ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

COMPREHENSIVE PROJECT REPORT (CPR)

THE PROPOSED BULESA IRRIGATION SCHEME AT CHARI WARD, MERTI SUB-COUNTY IN ISIOLO COUNTY, KENYA

GPS Coordinates: $N00^{0}57.587^{1}$ $E038^{0}34.420^{1}$

SPONSOR	Government of Kenya / County Government of Isiolo with support from the World Bank
CLIENT	Kenya Climate Smart Agriculture Project (KCSAP)
PROPONENT	Bulesa irrigation

JUNE 2021

CERTIFICATION

This environmental and social impact assessment project report has been prepared by a team of environmental experts led by Boniface Manyara with the assistance of Richard Oduor. This Project Report was prepared in accordance with the Environmental Management and Coordination Act Cap 387, subsequent amendments and the Environmental (Impact Assessment and Audit) Regulations, 2003 for submission to the National Environmental Management Authority (NEMA).

I, the undersigned, certify that to the best of my knowledge and belief that this report is correct and truly reflects the stakeholder views, concerns and benefits of the proposed Bulesa Irrigation Project, Chari Ward in Merti Sub-County, Isiolo county Kenya.

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Date 12/08/2021

The report has been prepared for and on behalf of:

Kenya Climate Smart Agriculture
P.O. Box .....

CHIEF OFFICER
DEPARTMENT OF AGRICULTURE
COUNTY GOVT OF ISIOLO
Date..... Sign.....

Authorized signature .....

Contact person Salad Tulla

Date 12/8/2021

ACKNOWLEDGEMENT

Our sincere gratitude goes to the proponent for their support and contributions towards undertaking this study. The proponent provided all the related information of the project including a fully compiled hydrogeological survey report. Besides the proponent and the community, we wish to thank all the County Departments who shared with us their 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 NPoEs whose insights helped polish the entire report.

The final report is the result of a collaborative process which drew on the effort, knowledge, expertise and patience of the Experts in availing additional information. Others that have not been named here, their efforts are earnestly recognized.

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ABBREVIATIONS AND ACRONYMS

ASAL	Arid and Semi-Arid Lands
CBD	Conservation of Biological Diversity
CDD	Community Driven Development
CDDC	Community- Driven Development Committee
CIG	Common interest Group
CPR	Comprehensive Project Report
CSA	Climate Smart Agriculture
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management and Monitoring Plan
GBV	Gender Based Violence
GoK	Government of Kenya
IWUA	Irrigation Water Users Association
KCSAP	Kenya Climate Smart Agriculture
KNEP	Kenya's National Environmental Policy
M&E	Monitoring and Evaluation
MoALF	Ministry of Agriculture livestock and fisheries.
NEAP	National Environmental Action Plan
NEC	National Environmental Council
NEMA	National Environment Management Authority
NPEP	National Poverty Eradication Plan
PDO	Project Document Objective
PCC	Public Complaints Committee
PPE	Personal Protective Equipment
PRSP	Poverty Reduction Strategies Paper
S&EC	Standards and Enforcement Committee
SWOT	Strength, Weaknesses, Opportunities and Threats
WASREB	Water Services Regulatory Board
WRA	Water Resources Authority
WRUA	Water Resource Users Association

EXCUTIVE SUMMARY

Bulesa Community Irrigation Project is situated in Bulesa Sub-Location, Bulesa Location of Charri Ward, Merti Sub-County. The project objective is to be achieved shall be as inter alia: increased food and nutrition security, improve livelihood to the target community, through improved productivity, employment creation especially to the youths, improvement to social infrastructures. The project's aim is to increase productivity strengthen resilience of the pastoralist beneficiary community against drought through provision of water for small scale irrigation to enable farmers to grow crops and minimize losses that would otherwise be experienced during drought in the semi-arid area.

The project is implemented through the Kenya Climate Smart Agriculture Programme (KCSAP) – a Government of Kenya (GoK) initiative funded by World Bank/ International Development Association (IDA) – whose development objective is to increase agricultural productivity and build resilience to climate shocks of targeted rural communities in selected counties including Isiolo. The targeted agricultural value chains include green grams, livestock (shoats and beef) and high value horticultural crops. The specific intervention measure proposed in this project is mainly rehabilitation works for the existing irrigation systems. The planned project is projected to cover 500 acres communal land and located along' Ewaso Nyiro river which is the main source of irrigation. The specific activities shall involve laying of conveyance pipelines, main pipeline, laterals, in-field system, pump and solar installation, fencing, gabion construction, and pump house construction. The estimated sub project cost is Ksh **42,839,386.41.**

The planning of the project entailed a participatory approach where the members of the community were involved in the Participatory Integrated Community Development (PICD), designs, and Environmental and Social Impact Assessment (ESIA) processes. The Environmental and Social Impact Assessment (ESIA) has been undertaken in compliance with the Kenya Government environmental regulation, EMCA Cap 387 sections 138 (b) and 58, and the applicable World Bank's Operational Policies. The ESIA process started by screening, followed by scoping, and then the actual ESIA study. The ESIA study, was conducted in accordance with the Legal requirement stipulated in the Environmental Management and Coordination Act (EMCA) of 1999 and its subsequent supplements; the Environmental (Impact Assessment and Audit) Regulation, 2003 (Rev. 2009); EMCA (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006; , the Water Act 2016 the Land Acts and the Irrigation Act among other pertinent legal and institutional frameworks regulating major development including the World Bank Environmental and Social Safeguard Policies. Other relevant legislations among others included the planning and land use planning, public health, physical Act, policy on gender and HIV/AIDS prevention and control Act, Sexual Based Violence (SBV) and sexual offences Act,.

The study entailed literature review on similar projects, baseline studies of the project area, legal and policy framework relevant to this project, interviews, among others. Interviews included representatives of the county departments of Agriculture and water, Water Resources Authority, local administration (chiefs), village elders, opinion persons and randomly selected community members. Other methods were stakeholder consultations; site visits, and public participation through use of questionnaires and checklists were employed. Public participation meeting was conducted on 9th June 2021 at the proposed project site with the participants

observing Ministry of Health guidelines and protocols on prevention of spread of COVID – 19 of wearing facemasks, washing hands/sanitizing and keeping social distance. The meeting was attended by 46 participants of which 26 were male and 20 female. All necessary data collection and recording tools have been annexed in the report. Language barrier was addressed through using community translators.

Baseline data insinuated no sensitive or fragile ecosystem or habitat and threatened or endangered plant or animal life in the project area. Hydrology study report of the project site has recommended the development of Bulesa Irrigation project. Potential environmental and socio-economic benefits expected from the implementation of the proposed project will comprise employment opportunities to community, improved nutrition, increased animal health, and improved market prices of livestock. Others are improved crop production, availability of water for livestock and increased livestock productivity, diversification of livelihood, poultry keeping, vegetable gardening and fish farming, establishment of tree nurseries and enhancing of indigenous tree growing.

The potential negative environmental and social effects of the proposed project are; soil erosion, solid waste, occupational health and safety hazards, siltation, noise and dust, conflict over water resource, mismanagement, altered social and cultural norms that support undesirable behavior, increased cases of HIV and AIDs, associated Gender Based Violence (GBV) in form of Sexual Exploitation and Abuse and Sexual Harassment (SH), risk of transmission of the COVID 19 disease at construction work site and community members during consultations and labor risks including labor influx.

Mitigation measure include supervising engineer ensuring that solid waste are recycled, reused or disposed in designated and approved dumpsites, sensitizing the community on soil and land management practices in the catchment area, putting in place a grievance redress mechanism, capacity building the project management committee, developing and implementing a Sexual Exploitation and Abuse (SEA) action plan with an accountability and response framework as part of Contractor Environmental and Social management Plan sensitization of the community on the proposed project, contractor putting in place measures (install hand washing facilities, social distancing and wearing of face masks) to prevent the spread of COVID-19, contactor enforcing strict use of Personal Protective Equipment (PPE) on site during construction, (C-ESMMP).

The proponent has process water use permits from Water Resources Authority as required by the Water Act. The ESMMP will be implemented by the selected contractor, KCSAP Isiolo County and other stakeholders.

Monitoring of the implementation of the ESMMP will be by NEMA officers in terms of enforcement and compliance KCASP through its County Environment and Social Safeguard Officer (CESSCO) and Panel of Experts (PoEs). The CPCU/CESSCO, contractor, the supervising water engineer, the proponent and the Isiolo county environmental committee will be required to ensure that the mitigation measures proposed for the construction, operation and decommissioning phases in the ESMMP are followed and necessary structures are put in place to spearhead any emerging grievances.

Once rehabilitation is complete the community is expected to run the project with minimal external support through Project Management Committee (PMC). The estimated cost of implementing the ESMMP is **Kshs.1,410,000.**

Considering the positive and negative impacts this project will not result to significant, cumulative, or irreversible negative impacts. All the predicted impacts will be easily mitigated through the ESMMP. The Proponent should share the ESMMP with the selected Contractor and the latter will be required to develop and implement a Contractor-Specific ESMMP. The CPCU will follow up and monitor implementation of the ESMMP. Based on the assessment, the project is, therefore, recommended for approval by the National Environment Management Authority (NEMA) for issuance of an ESIA license subject to annual environmental audits after operating for one year.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

The project is located in Charri Ward, Merti Sub-County of Isiolo County, Bulesa location a distance of about 180km from Isiolo town. The project was identified in 2017 during public participation for the Isiolo County Integrated Development Plan (2018-2020). The targeted beneficiaries were registered as a self-help group with the Department of Social Service in 2003. The membership had grown from fifteen (15) to over a thousand by 2012, with five hundred (500) being active members.

The main source of livelihood is livestock with majority of the people living below poverty line. Members started engaging in irrigated farming along the banks of Ewaso Ngiro River in the year 2003 in diversifying their livelihood. Through furrow, about 500 acres were put under irrigation but with dwindling river discharge it was unsustainable. Only a few use of small petroleum powered water pumps. The government policy on food security encourages the pastoral community to have an alternative livelihood and combat desertification through avoiding overgrazing. The sub-project is owned and administered by the scheme committee that is duly elected with among others; Chairperson, Secretary and Treasurer

The proposed project development objective 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."

In light of this objective, the utility of CSA lies in: its explicit integration of the triple-wins (productivity, adaptation, and mitigation) with planning, implementation, and monitoring, which are often done in isolation; and improving the understanding of expected outcomes of context-specific CSA investments on different beneficiaries over time. KCSAP will focus on increasing agricultural productivity and enhancing resilience to impacts of climate change; reductions in GHG emissions will be a co-benefit.

1.2 Justification of the Project

The need for this project emanates from the necessity to create resilience to climate change for communities within the arid and semi-arid lands (ASALs) in order to restore a sense of normalcy and resumption of economic and social activities. In the ASALs the lowering of the groundwater table leads to water scarcity forcing the rural inhabitants to collect water from far away sources.

The Project whose objective is to avail irrigation water to the target community is consistent with the first Pillar (Economic) of the Medium Term Plan (MTP) for Kenya's Vision 2030. The project in particular will support the development of agriculture and livestock sub sectors of the Economic Pillar, which seeks to enhance food, industrial crop and livestock production in the arid and semi-arid areas of Kenya. The Project is also contributing to the second Pillar of the MTP which seeks among other things to ensure equity in resource distribution and improved livelihoods for all vulnerable groups in Kenya. It is also in line with the Government Strategy

for Revitalizing Agriculture (SRA), which is the overall guiding principle for the agriculture sector in Kenya.

The success of this irrigation project is being ensured by full involvement of the beneficiaries in the preparatory and project planning stages. These beneficiaries have thus expressed their willingness to adopt irrigated agriculture in an effort to achieve food security, improved livelihood and economic empowerment.

1.3 Justification of conducting the ESIA

The need to conduct this ESIA was commissioned by sub - project management committee, KCSAP, World Bank and Ministry of Agriculture in order to comply with the NEMA ESIA/EA requirements for projects and was carried out in accordance with NEMA's Environmental Impact / Audit Regulations of 2003 and be in consonance with Environmental Assessment Guidelines of the World Bank Program. Also reference was made to the Kenya's Environmental Management and Coordination Act (EMCA) of Cap 387.

1.4 The ESIA Objectives

The objectives of this ESIA study were:

a) To review existing policy, legal and institutional framework on environmental management and irrigation projects
b) To collect and collate baseline information on proposed Irrigation Project.
c) To conduct interviews through the community participatory process.
d) To identify and assess positive and negative impacts of the proposed irrigation Project.
e) To identify and analyse project alternatives.
f) To develop mitigation measures and cost estimates from all the negative impacts of project.
g) To design an Environmental and Social Management and Monitoring Plan (ESMMP) to guide in project implementation.

1.5 The ESIA Terms of Reference

a) Concisely describe each project activity assessed, its geographic, ecological, general layout of irrigation project including maps at appropriate scale where necessary. Information on size, capacity, technologies and services should also be provided.
b) Collect, collate and present baseline information on the environmental characteristics of the existing situation around the irrigation project. This description shall involve:
    - ✓ Physical environment (topography, geology climate and meteorology, air quality, hydrology among others.
    - ✓ Biological environment (i.e., flora and fauna types and diversity, endangered species, sensitive habitats among others.
    - ✓ Social and cultural environment, including present and projected, where appropriate (i.e. population, land use, planned development activities, community structure, employment and labor market, sources and distribution of income, cultural properties.

    a) Identify and describe the pertinent regulations and standards governing environmental

quality, health and safety, protection of sensitive areas, land use control and ecological and socio-economic issues.

b) Analyze and describe all significant changes brought about by the irrigation project. These would encompass environmental, ecological and social impacts, both positive and negative. Make a prioritization of all concerns identified and differentiate between short, medium and long-term impacts. A detailed outline and discussion of specific conditions that might affect the environment which are unique to irrigation and/or operation being audited shall be provided.
c) Analyze and describe all Occupational Health and Safety (OHS) concerns brought about by irrigation project activities. Make recommendations on corrective and remedial measures to be implemented under the Environment and Social Management and Monitoring Plan (ESMMP).
d) Develop a comprehensive Environment and Social Management and Monitoring Plan (ESMMP). The plan shall recommend a set of mitigation, monitoring and institutional measures to eliminate, minimize or reduce to acceptable levels of adverse environmental impacts and/or maximize socio-economic benefits.
e) If necessary, to identify the affected persons and prepare an appropriate re-settlement action plans.
f) Prepare Environmental and Social Impact Assessment (ESMP) Comprehensive Project Report (CPR). The report shall be in a format acceptable to NEMA.
g) Submit ESIA CPR prepared under to NEMA for approval and issuance of licence.

1.6 ESIA Approach and Methodology

Desk review was done on available reports on the proposed irrigation project area as well literature within the sector on irrigation systems design, technologies and water management; Socio-economic, gender and socio-cultural issues; environmental conservation, bio-diversity, wildlife and resource use; and occupational health and safety.

Consultation meetings were held with key stakeholders at various stages of the assignment. The ESIA team reviewed all related legislation and regulations. The literature review was complimented with field surveys during which data on the project and its environs was collected on pre-determined parameters. Field surveys included observations, focus group discussions and interviews with key informants, and assessment of extent of environmental degradation and conservation in the project area. The data collected was analysed to establish the potential and expected environmental impacts on the socio-economic, gender and cultural environment of the people who will be affected by the project.

An assessment of the socio-economic, gender and socio-cultural impacts on the people who will be affected by the proposed Irrigation Project was carried out through key informant interviews, focus group discussions, direct observation and public meetings with the local community.

All the data collected was analyzed and synthesized to prepare an Environmental and Social Management and Monitoring Plan (ESMMP).

1.7 Reporting Structure of ESIA CPR Study Chapter outlines

The scope of this ESIA study complied with Kenyan legislative requirements set out in Part IV of the EMCA and also conformed to the provisions for Environmental Impact Assessment (EIA/EA) Regulations of 2003. This project report represents the findings of the ESIA and contains a description of the project environment, baseline environmental Information, analysis of project alternatives, positive and negative environmental impacts and mitigation measures, an environmental and social management plan (ESMP), and monitoring and audit plan. As per the Environmental Impact Assessment (ESIA/EA) Regulations of 2003, the project report is expected to include a description of the following among other emerging issues:

a) The nature of the project;
b) The location of the project including the physical area that may be affected by the project's activities i.e. outline the general information of the area such as: location, vegetation, climate, settlement and infrastructure;
c) Review of policy, legislative and institution framework environment, water resources exploitation and development;
d) The activities that shall be undertaken during the project construction, operation and decommissioning phases;
e) The design of the project;
f) The materials to be used, products and by-products, including waste to be generated by the project and the methods of their disposal;
g) The potential environmental impacts of the project and the mitigation measures to be taken during and after implementation of the project;
h) An action plan for the prevention and management of possible accidents during the project cycle.
i) A plan to ensure the health and safety of the workers and neighboring communities.
j) The economic and socio-cultural impacts to the local community and the nation in general;
k) A Monitoring and Audit Plan based on the ESMMP;
l) Any other information that the Authority may require.

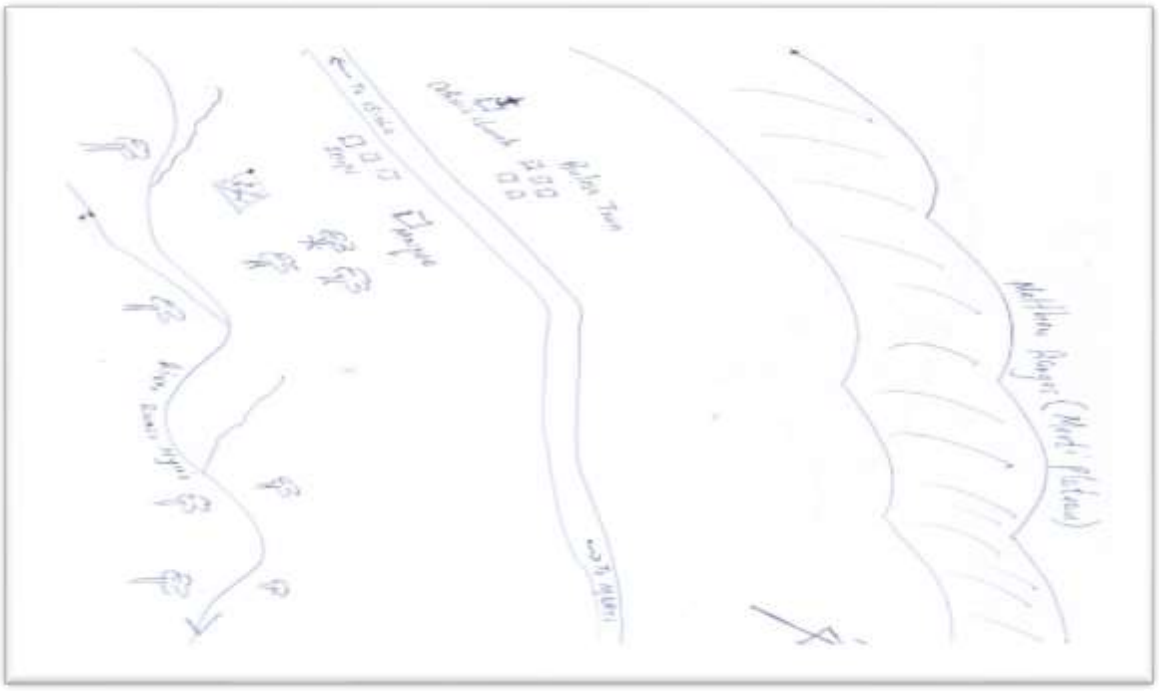
CHAPTER TWO: PROJECT DESCRIPTION

2.1 Introduction

This chapter describes the location of the proposed project, land ownership, project concept and design and proposed project activities at all phases.

2.2 Location of the site

The project is located in Chari Ward, Merti Sub-County of Isiolo County, Bulesa location. From Isiolo by road it is about 180km. The site is on GPS Coordinates N00057.587' E038034.420'.



2.3 Land Ownership

The proposed Bulesa irrigation scheme project site will be developed on 500 acres communal land and located along' Ewaso Nyiro River. The project is planned to start with 200 acres (Approximately 80 hectares) then grow gradually. The land was availed through agreements involving local administration together with community elders. Meetings were held and a consensus was reached to set aside 500 acres of land. The community held a meeting the ward administrator, CDDs and Chief. During which a no objection letter was signed giving the community consent to come up with the scheme. See annexed no objection letter (Annex No. 2).

2.4 Project concept

The project concept has been developed through participatory approaches and an action plan to solve the identified problems was developed by the stakeholders with technical support from ministry of Agriculture staff. Irrigation farming through improved structures has been identified as an appropriate intervention towards improving house hold nutritional status, alleviation of poverty.

2.5 Design of Bulesa Irrigation Project

The design and criteria for Bulesa Irrigation Project was developed in accordance with the general guidelines and standards used in the design of irrigation and water supply projects in Kenya and are in line with international standards for best practice. Stakeholder concerns have been included in the final design

2.5.1 Design Concept

Solar and Piping System: Elevation Difference; River Bank – River Bed - 2m; River Bank – Collection Chamber - 3.5m; Proposed Tank Height - 3m.

Discharge Required: The discharge required is assumed to be half the generator discharge since Ewaso Ngiro river gauging is not available.

Hence ; 1/2× 200m^3/hr = 27.8 L/sec

Length of Pipeline to Resevoir – 1km

Proposed Pipe Diameter - 75mm

Tank Capacity- 200m^3

Calculation:

Elevation of Source to Tank- 10m

Flow Rate = {(100m^3/Hr ×1000)÷(3600)}= 27.8l/Sec

Head Loss (H_f) In Pipe ={ (1Km ×1000)÷(3500)}= 0.29% , But the pipeline is of 75mm diameter and existing frictional loss to overcome when delivering 27.8L/sec will be 0.6% from colebook white formular Design Manual

Total System Head:

- ✓ Difference in ground elevation – 5.5m
- ✓ Total frictional head loss - 0.6m
- ✓ Height of tank - 3.0m
- ✓ Add residue- 0.8m

TOTAL **10m**

Power Requirement:
Power = $\{Q \times H\} \div \{102 \times e\}$

Where Q =Required discharge per second {L/sec}

H = Total Head (m)

e= Pumping efficiency (60%)

so, POWER = (27.8 ×10)÷(102×0.6) =5.54KW

From the above calculation the number of solar panels for a capacity of 200Watts will give

5540÷200 =22.7 panels

Take 23 panels

The Equipment (Pump): Lorentz PS-C DC Solar centrifugal submersible pump. It is fitted to ECDRIVE maintenance free, water filled brushless DC Motor without integrated electronics. Controllers are designed to protect the pump against reverse polarity, overload and over temperatures and Integrated MPPT (Maximum Power Point Tracking) for maximum solar energy conversion efficiency.

Control inputs for dry running protection and remote control.

Advantages of Solar System: Simple; Easy to install; Reliable and remote water supply solution; Maintenance free**;** Packaged solution**;** Cost competitive and Highly flexible power supply.

2.5 Project Activities

2.5.1 Construction Phase

a) Inputs for the construction

The construction works will require the following inputs:

1) **Construction activities**

Excavation works will be done by labour intensive methods in order to involve the beneficiary community. Other works will relate to structures and pipelines.Structural works for the project will include the following construction of auxillary services.

2) **Waste generation during construction**

Waste likely to be generated during the project construction includes the following: Spoiled and used construction materials; Earthworks; Solid waste (paper, plastics, metal cans, wood, metal, dry paint and stone chippings); Liquid waste (wet paint, wastewater, glue, solvents and other chemicals); Used oil waste products (e.g. lubricants and filters) from construction machinery and Sanitary waste.

2.5.1 Operation Phase

1) Inputs during operation

The project operation will require the following inputs:

- ✓ Labour for land preparation, planting, weeding, spraying and harvesting;
- ✓ Labour for seasonal de silting at the intake structures;
- ✓ Seeds, agrochemicals and fertilisers;
- ✓ Spare parts for operation and maintenance.
- ✓ Agricultural extension services

2) Operation, maintenance and water management

The irrigation rehabilitation or expansion process will involve institutional, organizational and technological changes. The objective is to improve irrigation services to farmers. Improvements in water delivery operation and maintenance will be a critical first step in the process.

Scheme operation and maintenance involves all activities related to proper water abstraction from source, conveyance, distribution and application. The operation and management activities will be carried out to ensure that the irrigation system functions optimally as per the design and implementation requirements.

The IWUA will be fully responsible for operation and maintenance of the system with technical advice from the MoA or any other collaborator. The goal is to optimize participation in ways which contribute to improving the performance of irrigation water management. Maintenance costs will be met from water use charges and farmers will also contribute labour.

The involvement of the IWUA will have the following advantages:

- ✓ The O & M costs will be reduced because most activities will be performed by IWUA members;
- ✓ Internal capacity building;
- ✓ Opportunity to participate in decision on operation and maintenance function;
- ✓ Will enhance group cohesion and contribute to strengthening of the IWUA
- ✓ The O&M activities consist of:
- ✓ Irrigation schedules and water allocation /distribution as per the design,
- ✓ Irrigation /water application methods,
- ✓ Irrigation efficiencies and water conservation techni ques, and
- ✓ System maintenance.

The operation and maintenance procedures and schedules will be prepared with the assistance of an irrigation technician. The farmer's organization will be responsible for scheme management, operation and maintenance of the main pipeline. The branch pipeline system and the infield system will be the responsibility of the block members.

CHAPTER THREE: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1 Policy framework

3.1.1 Kenya Constitution 2010

The Constitution of Kenya 2010 is the overarching law. Article 42 states "every person has the right to a clean and healthy environment, which includes the right a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69, and b) to have obligations relating to the environment fulfilled under Article 70". In respect to obligations concerning the management of natural resources *the constitution has enshrined the principle of public participation that has been complied with in this ESIA. The Proponent by this ESIA Report has taken precautionary measures to make certain that the project contributes to a clean and healthy environment for the residents and beneficiaries of Bulesa irrigation.*

3.1.2 Vision 2030

The Vision 2030 is the Country's Economic Blueprint that maps the development agenda by seeking to make Kenya a globally competitive middle-income country by 2030.Vision 2030 is being implemented through a series of five-year Medium-Term Plans (MTP).The MTP identifies the key policy actions and programmes for each Ministry Department and Agency (MDA). The overall goal of the Environment, Kenya vision 2030 includes equity as a recurrent principle in economic, social and political programmes. Special attention has been given to investment in arid and semi-arid (ASAL) counties, communities with high incidence of poverty, unemployed youth, women, and all vulnerable groups. Devolution under vision 2030 is expected to play a key and enhanced role in correcting existing economic and social inequalities. *The implementation of the proposed water project is an effort to increase agricultural productivity for smaller holders in Bulesa location through investing in water for irrigation uses. The project is expected to improve the social and economic life of the target community if implemented and this is in line with Vision 2030.*

3.1.3 National Gender and Development Policy, 2000

The policy outlines the national agenda for gender equality and how Kenya intends to realize these ideals. The Constitution of Kenya creates a platform for gender equality and nondiscrimination. Article 10 of the Constitution is on the National Values and Principles of governance. It highlights such principles as equality, equity, inclusiveness and non-discrimination. These principles provide an anchorage for gender equality. Further, Article 27 (1) provides that every person is equal before the law and has the right to equal protection and benefit; Article 27 (3) provides that women and men have the right to equal treatment including the right to equal opportunities in political, social, economic and cultural spheres. The Constitution also outlaws discrimination on any basis. The National Gender and Development Policy, 2000 purposes to promote the constitution national values and principles of governance. *The proponent through this CPR has carried out adequate social assessment of the project and through the ESMMP provided adequate measures to comply with this policy provisions. This Policy will be referred to during Project implementation especially during hiring of staff to be*

involved in the Project, procuring of suppliers, sub-consultants and sub-contractors to the project in order to achieve equality of opportunity and outcomes with respect to access to and control of national and county resources and services; and equality of treatment that meets the specific and distinct needs of different categories of women and men

3.1.4 Policy on Gender and Sexual Based Violence 2017

The purpose of this policy is to put in place a framework to accelerate implementation of laws, policies and programmes for prevention and response to SGBV. The overall objective of the policy is to progressively eliminate sexual and gender-based violence through the development of a preventive, protective, supportive and transformative environment. *The proponent put in place plans through the ESMP to develop and implement a SGBV action plan with an Accountability and Response Framework as part of the Construction-ESMP (C-ESMP) and administration of the whole project cycle, (as required by of this policy is to put in place a framework to accelerate implementation of laws, policies and programmes for prevention and response to SGBV.*

3.1.5 Kenya National Youth Policy 2006

This Policy aims at ensuring that the youth play their role alongside adults in the development of the Country. The National Youth Policy visualizes a society where youth have an equal opportunity as other citizens to realize their fullest potential. *The proposed irrigation Project will provide direct employment to the youth as required by the Policy. The contractor and the proponent will ensure that the youths are given the first priority especially during construction phase.*

3.2 The Legislative Framework

3.2.1 Environmental Regulatory Framework

3.2.1.1 Environmental Management and Coordination Act CAP 387 and EMCA Amendment 2015

The Environmental Management and Coordination Act (EMCA) of Cap 387 was enacted to provide an appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. Under EMCA various regulations have been enacted as outlined below.

a) EIA regulations 2003 (ESIA and EA regulations)

The prescribed format for Environmental Impact Assessment guidelines in Kenya has been developed and gazetted. The regulations require that Environmental and Social Impact Assessment cover issues outlined in the schedule 2 that is, (ecological, social, landscape, land use, and water considerations) and general guidelines in schedule 3 (impacts and their sources, projects details, national legislation, mitigation measures, a management plan, and environmental auditing schedules and procedures. *By this CPR the requirements of this regulations and those of the World Bank Social Safeguards were integrated and followed throughout the process. The proponent did the screening and scoping then as advised by the*

NEMA office commissioned a Comprehensive Project Report. The proponent shall observe the guidelines as set out in the Environmental and Social Management and Monitoring Plan (ESMMP) laid out in this report as well as the recommendation provided for mitigation, minimization, and avoidance of adverse impacts arising from the Sub-project activities.

b) EMCA (Waste Management Regulations 2006)

This regulation gives guidelines on both operational and administrative activities that are used in handling, packaging, treatment, condition, storage, and disposal of waste and is implemented by NEMA. It prohibits disposing of any waste on any part of the environment except in designated waste receptacle or facility provided by the county government which may be legitimate dumpsites or landfills. Since, the proposed sub-project will generate waste in form of waste soils, waste oil and other solid wastes in small quantities, this act provides for the waste generator to be responsible for the collection, segregation at source and proper disposal of their wastes. *Through the ESMMP the proponent has provided adequate measures for managing waste generated during the project implementation. Measures to be undertaken for proper waste disposal include clearance of non-reusable and recyclable waste and disposing off in designated disposal site. Re-using excavated soil for pan wall.*

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

This regulation prohibits generation of unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Part 11 section 6 (1) provides that no person shall cause noise from any source which exceeds any sound level as set out in the First Schedule of the regulations. It gives standards for maximum permissible noise levels for construction sites, mines, and quarries. It also gives maximum permissible noise levels for silent zones, places of worship, residential (indoor/outdoor), mixed residential; and commercial. *The proponent through this CPR has established all the sources of noise and vibrations and has provided appropriate mitigation measures for compliance with outlined maximum levels provided for in this regulation The chosen contractor will implement the measures provided for in the ESMMP (such as provision of PPE to workers and switching off engines or machinery when not in use)*

d) Environmental Management and Coordination, (Water Quality) Regulations, 2006

These Regulations apply to drinking water, water used for industrial purposes, water used for agricultural purposes, water used for recreational purposes, water used for fisheries and wildlife, and water used for any other purposes. Section 4 of the regulation which focusses on the protection of sources of water by preventing any form of pollution. Section 6 (1) of the regulation states that no person shall abstract groundwater or carry out any activity near any lakes, rivers, streams, springs and wells that is likely to have any adverse impact on the quantity and quality of the water, without an ESIA license issued in accordance with the provisions of the Act. *The Proponent has complied with this regulation by undertaking this CPR which has determined possible activities that may affect the quality and quantity of water during the construction and operation phases in the sub - project context. Mitigation measures have been*

provided for all the predicted impacts on water quality. The proponent and all other parties (including sub project beneficiaries) shall fully comply with the requirements of these regulations to ensure that its objectives are achieved.

e) Environmental Management and Coordination Act (Air Quality) Regulations, 2014

The objective of these regulations is to provide for prevention, control, and abatement of air pollution to ensure clean and healthy ambient air. The regulations provide for compliance with emission standards for various sources of air pollution including mobile sources (e.g. motor vehicles) and stationary sources (e.g. industries) as outlined in the Environmental Management and Coordination Act, Cap 387. *The proponent will ensure compliance with Air quality regulations by enforcing all the proposed preventive and mitigation measures in the ESMMP e.g. proposed water sprays and mists to suppress dust, proper maintenance of machinery and avoiding unnecessary vehicle and machinery movement.*

3.2.2 Legislative Framework Relevant to the Proposed Sub Project

3.2.2.1 County Government Act, 2012 (No. 17 of 2012)

This is an Act of Parliament that gives effect to chapter eleven of the Constitution; to provide for county governments' powers, functions, and responsibilities to deliver services and for connected purposes. Part VIII of the Act outlines the Principles of citizen participation in counties among others reasonable access to the process of formulating and implementing policies, laws, and regulations, including the approval of development proposals, projects, and budgets, the granting of permits and the establishment of specific performance standards and protection and promotion of the interest and rights of minorities, marginalized groups and communities and their access to relevant information. *The proponent has complied with the outlined principle of citizen participation through the planning, screening, designing and CPR process. The proponent intents to promote citizen participation throughout the project cycle in the management and other functions. The project is implemented by the devolved unit i.e. Isiolo County Government.*

a) The Water Act, NO. 43 of 2016

The purpose of the 2016 Water Act is to align the water sector with the Constitution's primary objective of devolution. According to the regulations under this Act, prior to constructing the waterworks, the owner or developer or other person charged with the mandate of developing, managing and or maintaining waterworks shall – (a) *Apply for and obtain a water use permit under the Water Resources Regulations 2019, and (b) Apply for and obtain an Environmental Impact Assessment license under the Environmental (Impact Assessment and Audit) Regulations 2003 made under Environmental Management and Coordination Act 2015.*

Section 39 sub-section (1) of the Act states that the *holder of a permit which authorizes the construction of works that would or a portion of works which would when constructed, be situated upon land not held by the permit holder shall, subject to any relevant law, acquire an easement on, over or through the land on which the works would be situated and, unless the works have previously been lawfully constructed, shall not construct or use the works unless he or she has acquired such an easement.*

The Act states an application for a permit shall be the subject of public consultation and, where applicable, of Environmental Impact Assessment in accordance with the requirements of the Environmental Management and Coordination Act, 1999.
*The relevance of this act is in allowing then Proponent through the community to acquire a water easement and No objection/land donation consent for the proposed sub-project to be located in Bulesa communal land, and also inform the client on all relevant regulations on the authorization of construction works, water permits among others and the required fees therein**;** The Proponent engaged the services of qualified and approved water experts in the development of the designs for the water weir among other requirements. The Proponent has provided a Hydrology Report which was produced through qualified personnel**.** By this CPR the proponent has complied to this Act. A community letter of no objection has been provided (Annex No.2). The community has applied to WRA for easement and other related permissions. By this CPR and the ESMMP the proponent has a monitoring and evaluation system for safety, health, and environmental conservation.*

b) The Public Health Act (Cap. 242)

The law requires that all lawful, necessary, and reasonably practicable measures be taken to maintain areas under jurisdiction clean and sanitary to prevent the occurrence of nuisance or condition liable for injurious or dangerous to human health. *The proponent defines the necessary measures in the ESMMP to prevent the occurrence of nuisance or condition liable for injurious or dangerous to human health during the construction and the operation phase of the project. Proposed measures include ensuring OHS during construction; dust management through watering of ground; proper disposal of unrecyclable or un-reusable waste; and in operation; water pollution control, mosquito control, design and operationalization of standard operating procedures, provision of hand washing points, provision of sanitary facilities and water drawing points and community sensitization campaigns on communicable diseases such as COVID-19. Additionally, COVID-19 control measures have been provided in the ESMP and will be implemented during all phases of the project.*

c) Physical Planning and Land Use Planning Act, 2019

The Act provide the principles, procedures, and standards for the preparation and implementation of physical development plans at the national, regional, county, urban, and rural and cities level and provision of the procedures and standards for development control and the regulation of physical planning and land use. *The proposed project is in line with the proposed land use for the project site, that is, a communal land/utility for the purposes of the resident community.*

d) The Energy Act, 2019

The Energy Act, 2019 was enacted in response to calls to consolidate the laws relating to energy; promote renewable energy; promote exploration, recovery and commercial utilization of geothermal energy; regulate midstream and downstream petroleum and coal activities, among others. *The Proposed sub-project will use solar energy as per the designs. The sub project complies with Kenya climate change mitigation and adaptation strategies of renewable sources and in line with the socio-economy of the user community.*

e) The Occupational Health and Safety Act, 2007

The Occupational Safety and Health Act, 2007 require that workplaces be kept safe for workers therein. Workers who are exposed to wet or any injurious or offensive substances are required under Section 101 of the Act to be provided with suitable protective clothing. *In the ESMMP the proponent has put in place measures to be observed by the contractor during the construction phase of the project to ensure the health and safety of workers e.g use of PPEs, recording of incidents and accidents. The proponent will share the ESMMP with the contractor to enable the latter to develop a CESMMP which will be strictly followed during construction. Compliance of the CESMPs will be monitored by the regulatory agents .A comprehensive occupational health and safety audits will be carried out periodically to ensure compliance with this Act particularly in the construction phase.COVID-19 control measures have been provided in the ESMMP.*

f) Employment Act, 2007

Section 3. (1) States that this Act shall apply to all employees employed during the sub-project implementation under a contract of service. Section 5 (3) demand that no employer shall discriminate directly or indirectly, against an employee or prospective employee or harass an employee or prospective employee on grounds of race, colour, sex, language, religion, political or other opinions, nationality, ethnic or social origin, disability, pregnancy, mental status or HIV status. *The proponent through the contractor will make sure that fairness and gender equity are followed during recruitment of the labour force to be used during the construction phase and other sub project cycles when necessary. Locals will be given preference in labour, works. Women will be offered opportunities in the sub project.*

g) Irrigation Act No 14 of 2019

The provisions of this *act* apply to matters relating to the development, management, financing, and provision of support services and regulation of the entire *irrigation* sector in *Kenya*. *The Proponent will ensure that the irrigations comply with the principles and values set out in articles 10, 43, 60 and 232 of this Act. The proponent has achieved this through the predicted impacts and proposed mitigation measures in this CPR and the ESMMP.*

h) The Land Act, 2012 No. 6 of 2012 (The Land Laws (Amendment) Act, 2016 No. 28 of 2016)

Under section 3.(1) the Act applies to all land declared as— *(a) public land under Article 62 of the Constitution;* (b)private land under Article 64 of the Constitution; and (c) community land under Article 63 of the Constitution and any other written law relating to community land.

In section 8(d) the Commission on behalf of the National or County Government may require the land to be used for specified purposes and subject to such conditions, covenants, encumbrances or reservations as are specified in the relevant order or other instrument. The land allocated for this sub project is not registered hence falls under neither of the categories of land described herein. *The proponent has engaged the community and PAPs and consented to donation form land for the planned development as depicted in the duly signed land consent and donation form. Further the proponent through this ESIA and ESMMP has developed appropriate measures to ensure that the proposed development is implemented sustainably through the prevention and reduction of adverse impacts.*

i) The National Land Commission Act, 2012 No. 5 of 2012

Section 5(1) pursuant to Article 67(2) of the Constitution, the functions of the Commission shall be (2) in addition to the functions set out in subsection (1), the Commission shall, in accordance with Article 67(3) of the Constitution *land under the management of designated state agencies are sustainably managed for their intended purpose and for future generations. The proponent has outlined measures to ensure that the proposed sub project and the land in use are well managed to bring about environmental, and socio-economic well-being. Through for instance application measures like, catchment protection, waste management, pollution prevention and promotion of SLM among farmers as stipulated in the ESMP of this CPR.*

j) Work injury benefits Act, 2007

Section.7. (1) Require that the proponent to obtain and maintain an insurance policy, in respect of any liability that the employer may incur under this Act to any of his employees. *The proponent will ensure the engagement of a qualified, registered and licensed contractor for the implementation of the sub project. Through the ESMMP has outlined appropriate measures (such as provision of first aid kits, PPEs, ERP plans, training of workers in first aid and monitoring of OHS through DOSH among others) to address adverse effects that may occur from the sub project's activities in the construction, operation and decommissioning phases.*

k) National Construction Authority (2011)

The National Construction Authority Act, Number 41 of 2011 streamlines, overhauls and regulates the construction industry in Kenya. The Act contains provisions on the quality and safety standards of any construction work. *The Proponent will ensure the engagement of a registered and qualified contractor. By this CPR and the ESMMP the proponent, the community sub project committee and the supervising engineer will check and verify every step of the work by the Contractor to ascertain that quality and safety standards are met and that the work output does not compromise the set achievements of the sub project.*

l) Climate Change Act, 2016

The CCA aims to reduce vulnerability to climate change and improve our country's ability to take advantage of the opportunities that climate change offers. The Act is to be applied for the development, management, implementation, and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya.
The development and implementation of this irrigation project will contribute towards the stated objectives of the climate change act and enhance the resilience of the beneficiary community to drought particularly.

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

This is an Act of Parliament to make provision about sexual offences, their definition, prevention and the protection of all persons from harm from unlawful sexual acts, and for connected purposes. Section 15, 17 and 18 focuses mainly on sexual offenses on minor (children). *The Proponent will develop and implement a SEA action plan with an accountability and response framework as part of the Construction-ESMMP (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) and*

National policies and regulations on SEA. The Contractor will implement the C-ESMMP signed with the proponent to address and resolve all identified and emergent SEA concerns.

n) HIV and AIDS Prevention and Control Act No. 14 of 2006

Among the purposes of this Act as outlined in section 3 (a) is to promote public awareness about the causes, modes of transmission, consequences, means of prevention and control of HIV and AIDS; and (d) to positively address and seek to eradicate conditions that aggravate the spread of HIV infection. Section 7 makes provision for HIV and AIDS education in the workplace in this case even the informal workplace is included. Section 12 prescribes the penalty for unsafe practices or procedures which might lead to the infection of another person with HIV. Section31. Prohibits discrimination in the workplace based on the HIV/AIDS status of a person**.** *This proponent in this ESIA report has captured HIV/AIDS as a risk in the proposed project and through the ESMMP provided adequate measures. The HIV Policy, therefore, will be complied with during implementation of the Project; the Contract will incorporate in Bid Document and implement HIV awareness initiatives during construction of the Project.*

3.3 The Institutional Framework

3.3.1 Institutions under EMCA

a) County Environmental Committees

This is established under Section 18 of the EMCA amendments 2015 and is responsible for proper management of the environment in the county and development of the county environment action plan. *Some of the members of this committee were among the key persons with whom the project was discussed for input. Through the NEMA office this CPR will be shared with the CEC members for review and comments.*

3.3.1 Institutions under the Water Act

a) Water Resources Authority (WRA)

The objective of WRA is to protect, conserve, control and regulate the use of water resources through the establishment of a national water resource strategy. In addition, the WRA is responsible for: formulation and enforcement of standards, procedures and regulations for the management and use of water resources; policy development; planning and issuing of water abstraction permits; and setting and collecting permits and water use fees. *The proponent has engaged WRA in undertaking assessment for the proposed project as per the requirement of the WATER ACT (No. 43 of 2016), the proponent has acquired the water use and works permit from WRA.*

b)Water Resource Users Association (WRUA)

WRUAs are local community institution established under the Water Act which work with WRA to manage water resources at the grass-root level. *The proponent in the ESMMP will support the formation and capacity building for the WRUA to enhance sustainable management of the project and the catchment of the Bulesa Irrigation project.*

3.4 World Bank Environmental Safeguards

The following World Bank environmental safeguards (Operational Policy (OP) /Bank Procedure (BP)) will guide the proposed sub-project.

3.4.1 OP/BP 4.01 (Environmental Assessment)

The World Bank has well-established environmental assessment procedures, which apply to its lending activities and to the sub-projects undertaken by borrowing countries, to ensure that development sub-projects are sustainable and environmentally sound. The World Bank follows a relatively standard procedure for the preparation and approval of an environmental assessment study, which: identifies and assesses potential risks and benefits based on proposed activities, relevant site features, consideration of natural/human environment, social and trans-boundary issues; compares environmental pros and cons of feasible alternatives; recommends measures to eliminate, offset, or reduce adverse environmental impacts to acceptable levels (sitting, design, technology offsets); proposes monitoring indicators to implement mitigation measures; and describes the institutional framework for environmental management and proposes relevant capacity building needs. *The Proponent undertook screening of the proposed Bulesa irrigation sub - project on (dates –9th June 2021) as per OP/BP 4.01 (Environmental Assessment)- environmental and social screening checklist. The screening report was submitted to NEMA County Director Environment (Isiolo) who indicated a CPR be undertaken for the sub project. Consequently, the proponent commissioned the Experts to undertake CPR. This study involved a wide range of stakeholders to make sure that the views of interested and affected persons are captured early enough in the sub project planning and design. (refer to Annex No.7 and 5) for sample filled questionnaire and attendance list. The CPR has followed WB social safeguards OP/BP 4.01 (Environmental Assessment) and EMCA 387 EIA/EA regulations 2003 set criterion and legal notice No.31 &32 of 2019 as well as the NEMA ESIA reclassification public notice of 12march 2020. This report has established all the significant impacts that need to be addressed and proposed appropriate measures to prevent or reduce any risk that may be posed to the environment (physical, biological and social). The adverse impacts and their mitigation measures are well outlined in the ESMP including responsible parties, duration and cost in the whole project cycle.*

3.4.1 OP/BP 4.11 (Physical Cultural Resources)

This policy is meant to assist in preserving physical, cultural resources including the movable or immovable (above or below ground, or underwater) objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance including sites and unique natural values. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices.

The objective of this policy is to avoid or mitigate adverse impacts on physical cultural resources from the proposed sub-project.

The proponent during the environmental and social screening exercise enquired from the community of the possibility of a history of any physical or cultural significance of the proposed sub project site. It was found out from the community that the land for the intake sub project site has not and is not known to have any physical or cultural object/resource that the proposed

development may interfere with. In accordance, with the requirement of this guideline (OP/BP 4.11 -Physical Cultural Resources) the proponent has outlined precautionary measures (chance find procedure) to be undertaken in case of chance encounter with any physical or natural resource during implementation of project activities. (Refer to annex No. 4 for chance find procedure)

3.4.2 OP/BP 4.12 (Involuntary Resettlement)

The policy states that "Where population displacement is unavoidable, a detailed resettlement plan, timetable, and budget are required. Resettlement plans should be built around a development strategy and package aimed at improving or at least restoring the economic base for those relocated. *In the proposed Bulesa irrigation sub project, the land is under communal land which is largely available. The local community elders, National Government and County Government officials have consented to donate the land for the irrigation development*

3.4.3 OP/BP 4.10 (Indigenous Peoples)

For all sub-projects that are proposed for Bank financing and affect indigenous peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation.
The objective of this policy is to design and implement sub-projects in a way that fosters full respect for Indigenous Peoples' dignity, human rights and cultural uniqueness and so that they receive culturally compatible social and economic benefits and do not suffer adverse effects during the development process. *The dominant ethnic group in the area is the Borans who are IPs. The proposed sub project will contribute to diversifying livelihoods and enhancing socio-economic wellbeing of the community. Prior informed consultation will continue at pre-construction to operation phases of the project under an elaborate stakeholder engagement plan to ensure the dignity and concerns of the community are addressed. A GMR has been established at sub-project level escalating to National level.*

3.4.4 OP/BP 4.09 (Pests Management)

The policy is meant to minimize and manage the environmental and health risks associated with pesticides use and promote and support safe, effective and environmentally sound pest management. *Due to the anticipated increase in farming activities and consequently in the use of pesticides and other agrochemicals as a result of availability and accessibility to water from the sub-project necessary measures have been proposed in the ESMMP on the management of anticipated impacts from irrigation and farming activities for the Proponent and other concerned parties.*

3.5 Activities Triggering World Bank Safeguards

The schedule below justifies the extent to which the World Bank safeguards apply to the implementation of the proposed sub project implementation. This implies, further investigations may be necessary to ensure compliance with the World Bank requirements.

Table 1: Safeguards Triggered by the KCSAP Project

Policy	Criteria in the Project	Discussions
Environmental Assessment (OP 4.01, BP4.01, GP 4.01)	Yes	In response to EMCA 387 with accompany subsequent regulations of 2003, legal notice No. 31 & 32 of 2019 and public notice of 12th march 2020 and World Bank OP 4.01
Involuntary Resettlement (OP4.12, BP 4.12)	No	No displacement of people will result from the implementation of the project
Physical Cultural Resources (OP/BP 4.11)	No	Chance find procedure is provided
Indigenous Peoples Policy OP/BP 4.10	Yes	All the community members in the area are categorized as IPs as per OP 4.10or VMG according to the Constitution of Kenya (COK) 2010
OP/BP 4.09 (Pests Control Management)	Yes	Anticipated use of pesticides from increase in farming activities

3.6 International Conventions and Treaties

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

3.6.1 Conservation of Biological Diversity (CBD) Regulations 2006

These regulations are described in Legal Notice No. 160 of the Kenya Gazette Supplement No. 84 of December 2006. These Regulations apply to the conservation of biodiversity which includes Conservation of threatened species, Inventory, and monitoring of BD and protection of environmentally significant areas, access to genetic resources, benefit-sharing and offenses and penalties. *The Proposed project site is not habitat to any threatened or endangered species of flora or fauna. The sub project does not pose any threat to any plant or animal life in the sub project context. The Proponent will ensure that great care is exercised in the protection of vegetation during construction by the Contractor and In the ESMMP the proponent has made provision for the establishment of tree nurseries and promotion of indigenous tree growing.*

3.6.2 United Nations Convention to Combat Desertification, 1994

Addresses the problem of the degradation of land by desertification and the impact of drought, particularly in arid, semi-arid and dry semi-humid areas. This convention is domesticated in EMCA Cap 387 via Section 46 where County Environment Committees are required to identify areas that require re-forestation or afforestation as well as to mobilize the locals to carry out these activities. *The proponent will promote reforestation and afforestation activities by the locals through this sub project and therefore, will be contributing to the goal of this Convention.*

CHAPTER FOUR: BASELINE INFORMATION

This chapter gives a description of the environmental setting of the proposed sub-project area and its environs in terms of its physiographic and natural conditions, biological and socio-economic environment.

4.1 Physiological and Natural Conditions

4.1.2 Geology

The project area is situated along Ewaso Nyiro River and has alluvial soils which are loose, unconsolidated or sediments that has been eroded, reshaped by water in some form and re-deposited along the river bank.

4.1.3 Ecological Conditions

4.1.3.1 Climatic Conditions

Bulesa Location is hot and dry in most months in the year with two rainy seasons. The short rains season occurs in October and November while the long rain occurs between March and May. The rainfall received in the sub - project area is usually scarce and unreliable posting an annual average of between100 mm – 250mm. The wettest months are November with an average of 143 mm of rainfall and April with an average of 149 mm of rainfall.

The erratic and unreliable rainfall cannot support crop farming which partly explains the high food insecurity and food poverty levels recorded in the sub-project area.

High temperatures are recorded in the sub-project area throughout the year, with variations in some places due to differences in altitude. The mean annual temperature in the area is 29^0 C. Strong winds blow across the area throughout the year peaking in the months of July and August.

4.1.3.2 Topography and vegetation

The area is flat. The main type of vegetation consists of wooded grasslands, desert bush lands Forbes and shrubs.

4.1.4 Demographic Features

4.1.4.1 Population Size and Composition

The county's population stood at 143,294 as per the 2009 Population Census comprising of 73,694 males and 69,600 females. The population was projected to rise to 159,797 by the end of 2012 and 191,627 by 2017. The population consists largely of Cushites communities (Oromo-speaking Boran and Sakuye) and Turkana, Samburu, Meru, Somali and other immigrant communities from other parts of the country. The planned massive capital investments under development of the LAPSSET Corridor including International Airport, Resort City, and oil storage facilities are expected to boost rapid population growth in the county. The population of the project area consists of Boran who are the beneficiaries of the Sub-Project.

3.3 Infrastructure

3.3.1 Road and Rail Network, Airports and Airstrips

The county has a road network of 975.5 km, out of which only 34 km are bituminised. Gravel. All the earth surface roads are impassable during the wet season. The project area is accessible by all-weather murram road off the Isiolo - Marsabit road just outside Isiolo town.

3.3.1 Posts and Telecommunications: Post Offices, Mobile Telephony,

Around eight percent (2,090 km2) of the county have mobile network coverage leaving about 92 percent of the County without mobile phone network coverage. The project area has clear network being provided by safaricom, airtel and telcom service providers.

3.3.2 Energy Access (Main Sources of Energy, Electricity Coverage)

The county's main source of energy is wood fuel. Over 70 percent of the households rely on fire wood as their main source of power. This has led to over-harvesting of trees primarily for charcoal causing extensive land degradation in the county. The project area has access to electricity from the national grid which is about 50 meters away and most of the households within the project area rely on firewood for cooking.

3.3.3 Markets and Urban Centres

There are seven major livestock markets in the county situated in Isiolo, Garbatulla, Kinna, Modogashe, Merti and Oldo/Nyiro. The main livestock traded include cattle, goats, sheep and camels. Buyers come from Nairobi, Meru, and as far as the coastal region of Kenyan. The project area will be well served by Bulesa market.

3.3.4 Housing Types

Most of the houses are constructed of mud, grass and wood. These dwellings are called "manyata" and are temporary in nature. Permanent housing structures are only found in Isiolo town and other urban centers. The project area has a mixture of permanent and mud houses "manyata" but there are more mud houses than permanent.

3.4. Land and Land Use

Much of the land (80%) is communally owned and is under the trusteeship of the county government. public land constitutes 10% of total land and includes land for schools, administration, army barracks, and health facilities. The remaining 10% of the land is under private ownership and alienated for housing, industrial and commercial purposes. Over 80 percent of the land cannot support crop farming and is used as grazing land by the pastoralists. The land in the project area is communal and the proponent has acquired letter of no objection form the community.

3.5 Community Organizations/Non-State Actors

3.5.1 Cooperative Societies

There are 28 Co-operative Societies in the county. Some of these include: Deedha Multipurpose cooperative society, Elbote Sacco that deals with miraa trade, Kinna Livestock Marketing Cooperative. Gafarsa Farmers' Cooperative engaging in crop farming and the Isiolo camel milk cooperative society which trades camel milk. IThere is Merti Livestock SACCO where 20 livestock traders are members.

Self Help, Women and Youth Groups

There are 60 active women self-help groups, 345 community based organizations and 280 youth groups registered and operating in the county. Most women groups operate revolving funds. The level of activity of women and youth groups in the county depends on funding from various donors and government funded initiatives. In the project area, women are involved livestock trade where they buy small stock and sell either in Bulesa market or sell other markets like Belgesh and Bisan Biliqo.

3.6 Crop and Livestock Activities

3.6.1 Main crops produced

A large portion of the county is arid crop farming is mainly rain fed apart from the areas along the rivers. Maize, horticultural crops are produced in the existing private small-scale irrigated farm along rivers and especially in the project area.

3.6.2 Main Storage Facilities

Privately owned traditional stores are the main food storage facilities in the project area.

3.6.3 Main Livestock activities

The main Livestock activities include pastoralism and marketing. The project area has good grazing land with full of pasture where Livestock do graze during dry season. There is a market for Livestock where marketing activities take place. Small stock is sold at Bulesa market and neighbouring Belgesh and Bisan Biliqo.

3.6.4 Ranches

The county has several ranches. Lewa Wildlife Conservancy is neighboring the project area and the area forms the migration corridor.

3.6.5 Protection of water catchment areas

KFS (Kenya Forest Services) in collaboration with WRA (Water Resources Management Authority), Ministry of Environment and Mineral Resources are the major players towards protection of Isiolo River and Bisinandi River catchment areas.

3.6.6. Prevention of soil erosion

County Land Reclamation department coordinates all stakeholders on soil conservation matters. Planting of fruit tree is also coming up. Soil erosion within the project area is prevented through practicing soil conservation techniques such as use of terraces and gabbions.

3.7 Water and Sanitation

3.7.1 Water Resources and Quality

Three big perennial rivers namely Ewaso Ngiro, Isiolo, and Bisanadi flow through the county. Rivers Ewaso Ngiro has its catchment area from the Aberdare and drains into the Lorian Swamp. The Isiolo River originates from Mt. Kenya and drains into Ewaso Ngiro River. Bisanadi river drains into River Tana. Most irrigation schemes are found along these rivers. Where the site conditions are suitable, floodwater harvesting facilities for communities in the county can be constructed and by excavating shallow pans or ponds.

3.7.2 Water Supply Schemes

The Isiolo Water and Sewerage Company supplies water in Isiolo town. The other supply schemes are: Merti Water Supply and Garbatulla Water Supply. The project area has no water supply and the water for irrigation will be abstracted from Ewaso Nyiro river.

3.7.3 Sanitation

As much as 81 percent of the households in the county have pit latrines, 56 percent of which are uncovered. Open defecation by adults and disposal of children faeces in the open is still rampant in most rural areas of the county. The project area is sparsely populated with informal settlements with below average sanitation facilities. The project area will be served with a pit latrine designed with two doors and each gender indicated on the doors.

3.7.4 Disease prevalence

There may be cases of malaria within the project area caused by mosquitoes and so the contractor should ensure that the workers sleep under a net. Other preventive measures may include water treatment to keep off water borne diseases.

3.7.5 Trade

Trade in the project area involves mostly buying of livestock and selling them either locally or taking them to other markets within the County or other Counties. Livestock sold include; Cattle and shoats.

3.7.6 Literacy level

Project area literacy level is very high and might affect the implementation of the project. The local community have inadequate skills. This is attributed to few number of schools and culture of the area.

5.0 PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATION

5.1 Background to public consultation in ESIA

The public consultations were held on basis of their being a vital component of a successful ESIA study. The Kenya government in its 2010 Constitution, *EMCA Act, Cap 387* and *Environmental (Impact and Audit) Regulations, 2003* has enshrined the need for human societies' involvement in project development in the Constitution. Community consultation and participation ensures that the targeted communities and stakeholders become part and parcel of the proposed developments and ensures sustainable use of resources. Projects that go through this process acquire high level of acceptance and any possible conflicts areas are identified early enough, resulting into benefits to a wider section of the society.

The proposed project undertook public consultations in order to understand the local impacts, needs and perceptions and to take them into account during preparation of the final project designs and operations.

5.2 Objectives of public consultation

The objectives of public involvement and consultation included:

- ✓ Allowing the public to express its view on the scope and content of an ESIA
- ✓ Identifying the local and traditional knowledge for incorporation in decision-making;
- ✓ Allowing more sensitive consideration of alternatives, mitigation measures and trade-offs;
- ✓ Ensuring that potential impacts are not overlooked and benefits are maximized;
- ✓ Reducing conflict through the early identification of contentious issues;
- ✓ Influencing project design in a positive manner (thereby creating a sense of ownership of the proposal);
- ✓ Improving transparency and accountability of decision-making; and increasing public confidence in the EIA process.

5.3 Methodology

The public consultation was conducted through impromptu visits, public meetings, workshop, and oral interviews with key informants, focus group discussions and administration of structured questionnaires. An initial meeting was held with the project implementation team prior that of stakeholder in Bulesa Irrigation project site.

5.3.1 Community Meeting

The environmental and social assessment public participation exercise was conducted on 9th June 2021 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. A total of 46 community members attended the public participation meeting of which 26 were male and 20 were female. The lead expert explained to those present in the meeting what study 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. Some

of positive impacts cited by the participants during the meeting included: Improved livelihood of the local people through alternative means food production and income generation like growing of vegetables for consumption and for sale through irrigation; Job creation to the locals during implementation stage and operation stage; Improved food security as they will be able to cultivate throughout the year; Increase in fodder for their animals as they will be able to plant grass and Improved environment as they will be able to plant trees creating on their farms. See annexed attendance list and minutes of public participation (Annex No. 7 and No.8)

Plate 1: Public participation meeting

5.3.2 Focused Group Discussion

During Focused Discussion, the groups were divided according to various community clusters to ensure fair representation of every part of the community. A questionnaire was given to each group which was used to guide the discussion. Views collected during the discussions were later consolidated and analyzed. The community was of the view that Bulesa irrigation project will enable them have sufficient water for domestic, irrigation use and watering animals thus improving their well-being. From the discussion, it was also highlighted that job opportunities will be created, food security will improve, and environment of the area will improve tree planting. The youths expressed optimism in the project as there were opportunities for them such as establishment of commercial tree nurseries. The women viewed the project as big relief to them since the time and distance for fetching water will be reduced and the time spent in fetching water can be used to do other productive work such as farming. The project was supported overwhelming across all the groups. See annexed sample questionnaires (Annex No.5).

5.3.3 Stakeholders

Interviews held with key stakeholders of the project indicated that their activities were solely dependent on the success and the sustainability of the project. The stakeholders were in support of the project.

Public participation was conducted at Bulesa center where various stakeholders attended a meeting courtesy of Kenya climate Smart Agriculture Project. The following stakeholders attended;

Table 2: List of Stakeholders Consultation

Stakeholder	No. consulted
Water Users Association	2
Ministry of Lands/ Physical planning	1
Water resources Management Authority -	2
Department of Livestock Production	2
Department of Agriculture	2
National Environment Management Authority	2
Ward Administrator	1
CDDC members	11
Department of Public health	1
Kenya Wildlife Services	1

Table 3: Summary of Stakeholders Comments

Stakeholder Comments/issues/concerns				
Stakeholders	**Position**	**Concerned raised**	**How addressed**	**By who**
Department of Agriculture	Technical officer	✓ Inadequate farming skills	✓ Communities to be capacity built	Agricultural officer
Department of Public Health	Public Health officer	✓ Pollution of water ✓ water related diseases (Malaria)	✓ Heath Education ✓ Provision of nets	Public health officers
Water users association	Chairman	✓ Revenue short fall	✓ Laisse with the CDDCs harmonization	Both committees
Water Resources Authority	Director	✓ Authorization permit ✓ Downstream water depletion especially during dry spells.	✓ Application to be made.	Proponent
Department of Livestock	Extension officer	✓ Land degradation	✓ Restoration programmes ✓ Community to follow set grazing patterns	Extension officer and pasture management committee
National	NEMA	✓ Lack of Legal	✓ An ESIA Report to be	ESIA expert

Environment Management Authority	officer	documents	done	
Department of Kenya Wildlife Services	Warden	✓ Human –wildlife conflicts	✓ Creation of buffer zones ✓ Compensation to be done for the affected	Department of Kenya Wildlife Services
CDDs	Chairman	✓ Erosion of Borana cultures due to influx of people leading to threats such as GBV and increased transmission of HIV/AIDs/ STDs	✓ Capacity building	Department of health

Overall, the stakeholders considered Bulesa Irrigation Project as a viable investment whose implementation should be initiated.

CHAPTER 6: ANTICIPATED IMPACTS AND MITIGATION MEASURES

6.1 Introduction

Developments are usually perceived as improved economic, social and environmental status of targeted communities. Mainly development is expected to yield positive impacts, if appropriate measures are not taken, then unlikely and adverse will be precipitated by the project's activities. There is need to prevent the occurrences of unfavorable effects of a project so as to enhance the sustainability of resources, the need for the concern of today's and future generations. The need to carry out this CPR was driven by the desire to ensure that the effects of the proposed project activities are positive and also to address the negative and adverse effects that may arise from the project implementation. This section presents the expected environmental and social impacts of the irrigation project and the mitigation measures to be implemented. The potential impacts may be grouped into: -

- ✓ Positive or negative impacts
- ✓ Direct or indirect impacts
- ✓ Long-term or short term in occurrence
- ✓ Widespread or localized
- ✓ Reversible and irreversible impacts

The proposed project is seen to have both positive and negative impacts to the environment (social and physical). The potential positive and negative impacts are seen to arise from the construction activities and operation phases of the project and care should be taken to avoid the negative impacts.

6.2 Environmental Impacts during Construction Phase

6.2.1 Positive Impacts

- ✓ Provision of employment opportunities for local residents, both skilled and unskilled. This can be enhanced by ensuring that the contractor gives locals the first priority when hiring workers.
- ✓ Increased business opportunities for local businesses and also increased money circulation in the local economy.
- ✓ Creation of market for construction materials. Local suppliers will be given the first priority in supply of construction materials
- ✓ The construction will involve skilled and unskilled labour, during the construction the labour force will interact with each other resulting in skill transfer.

6.2.2 Negative Impacts

- **Vegetation Loss**

There is anticipated to be an increase in clearing of vegetation so as to lay the pipes for water conveyance. The pipelines will be laid in areas, most of which are currently under farms and with some areas under road reserves which are regularly cleared. These developments therefore will disturb albeit to a minimal extent the existing vegetative cover.

Mitigation Measures

- ✓ Where possible, the clearing of vegetation more so the indigenous trees needs to be avoided during construction as much as possible and planting any cleared vegetation to restore the lost biodiversity.
- ✓ Restrict clearing to only those areas where construction works are planned.

- **Soil Erosion**

There could be an increase in the soil erosion at the area due to construction activities that involves excavation and vegetation clearing. This will remove the ground cover resulting in bare land. Vegetation will be cleared along the pipelines conveyance route leaving the soil exposed to agents of soil erosion.

Mitigation Measures

- ✓ Soil erosion control measures should be undertaken to avoid erosion in sensitive areas, farmland and those prone to erosion.
- ✓ The topsoil should be compacted after excavation
- ✓ Vegetation cover should be planted where necessary to avoid soil erosion
- ✓ Farmers to be trained on and adopt soil conservation measures

- **Solid wastes**

The construction activities will ultimately lead to the production of solid wastes primarily the soil excavated and rock debris, metal cut offs plastics, cardboards, paper, wood and waste concrete among several others. The effects of improperly managed wastes could be far reaching and may include aspects of environmental pollution, nuisance to the local communities.

Mitigation Measures

- ✓ The contractor should promote the reuse, recycling and reduction of wastes
- ✓ There should be adequate litter collection facilities (skips and waste bins)
- ✓ All the solid waste generated during construction activities should be collected and sorted into non-recyclable and recyclable and hiring licensed waste collectors to regular empty the waste bins/ skips
- ✓ Workers and beneficiaries should be sensitized on better waste management practices

- **Pollution; Dust and Air quality**

The construction activities mostly the excavation of the pipelines will generate some amount of dust which may be blown by the wind. This is likely to affect the workers and the residents of the project area and its environs due to dust emission. Other pollution sources will include diesel fumes from material transport vehicles and construction machinery.

Mitigation Measures

- ✓ The removal of vegetation should be avoided with the exposed surfaces being adequately re-vegetated.
- ✓ Construction the activities generating dust should be carried out in calm weather.
- ✓ Air pollution should be avoided by the provision of nose masks to the workers
- ✓ Regular and routine servicing of construction machinery and vehicles
- ✓ Covering of vehicles transporting materials such as sand, gravel and other materials

- **Occupational Safety and Health**

The activities shall employ some persons thereby increasing the chances of accidents or injuries. The safety and health of workers should be enhanced so as to promote productivity and should therefore be observed highly.

Mitigation Measures

- ✓ The contractor shall erect an appropriate project signboard as directed by the proponent. The signboard shall include information on the project proponent, funding organization, project contractor, project manager, Engineer among other relevant information that will be required by the proponent.
- ✓ The contractor will erect the appropriate safety signage along the construction route cautioning against various health and safety risk as and prescribing particular mandatory actions. Road signs will also be erected to warn pedestrians and motorists of construction activities and diversions at road sections where pipelines will cross.
- ✓ The contractor will provide adequate first aid facilities in the project sites to handle medical emergencies during construction
- ✓ The contractor will comply with National and international labour laws in recruiting construction staff. No child labour, workers to produce national Identity card
- ✓ All construction workers will be required to wear Personal Protective Equipment (PPE) to be provided by the contractor i.e helmets, gloves and safety boots and be sensitized on health and safety standards that they should observe.
- ✓ A comprehensive HIV/AIDs sensitization programme will be formulated to create awareness among construction workers and local community.
- ✓ Routine safety awareness for the workers and procedure of reporting and managing incidents, accidents and emergencies,
- ✓ Ensure there is adequate sanitation facilities to be installed on sites
- ✓ To have emergency preparedness and response procedures and plans and fire extinguisher for fire preparedness.

- **Health: Spread of COVID-19**

It is expected that large numbers of construction workers will interact closely in consultation engagements, meetings, toolbox talks and at work sites. This could present an enabling environment for the COVID-19 virus to spread rapidly if mitigation measures provided here are not adhered to and enforced.

Mitigation Measures

- ✓ The Contractors will develop standard operating procedures (SOPs) for managing the spread of Covid-19 during project execution and submit them for the approval of the Supervision Engineer and the Client, before mobilizing to site. The SOPs shall be in line with the World Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions;
- ✓ Mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel including workers and visitors;
- ✓ Avoid concentrating more than 15 workers at one location. Where more than one person are gathered, maintain social distancing of at least 2 meters;
- ✓ All workers and visitors accessing worksites every day or attending meetings shall be subjected to rapid Covid-19 screening which may include temperature check and other vital signs;

- ✓ The project shall put in place means to support rapid testing of suspected workers for Covid-19;
- ✓ Install hand washing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used;
- ✓ Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs, hand rails etc

- **Noise pollution**

Construction activities during the trenching for the pipelines will have a negative effect on the neighbors. Sources of noise include mechanical earth working excavators and hand tools.

Mitigation Measures

- ✓ To minimize noise around the construction site, potentially low noise equipment which is also regularly serviced should be used
- ✓ To ensure minimal disturbances of the neighboring community members at night and early morning hours, the work should be done between 8.0 am and 5.0 pm.

6.3 Environmental Impacts during Operational Phase

6.3.1 Positive Impacts

- ✓ The project will provide irrigation water for small scale farmers, to boost environmental conservation. The project should use solar pump would otherwise reduce cost during operation phase.

6.3.2 Negative Impacts

- **Water Quality Degradation**

The quality of the water is within the permissible limits as provided in the Environment Management (Water Quality) Regulations 2006. However, use of water can lead to ground water pollution thereby polluting the water bodies.

Mitigation Measures

- ✓ Waste management should be adequately streamlined to prevent the release of effluents into the environment.
- ✓ Sensitize the community/ farmers on solid and liquid waste management

- **Water logging**

During the operation stage, water logging in the farms or along the pipelines can be experienced.

Mitigation Measures

- ✓ Choosing irrigation system that is very efficient and does not cause water logging in the field
- ✓ Irrigation scheduling design should be followed to prevent an increase in the irrigation hours in one section.

- ✓ The repair and maintenance team shall drain pipeline sections to be worked on to avoid spillage of water and any bursts or leakages shall be swiftly repaired to avoid triggering land damages on steep slope.

- **Accidental pipeline leakage**

During the operation stage, accidental breakage of pipeline could lead to water overflowing in the neighbouring lands causing flooding, nuisance, and soil erosion.

Mitigation Measures:

- ✓ Ensuring that the infrastructure is designed and constructed to the required quality standards
- ✓ Sensitize the community on long term advantages of irrigation water provision
- ✓ Routine checks to detect any leakages

- **Soil Erosion**

Farming activities may lead to soil erosion or in case of pipe bursts.

Mitigation Measures:

- ✓ Soil is used for backfilling water pipeline trenches where needed
- ✓ Sprinkling of the backfilled soil with water and also compacting
- ✓ Re-vegetation of the cleared sites to improve ground cover and minimize soil erosion and also improve aesthetics of the project area
- ✓ Training of the IWUAs and Project management committee to understand their roles in catchment management
- ✓ Promote good farm management practices that aim at soil conservation
- ✓ Train farmers on soil and water management and minimum tillage to avoid land degradation

- **Salinization**

Mitigation Measures

- ✓ Avoid over irrigation during the day
- ✓ Improve soil drainage
- ✓ Sensitize the community on the need to carry out soil testing regularly

6.4 Environmental Impacts during Decommissioning Phase

6.4.1 Positive Impacts

- ✓ After demolitions related to decommission phase, the affected project site will be re-afforestated to return the ecosystem to its original state. The contractor should ensure that vegetation planted are of suitable species in the area.

6.4.2 Negative Impacts

- **The generation of solid waste**

Accumulation of solid waste after demolition

Mitigation measures

- ✓ Collection and sorting for waste disposal or recycling to ensure NEMA waste management regulation and procedures are followed as required.

- **Aesthetic beauty and possible Soil erosion**

Excavation activities during the phase will loosen soil thereby making it vulnerable to erosion due to wind and surface water runoff. Excavated soils could be swept into surface water bodies by storm water floods during rains. This will increase the turbidity and sediment loads of water bodies nearby thereby increasing the cost of surface water de-siltation.

Mitigation measures

- ✓ Restoration of the affected site through landscaping and planting vegetation cover

- **Dust and exhaust emissions**

Potential air quality degradation will occur as a result of vehicular and equipment emissions/exhaust gases. Generation of dusts from trucks and vehicles accessing the project site and camp site as well as piling of excavated material is expected to degrade the local air quality.

Mitigation measures

- ✓ The removal of vegetation should be avoided with the exposed surfaces being adequately re-vegetated.
- ✓ Construction activities generating dust should be carried out in calm weather.
- ✓ Air pollution should be avoided by the provision of nose masks to the workers
- ✓ Regular and routine servicing of construction machinery and vehicles
- ✓ Covering of vehicles transporting materials such as sand, gravel and other materials

- **Occupational hazards**

Workers and the local community will be susceptible to health and safety hazards during this phase of the project. Inherent occupational risks include falls into un -marked/uncovered trenches.

Mitigation measures

- ✓ Employers must provide and maintain clothing and appliances that are protective
- ✓ In case of accidents, injured persons should be given first aid immediately taken to hospital
- ✓ Train workers on Occupational Health, Safety and Environment with an aim of improving awareness

6.5 Socio-Economic Impacts during Construction Phase

6.5.1 Positive impacts

- ✓ Boost in business of construction materials and consumables. The contractor should ensure that he purchases materials and consumables from local businesses.
- ✓ Creation of employment. The contractor should ensure that locals are given first priority when hiring workers.

6.5.2 Negative impacts

- **Covid -19 spread**

During consultations and construction works e.g trenching, activities will lead to close interaction between the proponent and the community members leading to a high risk of spreading Covid – 19 amongst community members during the consultation process.

Mitigation Measures

- ✓ Strict adherence to Ministry of Health guidelines and protocols on prevention of spread of COVID – 19 of washing hands regularly, sanitizing, wearing facemasks and keeping social distance.

- **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 an SEA action plan with an Accountability and Response Framework as part of the Contractor-ESMP. The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). The SEA action plan will include how the project will ensure necessary steps are in place for:
  - **Prevention of SEA:** including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials;
  - **Response to SEA:** including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management;
  - **Engagement with the community:** including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights;
  - **Management and Coordination:** including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistleblower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.

- **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 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; etc
- ✓ The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation

- **Spread of communicable diseases and HIV/AIDS impacts**

In migration of people from different regions may lead to behavioral influences which may increase the spread of diseases such as HIV/AIDS.

Mitigation Measures:

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

- **Labour influx into the project area**

The project will attract labour into the project area. Like any other project with significant recruitment, the influx of labour heightens the risks associated with sexual exploitation and abuse of community members by project workers and sexual harassment between project workers. In addition, labour influx into this project area could be source of conflict between workers and the local population. The impact of conflicts because of influx of labour, though localized, temporary, reversible and noncumulative, can be severe in magnitude.

Mitigation Measures:

- ✓ Effective community engagement and strong grievance mechanisms on matters related to labour.
- ✓ Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx, including sexual exploitation and abuse
- ✓ Proper records of labour force on site while avoiding child and forced labour
- ✓ Fair treatment, non-discrimination and equal opportunity of workers.
- ✓ Comply to provisions of Labour Relations Act 2012 and Work Place Injuries and Benefits Act (WIBA 2007)
- ✓ The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a

Code of Conduct with specific provisions on protection from sexual exploitation and abuse.

- **Sanitation and hygiene in the workmen's camp**

These are also issues of concern, and if not properly addressed can lead to outbreaks of illness such as typhoid, cholera, Covid-19 etc.

Mitigation measures

- ✓ Awareness creation and sensitization on proper hygiene

- **Accidents**

Accidents caused by slipping into the dug trenches or stumbling into a heap of trenched out materials along the road.

Mitigation Measures

- ✓ Warning tapes should be put along the trench line to alert pedestrians on the dangers.
- ✓ Additionally, before the start of construction in each area, the residents should be warned of possible accidents to prevent idling around the sites.
- ✓ The workers should be provided with personal protection gear to avoid cuts on the feet, hands, and head during the course of duty. This includes helmets, gloves, and safety boots overalls, face masks and earplugs in dusty and noise activities, etc.
- ✓ Training: the foreman should train the workers on procedures to prevent accidents while on the construction site.
- ✓ The workers should be trained on first aid and provided with first aid kits
- ✓ Emergencies: the workers should be provided with emergency telephone numbers to request assistance at any time of the accident.

- **Interruption of existing infrastructure and amenities**

Mitigation Measures

- ✓ Formal request for permission to cross, break in and build the water pipeline should be sought from KeRRA in case of roads
- ✓ Formal engagement of key land and other property owners neighbouring the pipeline;
- ✓ Passing of relevant information to each of the affected parties;
- ✓ A work plan with clear responsibilities for each party should be developed to ensure smooth execution of the construction; and on completion of works, each property owner should be contacted again to give views and if complains arise the contractor should be asked to address the same.

- **Destruction/Disturbance to Physical cultural resources**

Chance finds procedures are an integral part of the Sub project ESMP and civil works contracts. If the contractor discovers archeological sites, historical sites and remains and objects, including graveyards and individuals graves during excavation or construction the contractor shall.

- ✓ Stop the construction activities in the area of the chance find
- ✓ Secure the site to prevent any damage or loss of removable object

In cases of removable antiquities or sensitive remains, the necessary procedures as provided in KCSAP ESMF shall be observed before the work is allowed to continue (Appendix …..).

6.6 Socio-economic Impacts during operation phase

6.6.1 Positive Impacts

- ✓ The water supplied will meet crop and livestock demand of the farmers within the project area. The proponent should ensure there is regular monitoring to identify and repair any leakages.
- ✓ Implementation of the project will improve communities' skills in environmental risk management and in irrigation development and management that will be a benefit in enhancing the sustainability of the project.
- ✓ Time and money saved by the community in the project area will be used in economic activities thereby improving the quality of life.
- ✓ Creation of employment during operation phases of the project. The proponent should ensure that water benefits the jobless especially the youth.
- ✓ Livelihoods diversification due to crop diversification and increase in income. The beneficiaries should be trained and support to enhance livelihood diversification.

6.6.2 Negative impacts

- **Covid -19 spread among community members during operation**

Mitigation Measures

- ✓ Ensure strict adherence to Ministry of Health guideline and protocols to prevent of spread of COVID – 19 of wearing mask, washing hands, keeping social distance and sanitizing.

- **Sexual exploitation and abuse of community members by project workers**

This impact refers to sexual exploitation and abuse committed by project workers/ project employee against communities especially when they are not clear about prohibitions against SEA in the Project.

Mitigation Measures

- ✓ Develop and implement an SEA action plan with an Accountability and Response Framework. 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 COCs and ongoing sensitization of the project employees on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials;
    - **Response to SEA:** Including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management;
    - **Engagement with the community:** Including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement

activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights;

- **Management and Coordination:** Including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistleblower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.

- **Gender-Based Violence at the community level**

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 on the matters related to the utilization of water.

Mitigation Measures:

- ✓ The project management 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; etc
- ✓ The project management will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation

- **Spread of communicable diseases and HIV/AIDS impacts**

The irrigation project may result into influx of people from different areas including towns and markets and this may lead to behavioral influences which may increase the spread of diseases such as HIV/AIDs.

Mitigation Measures:

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

- **Inequity issues on resource accessibility**

Mitigation measures

Use of gender action research approach to reduce the existing and potential gender and social disparities,

- ✓ Targeting and empowering women at household level to manage water resources and related irrigation technologies.
- ✓ Increasing women's and youth access to market and production information, joint financial services and mobile money services.

- ✓ Mobilize group of women and youth to adopt technology to ensure ore accountability for management use ,and transparent of benefits
- ✓ Strengthen the role of women, improving their ability to enhance self –esteem, degree of integration, and position and increasing their democratic participation in water management
- ✓ Train women and youth in production issues
- ✓ Highlight and value women's contribution to their household's economy
- ✓ Sensitization of the community and workers on sexual issues

- **Community disputes, transparency and accountability issues**

Water use by the community may cause some conflicts as to the quantity being used at a particular time.

Mitigation measures

- ✓ The Irrigation Water Users Association (IWUA) will guide on the use of water in the farms.
- ✓ Develop strict by- laws that will guide on water usage and conflict resolution in the irrigation project
- ✓ Conduct farmers training on group dynamics and best irrigation practices that aims at efficient water use
- ✓ Establish a Grievance Redress Mechanism

- **Inter/ Intra community conflicts (due to competition for resources / project benefits). among members**

Owing to the high demand for irrigation water there could occur management conflicts in water use.

Mitigation measures

- ✓ The ministry of water and irrigation should work with the relevant institutions to streamline the management of water
- ✓ Project management committee to be trained on water management

6.7 Socio-Economic Impacts during decommissioning Phase

6.7.1 Positive Impacts

- ✓ Re-use of the reusable materials. Contractor should ensure that there is minimal destruction of property.
- ✓ Creation of employment opportunities. The contractor should ensure that locals are given the first priority.
- ✓ Generation of government revenue through taxation of fuel used by decommissioning machinery.

6.7.2. Negative Impacts

- **Sexual Exploitation and Abuse (SEA)**

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

Mitigation Measures

- ✓ Develop and implement an SEA action plan with an Accountability and Response Framework as part of the Contractor-ESMP. The SEA action plan will include how the contractor will ensure necessary steps are in place for:
  - **Prevention of SEA:** including COCs and ongoing sensitization of workers 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; workers 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; 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.

- **Spread of communicable diseases and HIV/AIDS impacts**

In migration of people from different regions to be involved in decommission phase may lead to behavioral influences which may increase the spread of diseases such as HIV/AIDS.

Mitigation Measures:

- ✓ 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 decommission crew and provision of ARVs for vulnerable community members

- **Gender-Based Violence (GBV) at the community level**

This impact refers to gender-based violence at the community level that women and girls may experience during decommissioning phase. This also refers to other GBV-related risks incurred as a result of inadequate women and adolescent girls consultation in the community about safety and security issues related to the decommissioning phase.

Mitigation Measures:

- ✓ The contractor will implement provisions that ensure that GBV at the community level is not triggered by the Project, including:
  - effective community engagement and consultation, particularly with women and girls;
  - Specific plan for mitigating these known risks, e.g. sensitization around gender equitable approaches to compensation and employment; etc
  - The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation

CHAPTER SEVEN: ANALYSIS OF PROJECT ALTERNATIVES

7.1 The 'no project' alternative

The selection of the "No project alternative" would mean the discontinuation of the proposed irrigation project. There are physical, biological and socio-economic implications of this alternative. Physically the project area is likely to undergo major changes from its present condition due to the continuous degradation of the environment through timber and charcoal burning as sources of livelihoods. Biologically, the vegetation present in the project is likely to be severely affected due to poor agricultural practices.

The "No project" alternative is likely to have the greatest loss of the anticipated socio-economic benefits that include opportunity for employment, food security, improved living standards and general wellbeing of the local people throughout the construction and operation phases of this project. In addition, this option will undermine Kenya's Vision 2030 on irrigation intensification and expansion that is aimed at increasing agricultural productivity.

The implementation of the proposed project by KCSAP and as outlined in this ESIA document has good support based on the outcomes of the consultation with various stakeholders and the project beneficiaries. The project has been designed to meet the national policies and legal statutes on irrigation. The design has taken into consideration the water flows and the amount of water that can be abstracted from river water quality, crop water requirements, and sustainability of the irrigation system through operation and maintenance.

7.2 Alternative irrigation technologies and water storage

Due to the anticipated water shortage in the project area, a proposed system to be promoted in the farms is drip irrigation system and sprinkler type. In addition, the community should be supported in utilizing other alternative water sources such drilling of boreholes, construction of farm level water ponds and water tanks as storage sources for water.

7.3 Alternative site

If the stakeholders totally fail to agree on the best way forward then the donor may choose another project in the county which may not necessary benefit the same community but contributes for food security of the county. The suggested area is in Bulesa in Merti Sub County.

7.4 Alternative supportive donors

Stakeholders identified donors that can assist in the dam excavation activities are; ENNDA, NDMA, Community, NRT conservancy, Water Services Trust Fund, Action AID, World Vision, CRS, Red Cross, World Bank and CARITAS. These donors can be approached by the community to request for support in dam excavation.

7.5 Alternative design

There is need to have a number of equipment compared to the existing ones. The alternative design can be compared with the base case design.

7.6 Mitigation for the Proposed Action

Mitigation measures, including best environmental management practices, have been recommended in this Project Report, and if implemented will help to protect the physical, ecological and socio-economic environment of the affected area. Commitments included in this Project Report, as well as licenses and other authorizations that would be issued, are designed to avoid environmental degradation in accordance with the Environmental Management and Coordination Act, 1999. The Proponent undertakes to incorporate all necessary measures to ensure adverse impacts are mitigated to the maximum extent practicable during all the project phases.

CHAPTER EIGHT: ENVIRONMENTAL AND SOCIAL MANAGEMENT MOITORING PLAN (ESMMP)

8.1 Background

The Environmental and Social Management and Monitoring Plan (ESMMP) outlined below addresses the identified issues of concern (potential negative impacts) and mitigation measures, responsibility, monitoring indicators, means of verification, monitoring frequency and estimated cost of implementation. The ESMMP considered construction, operation and decommissioning phases. The project proponent shall avail this ESMMP to the successful contractor awarded the tender for construction work for this report. The contractor will be required to formulate a more specific contractor Environmental and Social Management and Monitoring Plan (C-ESMMP) and work methods that will ensure construction of the project in compliance with established standards and legislation. The contractor will factor the costs of implementing ESMMP into their budget. The project proponent will take the necessary steps to ensure that the ESMMP is fully implemented. Table 4 below presents the summary of the ESMMP during construction, operation and decommission phases.

Table 4: Summary of ESMMP

Project potential impact	Mitigation Measure	Responsibility	Monitoring Indicators	Means of verification	Monitoring Frequency	Est. Cost Kshs.
Preparatory Phase						
Risk of Spread of covid-19 during the consultations meetings.	✓ Ensuring that Ministry of Health guidelines and protocols on prevention of spread of COVID -19 are strictly adhered to.	Proponent	No. of people using face marks. No. of hand washing facilities No. of notices	Purchase orders Photos	Monthly	20,000
Construction Phase						
Vegetation loss	✓ Avoid excessive bush clearing; where possible adopt re-vegetation around the water intake and along pipeline to restore the lost biodiversity ✓ Restrict clearing to only those areas where construction works are planned	Contractor	No. of trees planted	Purchase orders Photos	Monthly	100,000
Soil erosion	✓ Soil erosion control measures should be undertaken. ✓ The topsoil should be compacted after excavation. ✓ Vegetation cover should be planted where necessary.	Contractor	No. of soil erosion measures in place No. of trees and other vegetation planted	Purchase orders Photos	Monthly	50,000
Solid wastes generation	✓ Promote the reuse, recycling and reduction of wastes. ✓ Provide adequate litter	Contractor	No. of litter collection facilities No. of workers	Purchase orders Photos Reports	Monthly	70,000

	collection facilities (skips and waste bins) ✓ All the solid waste generated should be collected and sorted into non-recyclable and recyclable and hiring licensed waste collectors to regular empty the waste bins/ skips ✓ Sensitized workers on ISWM		sensitized on ISWM			
Pollution; Dust and Air Quality Concerns	✓ Avoid and re-vegetate exposed re-vegetated. ✓ Construction the activities generating dust should be carried out in calm weather. ✓ Provide PPEs (nose masks) to the workers ✓ Regular and routine servicing of construction machinery and vehicles ✓ Covering of vehicles transporting materials such as sand, gravel and other materials	Contractor	No. of machinery and vehicles serviced No. of workers using PPEs (nose masks) No. of trees and other vegetation planted	Purchase orders Photos	Monthly	100,000
Occupational Safety and Health	✓ Erect an appropriate project signboard ✓ Erect the appropriate safety signage along the construction route cautioning against various health and safety risk ✓ Provide adequate first aid facilities in the project	Contractor	No. of workers using PPEs No. of first aid kits	Purchase orders Photos Reports	Monthly	100,000

	sites ✓ Provide workers with PPEs ✓ Formulate comprehensive HIV/AIDs sensitization programme ✓ Routine safety awareness for the workers and procedure of reporting and managing incidents, accidents and emergencies,					
Health: Spread of COVD - 19	✓ Strict adherence to Ministry of Health guidelines and protocols on prevention of spread of COVID – 19 of washing hands regularly, sanitizing, wearing facemasks and keeping social distance.	Contractor	No. of hand washing facilities. No. of sanitizers No. of workers using face masks	Purchase orders Photos	Monthly	80,000
Noise Pollution	✓ Use of potentially low noise machinery and equipment. ✓ Workers working on noisy places to be provided with PPEs (ear protectors) ✓ Regular maintenance of machinery and equipment ✓ Working during the day between 8AM and 5PM.	Contractor	No. of regularly maintained machinery and equipment	Purchase orders Photos Reporting confirmation schedule	Monthly	50,000
Accidents	✓ Warning tapes should be put along the trench line to alert pedestrians on	Contractor	No. of accidents No. of people using PPEs	Purchase order Accident	Monthly	100,000

	the dangers ✓ Residents should be warned of possible accidents before start ✓ Provide workers with PPEs ✓ Train workers on procedure to prevent accidents ✓ Train workers on first aid and provide first aid kits ✓ Provide emergency telephone numbers in the site		No. of first aid kits No. of emergency telephone numbers	record Photos		
Interruption of existing infrastructure and amenities	✓ Formal request for permission to cross, break in and build the water pipeline. ✓ Formal engagement of key land and other property owners ✓ A work plan with clear responsibilities for each party should be developed.	Contractor	No. of formal request for permission No. of land owners engaged formally	Land ownership documents	Once off	10,000
Destruction/Disturbance of Physical culture resources	✓ Stop the construction activities in the area of the chance find ✓ Secure the site to prevent any damage or loss of removable object	Contractor	No. of secured sites	Photo	Monthly	To be determined
Sexual Exploitation and Abuse (SEA)	✓ Develop and implement an SEA action plan with an Accountability and Response Framework as	Contractor	No. of SEA action plan developed	SEA action plan (s)	Monthly	70,000

	part of the Contractor-ESMP. The 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.					
Gender Based Violence (GBV)	✓ 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, - Specific plan for mitigating these known risks, e.g. sensitization around gender equitable approaches to compensation and	Contraction	No. of community engagement and consultation meetings held. No. of specific project components reviewed known to heighten GBV.	Meeting reports	Monthly	50,0000

	employment; etc - Ensuring adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.					
Spread of HIV/AIDS	✓ 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	Contractor	No. of workers sensitized	Reports of sanitation meetings	Monthly	30,000
Labour Influx	✓ Effective community engagement and strong grievance mechanisms on matters related to labour. ✓ Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx. ✓ Proper records of labour force on site while avoiding child and forced labour ✓ Fair treatment, non-discrimination and equal	Contractor	No. community engagement meetings	Meeting reports	Monthly	50,000

	opportunity of workers. ✓ Comply to provisions of Labour Relations Act 2012 and Work Place Injuries and Benefits Act (WIBA 2007) ✓ Ensure those employees, sub-contractors, sub-consultants, and any personnel thereof to individually sign and comply with a Code of Conduct with specific provisions on protection from SEA.					
Sanitation and hygiene	✓ Awareness creation and sensitization on proper hygiene.	Contractor	No. of awareness creation and sensitization meetings	Reports	Monthly	20,000
Operational and Maintenance Phase						
Water Quality	✓ Waste management should be adequately streamlined to prevent the release of effluents into the environment. ✓ Sensitize the community/ farmers on solid and liquid waste management.	Project management	No. of meetings conducted	Meeting reports	Monthly	20,000
Water logging	✓ Choosing irrigation system that is very efficient and does not cause water logging in the field ✓ Irrigation scheduling	Project management	No. of maintenance conducted	Records	Monthly	50,000

	design should be followed. ✓ Regular maintenance of pipeline to avoid spillage of water and any bursts or leakages.					
Accidental pipeline leakage	✓ Ensuring that the infrastructure is designed and constructed to the required quality standards. ✓ Sensitize the community on long term advantages of irrigation water provision. ✓ Routine checks to detect any leakages	Project management	No. of sensitization meetings No. of checks conducted	Reports of the meetings Records	Monthly	50,000
Soil erosion	✓ Use soil for backfilling water pipeline trenches. ✓ Sprinkling of the backfilled soil with water and also compacting. ✓ Re-vegetation of the cleared sites to improve ground cover and minimize soil erosion ✓ Training project management committee to understand their roles in catchment management. ✓ Promote good farm management practices that aim at soil conservation.	Project management	No. of trainings conducted Presence of backfilled trenches	Training reports Photos	Monthly	50,000
Salinization	✓ Avoid over irrigation	Project	No. of meetings	Meeting	Monthly	50,000

	during the day ✓ Improve soil drainage ✓ Sensitize the community on the need to carry out soil testing regularly	management		reports Photos		
Spread of COVID – 19	✓ Ensure strict adherence to Ministry of Health guideline and protocols to prevent of spread of COVID – 19 of wearing mask, washing hands, keeping social distance and sanitizing. ▪	Project management	No. of hand washing facilities No. of Sanitizers No. of people using facemasks	Purchase orders Photos	Monthly	50,000
Sexual Exploitation and Abuse (SEA)	✓ Develop and implement an SEA action plan with an Accountability and Response Framework as part of the Contractor-ESMP. The 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.	Project management	No. of SEA action plan developed and implementation	SEA action plan	Monthly	50,000
Gender Based Violence (GBV)	✓ Implement provisions that ensure that Gender Based Violence at the community level is not triggered by the Project, including:	Project management	No. of community engagement and consultation meetings held. No. of specific	Meeting reports	Monthly	50,0000

	- 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, - Specific plan for mitigating these known risks, e.g. sensitization around gender equitable approaches to compensation and employment; etc Ensuring adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation		project components reviewed known to heighten GBV.			
Spread of HIV/AIDS	✓ Sensitize project 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	Project management	No. of meetings	Reports	Monthly	30,000

	project workers and provision of ARVs for vulnerable community members					
Inequity on resource accessibility	✓ Targeting and empowering women at household level to manage water resources and related irrigation technologies. ✓ Increasing women's and youth access to market and production information, joint financial services and mobile money services. ✓ Mobilize group of women and youth to adopt technology to ensure ore accountability for management use ,and transparent of benefits ✓ Strengthen the role of women, improving their ability to enhance self – esteem, degree of integration, and position and increasing their democratic participation in water management ✓ Train women and youth in production issues ✓ Highlight and value women's contribution to their household's economy.	Project management	No. of trainings No. of technology adopted No. of sensitization meetings	Reports Photos	Monthly	50,000

	✓ Sensitization of the community and workers on sexual issues					
Community disputes, transparency and accountability	✓ Develop strict by- laws that will guide on water usage and conflict resolution in the irrigation project ✓ Conduct farmers training on group dynamics and best irrigation practices ✓ Establish a Grievance Redress Mechanism	Project management	No. of by-laws developed No of trainings GRM established	Copy of by-laws Training reports GRM records	Monthly	70,000
Inter/ Intra community conflicts (due to competition for resources / project benefits).	✓ Project management committee to be trained on water management.	Project management	No. of trainings conducted	Training reports	Monthly	40,000
Decommissioning Phase						
Generation of solid wastes	✓ Collection and sorting for waste disposal or recycling to ensure NEMA waste management regulation and procedures are followed as required.	Contractor	No. of solid waste management strategy	Solid waste management strategy	Monthly	To be determined
Soil erosion	✓ Soil conservation measures such as soil compaction and planting cover vegetation	Contractor	No. of trees and other vegetation planted	Purchase orders Photos	Monthly	To be determined
Impact on aesthetic beauty	✓ Restoration of the affected site through landscaping	Contractor	No. of trees/vegetation planted	Purchase orders Photos	Monthly	To be determined

Dust and exhaust emission	✓ Avoided removal of vegetation where possible with the exposed surfaces being adequately re-vegetated. ✓ Construction activities generating dust should be carried out in calm weather. ✓ Provide PPEs o the workers e.g nose masks ✓ Regular and routine servicing of machinery and vehicles ✓ Covering of vehicles transporting materials demolition materials	Contactor	No. of workers using PPEs No. of machinery and vehicles serviced	Purchase orders Service records Photos	Monthly	To be determined
Occupational hazards	✓ Provide and maintain clothing and appliances that are protective ✓ In case of accidents, injured persons should be given first aid immediately taken to hospital ✓ Train workers on Occupational Health, Safety and Environment with an aim of improving awareness	Contractor	No. of workers using PPEs No. of first aid kits provided No. of workers trained on first aid	Purchase orders Training reports Photos	Monthly	To be determined
Sex Exploitation and Abuse (SEA)	✓ Develop and implement an SEA action plan with an Accountability and Response Framework as part of the Contractor-ESMMP. The SEA action	Contractor	No. of SEA developed and being implemented	SEA Plan	Monthly	To be determined

	plan will include how the contractor will ensure necessary steps are in place for: - Prevention of SEA. - Response to SEA. - Engagement with the community.					
Spread of HIV/AIDS	✓ 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	Contractor	No. of sensitization meeting	Meeting reports Attendance list Photos	Monthly	To be determined
Gender Based Violence (GBV)	✓ Implement provisions that ensure that Gender Based Violence at the community level is not triggered including: - Effective community engagement and consultation, particularly with women and girls; - Specific plan for mitigating these known risks, e.g. sensitization around gender equitable approaches to	Contractor	No. of engagements and consultation meetings	Meeting reports Attendance list Photos	Monthly	To be determined

	compensation and employment; etc - Ensuring adequate referral mechanisms are in place if a case of GBV .					
TOTAL						**1,410,000**

CHAPTER NINE: CONCLUSIONS AND RECOMMENDATIONS

The ESIA team assessed the significance of the environmental impacts of the proposed project based on the following standard criteria: - Geographical extent of the impacts; - Reversibility or irreversibility of the impacts; - Social acceptance of the project; - Consistency with the government policy objectives (Agriculture and environment among others); - Relationship with pre-set criteria (existing legislation, standards etc.); - Precedents set from similar projects implemented in similar environmental conditions. The conclusions and recommendations arising thereof based on each of the criteria are:

i. Geographical Extent of the Impacts: The identified negative impacts on the natural environment are all very localized and mostly confined to the precincts of the site. Soil erosion, pollution and land degradation impacts that may occur can be effectively alleviated if all the proposed mitigation measures are put in place. ii. Reversibility/Irreversibility of the identified Impacts: Most of the identified impacts can be prevented or reversed by use of environmentally sustainable agricultural and water use practices. Occupational health hazards during the project operational phase, particularly those arising from the careless handling of oils and other chemicals could be injurious to human health. Such impacts are significant and irreversible, and it is therefore critical that the project proponent puts in place all the proposed mitigation measures on occupational health and safety.

iii. Social Acceptance of the Project: Interviews conducted with members of the stakeholders and community members during the public consultation revealed they welcomed the project, as it will also provide jobs and incomes. Furthermore, the proposed project will address the constraints and challenges that the community is currently experiencing which is Food insecurity for the community.

iv. Consistency with the Government Policy Objectives (Agriculture and Environment among others): The proposed project is in line with the government-stated policies on agricultural development whose main objectives are food security, employment creation, income generation, increasing foreign exchange earnings and rural industrial development. Private sector participation is also encouraged. With regard to the environment, the project proponent is committed to ensuring that all their operations are done in an environmentally sustainable manner and will put in place mechanisms and mitigation measures that ensure that the project does not degrade the environment.

v. Relationships with pre-set Criteria (existing Legislation, Standards etc): This project is not in contravention of any of the existing laws and standards. Further to this, the project proponent will ensure that the relevant laws and standards are upheld throughout the project cycle. Other recommendations made with respect to the planned water pan are:

i. A complete audit be undertaken and submitted to NEMA a year after the project is commissioned to ensure that all the proposed mitigation measures have been complied with;

ii. Construction works in the planned project be carried out in accordance with approved designs, regulations, policies and laws;

(iii) An action plan for the catchment protection and conservation be developed and implemented in line with the requirements of the Water Act, 2016 and the Environmental

Management and Coordination Act Cap387 and any other applicable laws. This action plan should involve key stakeholders, WRUA, IWUA, lead organizations including the Water Resources Authority and National Environment Management Authority.

iv. The Operation and Maintenance of the water project should comply with the Best irrigation management practices and the principles of environmental management of sustainability, intergenerational equity, prevention, precaution, polluter pays and public participation; and

v. The Contractor and the proponent are required to strictly adhere to the provided ESMP including the continuous evaluation and adaptation of this plan during the course of project construction and operation. Overall, provided the community irrigation project is implemented with due attention to the mitigation and management measures outlined, the project will have a positive impact on both the bio-physical and socio-economic environment of the project area. The ESIA experts therefore recommend that this ESIA Project Report be approved and licensed by NEMA

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Annex 1: Summary BoQ

GRAND SUMMARY		
Bill No.	Description	Amount (KSh)
1	PRELIMINARIES AND GENERAL	1,190,000.00
2	CONVEYANCY PIPELINE	3,711,120.00
3	MAIN PIPELINE	1,057,040.00
4	LATERALS	15,455,210.00
5	IN-FIELD SYSTEM	2,497,400.00
6	PUMP AND SOLAR INSTALLATION	7,479,360.00
7	FENCING AND GABION CONSTRUCTION	7,552,410.00
8	PUMP HOUSE	723,558.53
	Sub-Total	**39,666,098.53**
	Add 5% Cntingency	**1,983,304.93**
	Add 3% Supervision	**1,189,982.96**
	GRAND TOTAL	**42,839,386.41**

Annex 2: Land ownership document (Letter of no objection)

CHARI WARD PLANNING COMMITTEE
Date: ....
ISIOLO COUNTY

Community
For KAYO FARM

Kenya Climate Smart Agriculture Project

ISIOLO COUNTY GOVERNMENT

To: Chief Officer Lands

County Government of Isiolo

RE: LETTER OF NO OBJECTION BY BULESA COMMUNITY

Following the public participation and consultation meetings done by the county Government of Isiolo with the community and other stakeholders on 17[th] October 2019, they agreed that they wil donate community land for development of an Irrigation Scheme. They agreed to set aside 500 acres of land for the development of the irrigation scheme.The irrigation scheme is divided into three units namely; Kayo – 300 acres, Chachane- 200 Insene

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

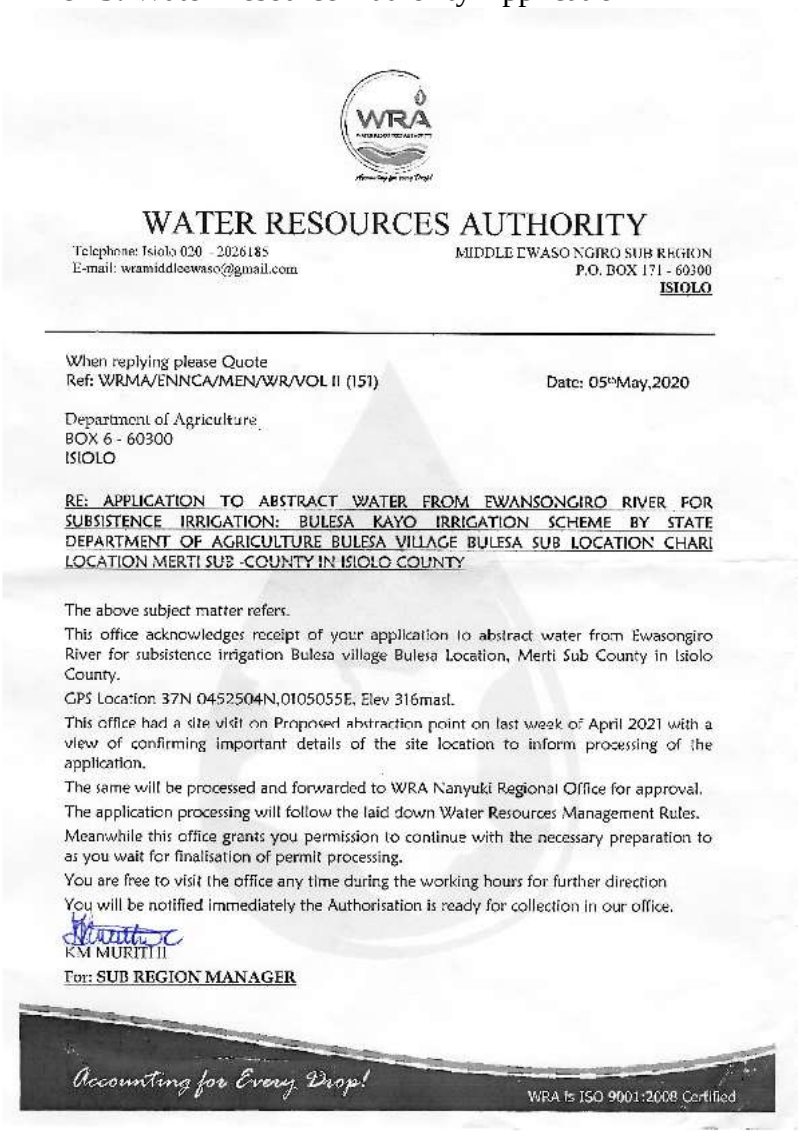
1. Ward Administrator Hussein Kawe ....
2. Chief Hassan M. Adan ....
3. Committee Members
   (i) MOHAMED ABDUBA KALLA 5279197
   (ii) ABDI GALGALO BIDA - 5053590
   (iii) Wario Kijibile - ARERO - 4292573
   (iv) ABDULLA DUBA HAFFE - 8205394
   (v) Hassan Boru Guyo - 3470991
   (vi) Ali Duba Dido - 0010663
   (vii) Mohamed Okoba Abakule - 0914178
   (viii) ADAN Ali - 11274428
   (ix) Hadija Salat Hapicha - 36892356
   (x)

ISIOLO COUNTY GOVERNMENT
WARD ADMINISTRATOR
CHARI WARD
Date: 17/12/19

ASSISTANT CHIEF
GUDA ... LOCATION

CHARI WARD PLANNING COMMITTEE
Date: 18/12/2019
ISIOLO COUNTY

Annex 3: Water Resource Authority Application



WATER RESOURCES AUTHORITY

Telephone: Isiolo 020 - 2026185
E-mail: wramiddleewaso@gmail.com

MIDDLE EWASO NGIRO SUB REGION
P.O. BOX 171 - 60300
ISIOLO

When replying please Quote
Ref: WRMA/ENNCA/MEN/WR/VOL II (151)

Date: 05th May,2020

Department of Agriculture
BOX 6 - 60300
ISIOLO

RE: APPLICATION TO ABSTRACT WATER FROM EWANSONGIRO RIVER FOR SUBSISTENCE IRRIGATION: BULESA KAYO IRRIGATION SCHEME BY STATE DEPARTMENT OF AGRICULTURE BULESA VILLAGE BULESA SUB LOCATION CHARI LOCATION MERTI SUB -COUNTY IN ISIOLO COUNTY

The above subject matter refers.

This office acknowledges receipt of your application to abstract water from Ewasongiro River for subsistence irrigation Bulesa village Bulesa Location, Merti Sub County in Isiolo County.

GPS Location 37N 0452504N,0105055E, Elev 316mast.

This office had a site visit on Proposed abstraction point on last week of April 2021 with a view of confirming important details of the site location to inform processing of the application.

The same will be processed and forwarded to WRA Nanyuki Regional Office for approval.

The application processing will follow the laid down Water Resources Management Rules.

Meanwhile this office grants you permission to continue with the necessary preparation to as you wait for finalisation of permit processing.

You are free to visit the office any time during the working hours for further direction

You will be notified immediately the Authorisation is ready for collection in our office.

KM MURITHI

For: SUB REGION MANAGER

Accounting for Every Drop!

WRA is ISO 9001:2008 Certified

Annex 4: Letter of Chance Find Procedure

ISIOLO COUNTY GOVERNMENT

OFFICE OF THE MEMBER OF COUNTY ASSEMBLY

CHARI WARD

RE: LETTER OF CHANCE FIND PROCEDURE

The subject of chance find above was brought to the office of the ward administrator by Bulesa community members who intend to expand their farming activities courtesy of Kenya Climate Smart Agriculture project. This is as per request of Kenya Climate Smart Agriculture Project.

I hereby declare that the land where the irrigation scheme is supposed to developed is;

- community land
- That there are no cultural resources which include; movable or immovable objects, sites structures, natural features, landscapes that have archaeological, paleontological, historical, archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance including sites and unique natural values.

I therefore assure the KCSAP office that they can go ahead with the implementation of the proposed irrigation scheme.

Ali Dima
Member of County Assembly
Chari Ward

Annex 5: Sample of public participation 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

1

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

.....

.....

.....

.....

.....

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

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

(specify)..... Noise -

.....

.....

.....

.....

MITIGATION

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

Air Pollution – Buy Mask For use during Spray.

Name of the respondent Fatuma Halake wako

Address ✓ phone number 0742923746

Identity card number 25777423 Signature

Approximate distance from the proposed site

Date 12/3/2021

Annex 6: Screening Checklist

Bulesa

KCSAP ISIOLO COUNTY –ESS 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 COUNTY.....	
Name of CSU/Monitoring Officer/Researcher ..... BASHIR DUBA.....	
Sub-project location..... BULESA..... Name of CBO/Institution..... KATO FARM IRRIGATION Postal Address:..... Contact Person..... BASHIR DUBA..... Cell phone:..... 0792769012 Sub-project Name..... KATO FARM.....	
Estimated cost (KShs.).....	
Approximate size of land area available for the sub-project..... 700 Hectares Objectives of the subproject..... Increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and Pastoral communities in the area.	
Activities/enterprises undertaken.....	
How was the sub-project chosen?..... By Community..... Expected subproject duration:..... THREE MONTH.....	

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?	☐	☑

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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: ABDULLAHI Guyo Waqo

Position / Community: Bulesa youth representative

Date 9/6/2021

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

Recommendation by County director of Environment (CDE)

.....

.....

.....

Name of CDE .....

Signature: ..... **Date** 13/6/2021

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY ISIOLO COUNTY
COUNTY DIRECTOR OF ENVIRONMENT

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 7: Minutes of public participation meeting

Annex 8: Attendance list of public participation meeting

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

LIST OF ATTENDANCE

Activity: Public Participation - Bulesa Borehole / Irrigation Scheme

Date: 9/6/2021

S/No	NAME	ID NO	GENDER	CONTACT Telephone: Email:	SIGN
1.	Galgallo Gufu	0367128	m	0724148166	
2.	GODANA WARIO	27897287	M	0720994001	
3.	FATO KASSIM	35312757	M	0798488455	
4.	SADIA MOHAMED	37166702	F	0742972548	
5.	ADAN HALKANO	35312194	M	0725108749	
6.	JUMA HALKANO	36871979	M	0703351892	
7.	HALIMA KASSIM	21306564	F	0112073057	
8.	SAFIA ALI	25903956	F	0793769522	
9.	HALIMA KORMA	27864935	F	0721373298	
10.	FATUMA ALI	25782358	F	0748125236	
11.	HALIMA HALLO	8052427	F	0708891343	
12.	SUF GALMA	0010629	F	0769036035	
13.	HALIMA BUKE	8053520	F	0742922520	
14.	ABDI JATTANI	11183141	M	0705607081	
15.	HUSSEIN GOLOMPO	22855278	M	0746000193	
16.	ALI GOLICHA	0010367	M	0703806297	
17.	HALIMA WAKO	0364571	F	0742923705	
18.	Adan SORA	0008697	M	0721373822	
19.	IBRAHIM GALGALO	0008901	M	0713472288	
20.	ADAN ALI BORU	11274428	M	0702123600	
21.	Guyo ROBA GUYO	11275229	M	0701503213	
22.	GALGALO OTONA	0010929	M	0721373258	
23.	KABALE OTONA	29271921	F	0742681580	

Kenya Climate Smart Agriculture Project

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

LIST OF ATTENDANCE

Activity.....

Date.....

S/No	NAME	ID NO	GENDER	CONTACT Telephone: Email:	SIGN
1.	SALAD GOLLO	22892899	M	0792768924	SG
2.	ABDI GALGALO	8053890	M	0791758086	
3.	GUYATU ROBA	29023055	F	0768472524	
4.	KABALE ABGUDO	0010618	F	0742922554	
5.	MOHAMED NAKO	24579101	M	0701562411	
6.	MOLU NURIA HALKANO	8335626	F	0759414277	
7.	KANISO ROBA	25905756	F	0742865799	
8.	BARUWA ABAKUTO	35312051	F	0742927430	
9.	ADAN ALI BORU	11274428	M	0702123600	
10.	ORGE BALE MOLU	26788662	F	0742922555	OB
11.	ABDUBA HALKANO	29217811	M	0798937432	
12.	HALKANO GOLO	0008785	M	0742927394	
13.	NASIR ABDI	23398843	M	0792262156	
14.	HAWO TOPA KUMBI	26670283	F	0794183368	
15.	Abdubaa Dambella	12542629	M	0704766123	
16.	Galgalo Shana	32156259	M	0793856688	
17.	Hadiga Liba	7767833	F	0742927394	HL
18.	Hassan Gurecho	35310575	M	0745819593	
19.	Jumale Golme	35311421	M	0704609451	
20.	Salad Halkano	26690743	M	0704509683	
21.	Osman Kuya	27812452	M	0713340107	
22.	NADHIFA ALI	31463680	F	0703211366	
23.	Abdiazziz Adan	22616388	M	0729705434	

Annex 9: EIA/EA Expert practicing licence 2021

Annex 10: Photos

Public participation meeting photos

Photos of river Ewaso Nyiro and a section of project area

Copy of expert license certificate

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