities entails construction of a pump house, division boxes, 200m³ reservoir tank,, installation of a submersible pump and associated pumping system and laying of the pipeline . The Environmental Impact Assessment/Audit Regulations (2003) requires such projects must undergo an EIA. As an important part of this exercise, consultations are held with the immediate community, interested & affected parties, in order to obtain their views regarding the proposed project. As stakeholder kindly, provide us with your views/comments on this project. Your contribution will be confidential and highly appreciated.

Please tick appropriately

1. To what extent are the impacts of this project realized? Both positive and negative **(TICK ONE)**
   - Regional: beyond 5km of the proposed activity
   - Local: within 5km of the proposed activity
   - Specific site: on the site within 100m of the site boundary
2. What is the magnitude of the impact? **(ALLOW MANY)**
   - High: natural, social functions and processes are severely altered
   - Medium: natural, social functions and processes are notably altered
   - Low: natural, social functions and processes are slightly altered
   - Very low: natural, social functions and processes are negligibly altered
   - Zero: natural, social functions and processes remain unaltered
3. What is the duration of the impact? **(ALLOW MANY)**
   - 1-3 days
   - 0-2 weeks
   - Short term 2-6 weeks
   - Medium term:2-5 months
   - Long term: more than 15 months

4. What are the significant positive impacts of the project? **(ALLOW MANY AND PROBE)**

- ✓ Food security
- ○ Employment creation
- ○ generation of income
- ○ Source of government revenue
- ○ Capital investment
- ✓ Market for goods and services
- ○ Scenic appreciation
- ✓ Enhancing security within the region
- ✓ Environmental conservation
- ○ Stimulation of other secondary businesses

PROBE: If any other specify

Skills from Makaradeka Training will be translated to Builders opportunity

5. What are the negative impacts anticipated from the project?

- ✓ Air pollution
- ✓ Noise pollution
- ○ Risks of accidents
- ○ Others;

(specify).....

Annex 6: Chance finds procedure

Chance find procedures are an integral part of the project EMMP and civil works contracts. The following is proposed in this regard: If the Contractor discovers archaeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Ministry of State for National Heritage and Culture take over;
- Notify the supervisor, Project Environmental Officer and Project Engineer who in turn will notify the responsible local authorities and the Ministry of State for National Heritage and Culture immediately (within 24 hours or less);

Responsible local authorities and the Ministry of State for National Heritage and Culture would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the National Museums of Kenya. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values. Decisions on how to handle the find shall be taken by the responsible authorities and the Ministry of State for National Heritage and Culture. This could include changes in the layout (such as when finding irremovable remains of cultural or archaeological importance) conservation, preservation, restoration and salvage. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.

Construction work may resume only after permission is given from the responsible local authorities or the Ministry of State for National Heritage and Culture concerning safeguard of the heritage.

Annex 7: EIA/EA practicing license

FORM 7 (r.15(2))

nema

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/14707

Application Reference No: NEMA/EIA/EL/19234

M/S **BONFACE MANYARA KOOME**
(individual or firm) of address

P.O. Box 06-60300 ISIOLO

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **2534**

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

Issued Date: **4/9/2021** Expiry Date: **12/31/2021**

Signature…..

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001: 2015 Certified