



ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR

THE PROPOSED CHEPCHIRIK COMMUNITY WATER PAN IN BUCHENGE
SUB LOCATION, KAPSAOS WARD, AINAMOI SUB-COUNTY,
KERICHO COUNTY

BENEFICIARY

CHEPCHIRIK VILLAGE COMMUNITY

PROJECT PROPONENT

KENYA CLIMATE SMART AGRICULTURE PROJECT (KCSAP)
DEPARTMENT OF AGRICULTURE, LIVESTOCK AND FISHERIES

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P.O BOX 112 - 20200 KERICHO

PROJECT SPONSOR

GOVERNMENT OF KENYA/COUNTY GOVERNMENT OF KERICHO
WITH SUPPORT FROM THE WORLD BANK

MARCH, 2019



PARTICIPATING CONSULTANTS

The following table shows the list of the participating consultants in the Environmental Impact Assessment for the **Proposed Chepchirik Community Water Pan Project**.

Table 1: List of the Participating Consultants

NAME	CONSULTANTS QUALIFICATIONS
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DECLARATION

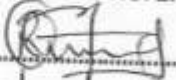
I, the undersigned submit the following Environmental Impact Assessment (EIA) project report for the Proposed Chepchirik Community Water Pan project.

To my knowledge all information contained in this report is accurate and truthful representation of all findings as relating to the proposed project.

NEMA EIA/EA LEAD EXPERT

MR. RAPHAEL KIPKIRUI NGETICH

EIA/AUDIT EXPERT REG NO. 2712

SIGNATURE: 

DATE: 13/05/2019

MR. RAPHAEL K. NGETICH
P.O. Box 426-20210 LITEIN
NEMA LEAD EXPERT
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DATE:

PROPONENT

ON BEHALF OF THE COUNTY GOVERNMENT OF KERICHO

C/O: KENYA CLIMATE SMART AGRICULTURE PROJECT (KCSAP)

NAME: Eng. Odoyo J. Bittar

DESIGNATION: County Project coordinator

SIGNATURE: 

DATE: 30 May 2019

COUNTY PROJECT COORDINATOR
KENYA CLIMATE SMART
AGRICULTURE PROJECT
30 MAY 2019
KERICHO COUNTY

ACRONYMS

°C	Degrees Celsius
V	Volts
Ft	Feet
Ha	Hectare
KM	Kilometers
BGL	Below Ground Level
KVA	Kilo Volts Amperes
PEC	Poverty Eradication Commission
PPE	Personal Protective Equipment
TOR	Terms of Reference
TSS	Total Suspended Solids
NEC	National Environment Council
KFS	Kenya Forestry Service
EIA	Environmental Impact Assessment
IEA	Initial Environmental Audit
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
EMC	Estate Management Company
CPP	Consultation and Public Participation
EMP	Environmental Management Plan
KCSAP	Kenya Climate Smart Agriculture Project
KWS	Kenya Wildlife Services
Kshs	Kenya Shillings
IMCE	Inter-Ministerial Committee on Environment
OSHA	Occupational Safety and Health Act
EMCA	Environmental Management Coordination Act
NEAP	National Environment Action Plan
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations
NPEP	National Poverty Eradication Plan
WRA	Water Resources Authority
WSSD	World Summit for the Social Development

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EXECUTIVE SUMMARY

Introduction:

This project report presents the outcomes of an environmental impact assessment (EIA) for the proposed Chepchirik Community Water Pan in Buchenge Sub-location, Kapsaos Ward of Kericho County. The proposed project is located on Public Land N0: **KER/KAPSAOS/1339** on GPS Coordinates: **Lat. 00° 15.768'S & 35°19.836'E**. It was proposed by the Chepchirik Water Development Group led by a 14-member committee comprising of five (5) Women and nine (9) Men; democratically elected by the Chepchirik Village Community. The group is among the many community based institutions that participated during public engagement process that led to the formulation of phase-II of Kericho County Integrated Development Programme (CIDP-II) for the period, 2017-2022. Members of the group will form part of the project management committee (PMC) intended to oversee implementation of project under the leadership of Kericho County Project Coordination Unit (CPCU). The interventions of the project are classified under two categories namely; natural resources conservation and livelihood improvement; and community participation and capacity building.

The specific intervention measure proposed in this project is the construction of a Water-pan, which is a climate smart agriculture (CSA) management practice intended to support sustainable agricultural production in spite of the erratic weather patterns. This will be implemented under the guidance of the Kericho County Climate Smart Agriculture Project (KCSAP) domiciled in the Department of Agriculture, Livestock and Fisheries (DALF) in conjunction with the departmental technical experts from Water and Irrigation.

EIA is a tool for environmental planning and, therefore, a key component in the implementation of new projects. According to section 58 of the Environmental Management and Coordination Act (EMCA) No.8 of 1999 second schedule 9 (1), and Environmental (Impact Assessment and Audit) regulation, 2003, new projects must undergo EIA. The Report arising from the EIA must be submitted to

National Environment Authority (NEMA) for approval and issuance of relevant certificates. This is necessary as many forms of developmental activities cause damage to the environment and hence the greatest challenge today is how to maintain sustainable development without interfering with the environment.

Scope, Objective and Criteria of the Environmental Impact Assessment:

For this project, NEMA registered and licensed Experts in Environmental Impact Assessment and Auditing were appointed to conduct the EIA of the proposed Chepchirik water pan. The main objective of the assignment was to assist Chepchirik Community Group conduct an EIA and prepare a report on environmental suitability of the proposed water-pan. The scope of the work involved examining all the proposed activities for the study entity and the surrounding environment. The expected output of the assignment was a comprehensive EIA report, complete with an environmental management plan (EMP), for the purposes of applying for an EIA licence.

As required, the EIA team undertook environmental screening and scoping to determine the scope of assessment and avoid unnecessary data. Data collection was carried out through questionnaires and standard interview schedules, use of checklists, and field observations and photography during site visits. This was supplemented by desk top review of secondary environmental data in the manner specified in Part V (section 31-41) of the Environmental (Impact Assessment and Audit) Regulations, 2003.

The exercise was used to identify existing and potential environmental impacts and concerns that the interested and/or affected parties have with the proposed development intervention, as well as the associated prevention and mitigation measures for the negative impacts as stipulated in the proposed Environmental Management Plan (EMP) in section.....

Other terms of reference (ToR) included, but not limited to, the following objectives:-

- i. To collect relevant information required for preparing the project report.

- ii. To assess and report on the location of the project including the physical area that may be affected by the project's activities.
- iii. To assess and report the nature and design of the project.
- iv. To assess and report on the economic and socio-cultural impacts of the project to the local community and the nation in general.
- v. To assess and report the activities that shall be undertaken during the sub project construction, operation and commissioning phases.
- vi. To assess and report on the materials to be used, and products and by-products including waste to be generated especially during construction phase and the methods of their disposal.
- vii. To assess the potential environmental impacts of the project and develop the environmental management plan for the construction, operation and maintenance including mitigation measures as per the World Bank guidelines.
- viii. To develop an action plan that ensures the health and safety of the workers and neighbouring communities in the sub project cycle.
- ix. To fill in and submit the NEMA Project Report Form.
- x. To provide recommendation if any, for improving the existing environment screening process.
- xi. Prepare and submit a Project Report to NEMA.
- xii. To provide any other information that the NEMA may require.

Methodology Outline:

The proposed interventions are conservation-oriented in nature aimed to harness and conserve the main source of water in Chepchirik village. The total effect of this project to the surrounding community is projected to be an improvement in the livelihoods of the local people and, therefore potential impacts can't be adverse. And noting that the intended development and use of the facility will be in line with what exists in the surrounding areas, an environmental project report was considered adequate. The general steps followed during the assessment were:

- Environment screening, in which the project was identified as among those requiring environmental impact assessment under schedule 2 of EMCA, 1999.
- Environmental scoping that provided the key environmental issues.
- Desktop studies and interviews.
- Physical inspection of the site and surrounding areas.
- EIA Public participation Meetings and Reporting.

Scope of the works:

The specific intervention measures proposed by the proponent are to construct a water pan including excavation of the pan, construction of domestic and livestock water drinking points as well as domestic water drawing points. There was an existing pan at the site which has been heavily silted-up by sand originating from soil erosion.

Anticipated Positive Impacts:

The proposed interventions will result into environmental as well as livelihood improvement manifested by the following.

- ❖ Increased availability of water for domestic use and livestock drinking thereby reducing water conflict among communities particularly in dry season;
- ❖ Available water for productive uses, including small scale irrigation for the identified value chain crops;
- ❖ Increased disposable household income arising from agricultural enterprises
- ❖ Increased employment for local people; for example, during the construction phase;
- ❖ Reduced distance and time for fetching water therefore more time for other activities;
- ❖ Rural economic growth and development;
- ❖ Improved social amenities in the rural areas;

- ❖ Improved livelihood and aesthetics of the rural environment.

Anticipated Negative Impacts:

The possible undesirable impacts of the project and measures of mitigating them are as stated in the table 2 below.

Table 2: Impacts and Mitigation Measures

Possible Impacts	Mitigation measures
Biodiversity interference during construction of site toilet for workers	<ul style="list-style-type: none"> ○ Employ minimum mechanization to minimize migration of inhabitant fauna ○ Minimize dust and noise during excavation to avoid scaring away inhabiting fauna ○ Minimize destruction of vegetation around the Water-pan ○ Maintain water-friendly trees and other vegetation
Occupational health, safety & Life risks e.g. bilharzia disease infection, snake bites and drowning	<ul style="list-style-type: none"> ○ Provide training on water-use hygiene and treatment ○ Provide awareness on safety skills ○ Use of snake repellents ○ Provide relevant PPEs and follow up compliance by respective group members ○ Fence the water pan area ○ Restrict access by children and unauthorized members
Increase in vector borne diseases	<ul style="list-style-type: none"> ○ Clear bushes around the water-pan and neighbouring homes to keep off mosquitoes and other insects. ○ Use of mosquito nets and other preventive measures ○ Rear recommended species of fish in the pond to reduce or eliminate vector insects
Environmental pollution from heavy use of industrial machineries	<ul style="list-style-type: none"> ○ Improve the machinery scheduling capacity i.e. balance the use of machinery and man power to ensure efficiency during construction. This will lead to faster project completion rate so as to limit amount of exhaust waste gases exhaled into the environment. ○ Ensure proper disposal of used oils and fuels emanating from the industrial machinery being employed in the project.

	<ul style="list-style-type: none"> ○ Avoid any oil spillages in the project site
Resource use conflicts among the community members	<ul style="list-style-type: none"> ○ Devise participatory water resource sharing regimes. ○ Establish water use management committee to regulate the use of the facility
Water reservoir Siltation	<ul style="list-style-type: none"> ○ Construct silt traps along the feeder channels to filter excess sediment or soil from the contributing catchment (farms, roads, paths etc.) ○ Employ soil conservation measures and institute sustainable livestock grazing management in the grazing areas around the water pan. ○ Promote sustainable land management practices (e.g. planting cover crops, agro-forestry trees etc.) in farms within the Water-pan catchment.
Project Sustainability	<ul style="list-style-type: none"> ○ The project beneficiaries to form operation & maintenance committee to manage the Water-pan ○ Create co-benefits from the water pan after withdrawal of the development partners (KCSAP, CGK etc.) by starting income generating activities (IGAs) using the availed water. ○ Provide training to all the beneficiary group members on project sustainability techniques and IGAs. ○ Create external watering trough for livestock and draw-off point for domestic use to minimize pollution and siltation. ○ County Government of Kericho, through KCSAP, should avail funds in time to ensure execution of all the components. ○ The beneficiaries of the project should constitute a dispute resolution committee to address any grievances and disputes which may derail the project continuity. ○ Plant cover grasses on the Water-pan embankment to reduce embankment destruction.

Conclusion and Recommendations:

The EIA study has established that the proposed project presents no adverse socio-economic and environmental impacts to the area. The positive impacts of the project far much outweigh the anticipated negative impacts. Furthermore, the

negative impacts can be adequately mitigated. The proponent shall be committed to putting in place several measures to mitigate the negative environmental, safety, health and social impacts associated with the life of the project.

It is recommended that in addition to this commitment, the proponent shall focus on implementing the measures outlined in the environmental management plan (EMP) as well as adhering to all relevant national and international environmental, health and safety standards, policies and regulations that govern establishment and operation of such projects.

On the basis of the above, and taking cognizance of the fact that the proponent has proved to be financially and environmentally credible, it is our recommendation that the project be allowed to go on provided the mitigation measures outlined in this report are adhered to and the EMP is implemented as prescribed.

1.0 INTRODUCTION

1.1 Background and Rationale of the EIA:

This project report presents the outcome of an environmental impact assessment (EIA) undertaken on proposed Chepchirik Community Water-pan. The project was proposed by the Chepchirik Community Development Group. The group is one of the Community based organizations that met the selection criteria for development support by the Kenya Climate-Smart Agriculture Project (KCSAP) co-funded by The World Bank and County Government of Kericho.

Execution of the Water-pan project will be spearheaded by a project management committee (PMC), which includes members from the beneficiary group, and shall be over-sighted by KCSAP's County Project Coordinating Unit (CPCU). The proposed interventions in this project are classified under component-1 of KCSAP which promotes the up-scaling of climate-smart agricultural (CSA) practices, with the overall goal of increasing agricultural productivity and building resilience to climate change effects. Achievement of the goals of these CSA interventions will be greatly complemented by strengthening climate-smart agricultural research and seed systems (component-II) and, supporting agro-weather, market and climate advisory services (component-III).

The over-arching intervention measure proposed in this project is the construction of Water-pan for agricultural development purposes. Use of the developed water source will enhance household incomes and food security in the surrounding areas. Execution of the project is intended to be completed by July 2019. Department of Agriculture, Livestock and Fisheries of the County Government of Kericho will, through KCSAP, be responsible for overall management and supervision.

EIA is a tool for environmental planning and management. It is a key factor in the implementation and subsequent operation of new projects. According to section 58

of the Environmental Management and Coordination Act (EMCA) No.8 of 1999 second schedule 9 (1), and Environmental (Impact Assessment and Audit) regulation, 2003, new projects must undergo EIA. The resulting report is submitted to National Environment Authority (NEMA) for approval and issuance of relevant certificates. EIA is necessitated by the many forms of environmental damages often caused by developmental activities. The greatest challenge today is therefore about how sustainable development can be achieved without interfering with the environment.

The proposed Chepchirik project falls under category *B-projects* within the World Bank environmental classification. Although such types of projects generally have positive impacts, negative effects often emanate from subsequent project activities. In reference to EMCA, 1999 the project partly falls under section 12 of the second schedule, and this implies in-depth assessment of environmental and social implications may not be very critical.

However, as environmental concerns are now taken to be important factors in development planning and implementation processes, it is advisable to avoid conflicts between projects and their surroundings. To avoid unnecessary conflicts that may retard execution and subsequent utilization of Chepchirik Water-pan, the proponent undertook this EIA and incorporated environmental concerns as advised by the National Environmental Management Authority (NEMA). Finally, a comprehensive Environmental Management Plan (EMP) is mandatory for a project of this magnitude and nature. Thus, a comprehensive EMP has been prepared, and forms part of this report.

1.2 Scope, objective and criteria of the EIA:

1.2.1 Scope:

The Government of Kenya policy on all new programmes, projects or activities requires that an EIA is carried out at the planning stages of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction, operation and decommissioning of the facility. The scope of this EIA therefore covered:

- The baseline environmental conditions of the area.
- Description of the proposed project.
- Consideration of the provisions of the relevant environmental laws.
- Identification and discussion of any adverse impacts to the environment anticipated from the proposed project.
- Recommended appropriate mitigation measures.
- Formulation of an environmental management plan (EMP).

1.2.2 Terms of Reference (ToR) for the EIA Process:

Since any form of development, such as the proposed project, is likely to impact the site and its surrounding environment, it was found prudent to carry out EIA as provided by EMCA, 1999 and Environmental Impact Assessment/Audit Regulations, 2003.

In conformity with the relevant legislations, experts registered and licensed in Environmental Impact Assessment and Auditing by NEMA were appointed as the consultants to conduct the EIA of the proposed Chepchirik Water-pan project. The scope of the assessment covered activities proposed in the design report, together with their anticipated spill-over effects in the neighbourhood of the project site. These include removal of old Water-pan embankment, excavation works to expand storage, embankment re-construction and compaction, and operational and decommissioning works of the proposed development. The output of this work was a comprehensive Environmental Impact Assessment report for the purposes of applying for an EIA licence.

The EIA involved specialist studies to determine the environmental impacts relating to biophysical and socio-economic aspects, and issues or concerns from

relevant authorities and interested and/or affected parties. Appropriate measures to ensure sustainable co-existence of the proposed development with other social and economic activities in the area are provided as part of Environmental Management Action Plan (EMP).

The main objective of the assignment was to assist KCSAP (proponent) carry out EIA; and prepare a report to ensure that appropriate measures for mitigating any adverse impacts to the environment are taken into consideration during the life of the project. The study revealed existing and potential environmental impacts as well as possible concerns that interested and/or affected parties have with the intended development. The study also suggests associated prevention and mitigation measures for the negative impacts; and these are stipulated in the proposed EMP.

On behalf of the proponent, the Consultant conducted the study as guided by, though not limited to, the following terms of reference (ToR):

- ❖ Background study of the proposed location of the project
- ❖ A concise description of the national environmental legislative and regulatory framework, baseline information, and any other relevant information related to the project.
- ❖ The objectives of the project.
- ❖ The technology, procedures and processes to be used in the implementation of the project.
- ❖ The materials to be used in the construction and implementation of the project.
- ❖ The products, by-products and wastes to be generated by the project.
- ❖ A description of the potentially affected environment, including indigenous peoples (IPs) and other vulnerable groups.
- ❖ The environmental effects of the project including the social and cultural effects and the direct, indirect, cumulative, irreversible, short-term and long-term effects anticipated.

- ❖ To recommend a specific environmentally sound and affordable wastewater management system.
- ❖ Provide alternative technologies and processes available and reasons for preferring the chosen technology and processes.
- ❖ Analysis of alternatives including project site, design and technologies.
- ❖ An environmental management plan proposing the measures for eliminating, minimizing or mitigating adverse impacts on the environment, including the cost, timeframe and responsibility to implement the measures.
- ❖ Provide an action plan for the prevention and management of the foreseeable accidents and hazardous activities in the cause of carrying out development activities.
- ❖ Propose measures to prevent health hazards and to ensure security in the working environment for the employees, residents and for the management in case of emergencies.
- ❖ An identification of gaps in knowledge and uncertainties which were encountered in compiling the information.
- ❖ An economic and social analysis of the project.
- ❖ Such other matters as the Authority may require.

1.2.3 Data Collection Procedures:

Initial undertaking involved environmental screening and scoping to avoid unnecessary or irrelevant data. Data was collected by use of questionnaires, standard interview schedules, checklists, observations and photography, site visits, and desktop environmental studies in the manner specified in Part V (section 31-41) of the Environmental (Impact Assessment and Audit) Regulations, 2003.

1.2.4 EIA Organization and Structure:

The EIA was carried out to full completion within a period of one month. The Consultant (Lead Expert), in consultation with KCSAP County Project Coordinator

(CPC), coordinated the day-to-day operations of the EIA team including any related institutional support matters.

Field guidance and linkages with project beneficiaries and other stakeholders was provided by CPC and KCSAP team. This team was very resourceful in terms of ensuring that the EIA exercise remained focused on environmental and social considerations and other interests critical to KCSAP and World Bank.

All formal communications and inquiries directed to County Director, NEMA were channeled through KCSAP - CPC.

1.2.5 Reporting and Documentation:

The findings from the EIA project report was compiled in accordance with the guidelines issued by NEMA; and submitted for consideration and approval by KCSAP (proponent). The Consultant and the Client (CPC) maintained constant reciprocal briefing during the entire exercise. This was important in ensuring that the Consultant kept abreast of environmental and social safeguard (ESS) issues of interest to KCSAP and the development partners.

Description plans and sketches showing various activities are part of the Appendices.

1.2.6 Responsibilities and Undertaking:

The Consultants undertook their duties as outlined in the ToR while the client met all logistical costs relating to the assignment, including those of production of the report and any other relevant material. The client arranged for consultants transport and travels during the exercise. On the site of the proposed project, the proponent provided contact person(s) to provide information required by the Consultant. The proponent also provided site plan(s) showing roads, service lines, engineering designs and the actual sizes of the sites, details of raw materials, proposed process outline and anticipated by-products, future development plans, land-ownership documents and site history, and estimated investment costs.

The outputs from the consultants include:

- An EIA report comprising of an executive summary, study approach, baseline conditions, anticipated impacts and proposed mitigation measures, Environmental and Social Management Plan (ESMP).
- An ESMP outline which also forms part of the report recommendations.

1.2.7 Outline of the Methodology:

The proposed site is located within an area without indigenous peoples (IPs) and historical sites, no natural habitats for fauna and flora, and any hazardous materials. Being a water resource development project, the intervention will have numerous benefits, for instance; improving rights of women by making water accessible, and enhancing livelihood of inhabitants through water for irrigated agriculture. Thus, the project's potential adverse effect to the surroundings was estimated to be very little or almost nil. Also, the intended Water-pan project and its operation were noted to be in line with type of technologies that are already going on in the Ward. Therefore, an Environmental Report was considered an adequate tool to guide implementation and subsequent operation of the project.

The general steps followed during the assessment were as follows:

- Environment screening, in which the project was identified as among those requiring environmental impact assessment under schedule 2 of EMCA, 1999
- Environmental scoping that provided the key environmental issues
- Desktop studies and interviews
- Physical inspection of the site and surrounding areas
- EISA Public participation Meetings and
- Reporting.
- Review of draft report

1.2.7.1 Environmental Screening:

This step was applied to determine whether an environmental impact assessment was required and, what level of assessment was necessary. This was done in reference to requirements of the EMCA, 1999, and specifically the second schedule.

Additional considerations covered the requirements specified in KCSAP project screening tool. Issues considered, among others, included:

- The physical location of the project;
- Type and nature of the project, and its compliance with County planning documents (e.g. CIDP);
- Sensitive issues such as adverse effects on historical sites; displacement of people; interference with indigenous peoples (IPs); effect on livelihood or rights of women; etc, and;
- Nature of anticipated impacts e.g. adverse effect on natural habitats; soil degradation and salinity; human health or safety risks; change or loss of livelihoods to people; restricted access to pastures, crops or cultural resources etc.

1.2.7.2 Environmental Scoping:

The Scoping process helped to narrow down on the most critical issues requiring attention during the assessment. Environmental issues were categorized into physical, natural/ecological and social, economic and cultural aspects.

1.2.7.3 Desktop Study:

This included documentary review of the nature of the proposed activities as well as the environmental setting of the project among others.. Secondary sources of information scanned included project appraisal documents, minutes of participatory identification reports, engineering design report, and policy and legislative framework documents. It also included focused group discussions (FGDs) with the proponent representative (KCSAP) and design engineers as well as interviews with members of the beneficiary community.

1.2.7.4 Site Assessment:

Field visits were made to undertake physical appraisal of the site characteristics, and also evaluate environmental status of the surrounding areas of the proposed project. It also included further interviews with members of the surrounding

communities. These assessments helped to form opinion on the anticipated impacts, both positive and negative.

1.2.7.5 Public Participation during EIA:

To ensure adequate public participation in the EIA process, the following activities were undertaken:

- Held one public meeting with the affected parties and communities to explain the project and its possible effects; and to receive their oral comments (see minutes of meetings and list of attendance in appendices).
- The EIA Experts (Co-ordinating the public meetings) ensured that appropriate notices were sent out at least one week prior to the meetings and Chepchirik CBO chairperson mobilized the community members .

1.2.7.6 Reporting:

In preparing the EIA report, constant briefing of the client (KCSAP) was maintained so as to ensure that the Consulting team achieved the required content and desired reporting standards.

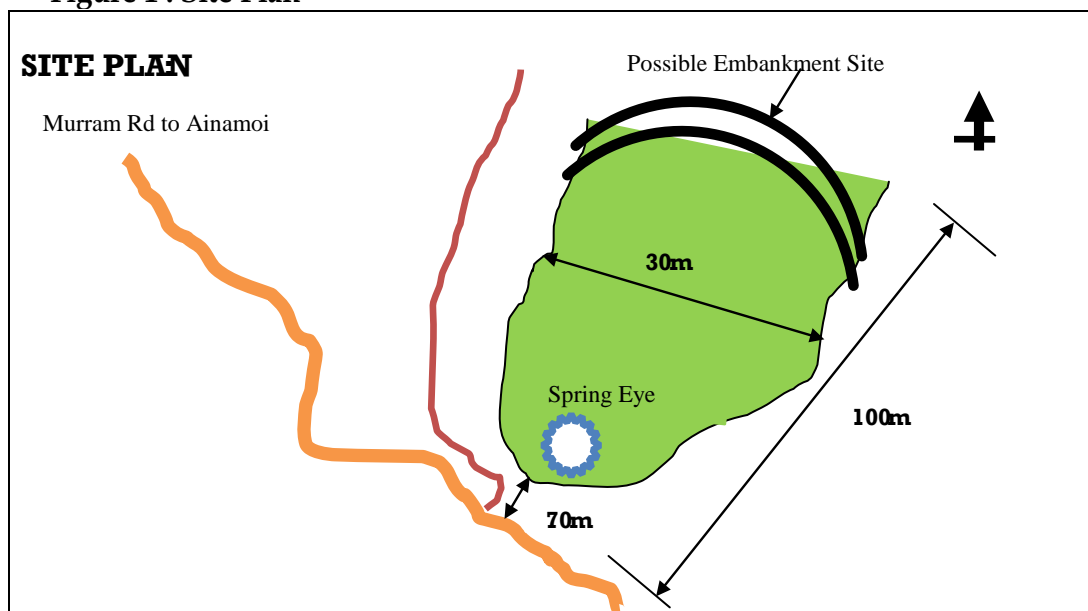
A draft report was presented to the KCSAP Coordinating Unit at County level for comments and input. A final draft, incorporating KCSAP inputs, was thereafter submitted to Kericho County NEMA Office for approval.

2.0 PROJECT DESCRIPTION AND ANALYSIS OF ALTERNATIVES

2.1 Project Location and Target Population:

The proposed project will be undertaken at the Chepchirik site, a public land in Buchenge Sub-Location of Kapsaos Ward. The project was proposed by Chepchirik inhabitants during public engagement in the lead-time to the formulation of Kericho County Integrated Development Plan (CIDP-II), 2017-2022. The land measures about 0.8ha (or 2.0 Acres) and is situated in a valley which serves as a waterway for road water run-off from Tendwet – Ainamoi Road. The water pan will serve the entire Sub-location with approximately 1,000 households and 3,000 heads of cattle.

Figure 1 : Site Plan



2.2 Project Design & Alternatives:

The proposed Chepchirik water pan promises significant social, health and economic impacts on the lives of Buchenge population. With land area of 2.0 acres, it is possible to achieve a water pan of between 24,000 and 32,000 cu. m. (24.0-32.0 million liters). At an average Household (HH) consumptive usage of 100litres/day this amount of water can supply the 1,000 HHs for a period of 8 months, which is longer than the dry gap in the area of 3 months.

2.2.1 Rationale for a Water-pan:

The following reasons are advanced with regard to the selection of Water-pan alternative:

- ❖ Availability of public land (2.0 acres) where an old silted water pan has been in existence next to Chepchirik spring.
- ❖ High water demand by the surrounding community: the community attest to their heavy reliance on the dry Water-pan and a single un-protected spring at the proposed site. This is evidenced by the amount of time wasted queuing for water instead of dedicating such temporal resource to more productive work.
- ❖ Need to provide water for domestic and livestock use, and supplemental irrigation to improve food security.
- ❖ Through rapid participatory rural appraisal (PRA) conducted in August, 2018 and participatory integrated community development (PICD) process undertaken in March, 2019, the community has settled for a Water pan. They have also established ownership through registration of the project with Government, and therefore guarantee a reliable future operation and maintenance (O&M) mechanism.
- ❖ Availability of human labour (non-mechanized), as part of community contribution, to complement mechanized operations. This will foster the sense of ownership necessary for project sustainability.

2.2.2 Water-pan Construction Procedure:

<u>Step 1:</u>	The site of the water pan is cleared and the reservoir boundaries and embankment location demarcated; all inlets and spillway locations also done.
<u>Step 2:</u>	The reservoir section is excavated with the soil being used to build the embankment or walls.
<u>Step 3:</u>	Construct the spillway to discharge excess runoff water when the pan is full.
<u>Step 4:</u>	Construct silt traps along the inlet channels to filter excess sediment load.
<u>Step 5:</u>	Close the water pan with barbed wire and live fence to keep off livestock and children, a gate will be left for access purpose.
<u>Step 6:</u>	Provide livestock and domestic water points off the fenced area.

2.3 General Management of the Chepchirik Water-pan:

This section highlights important information relating to project implementation as required by ToR

2.3.1 Factors to consider when siting the Water-pan:

- Select a site with soils such as clay that retain water.
- Avoid sandy soils
- Availability of public land
- A natural depression or small valley to minimize excavation while allowing all storm water to be harvested
- A vegetated catchment to minimize siltation

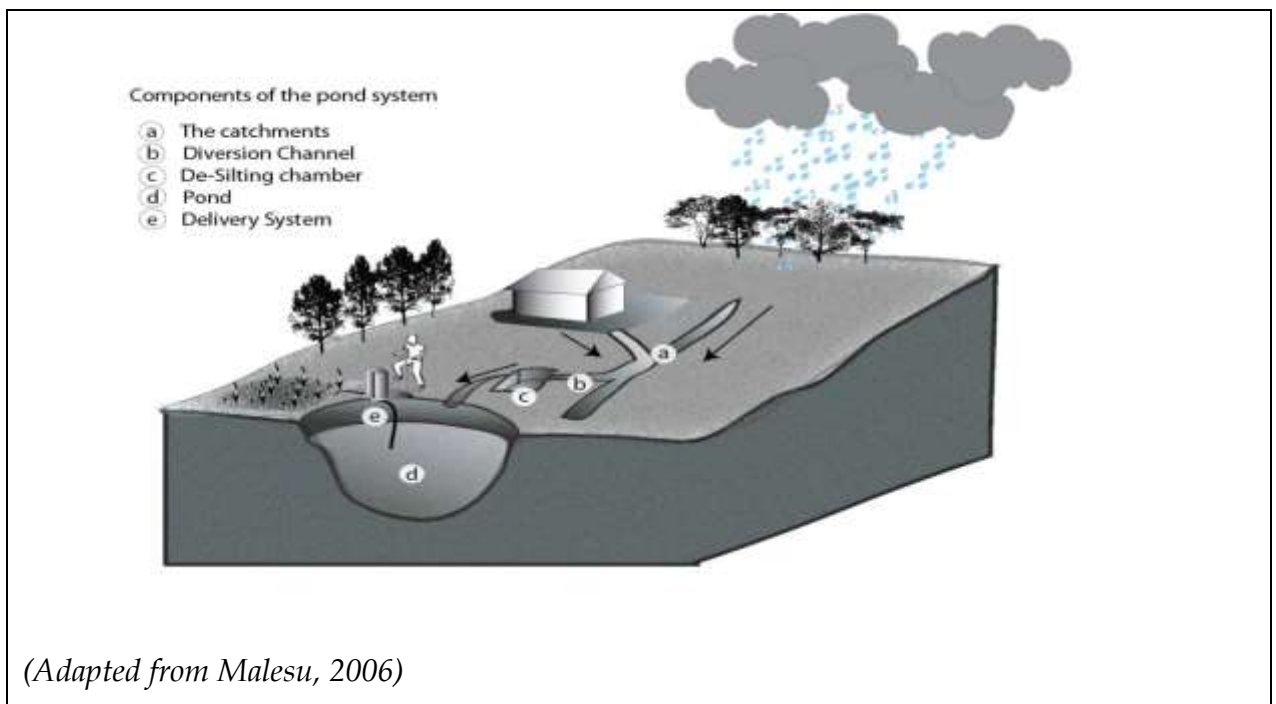


Figure 2: Components of a Pond System

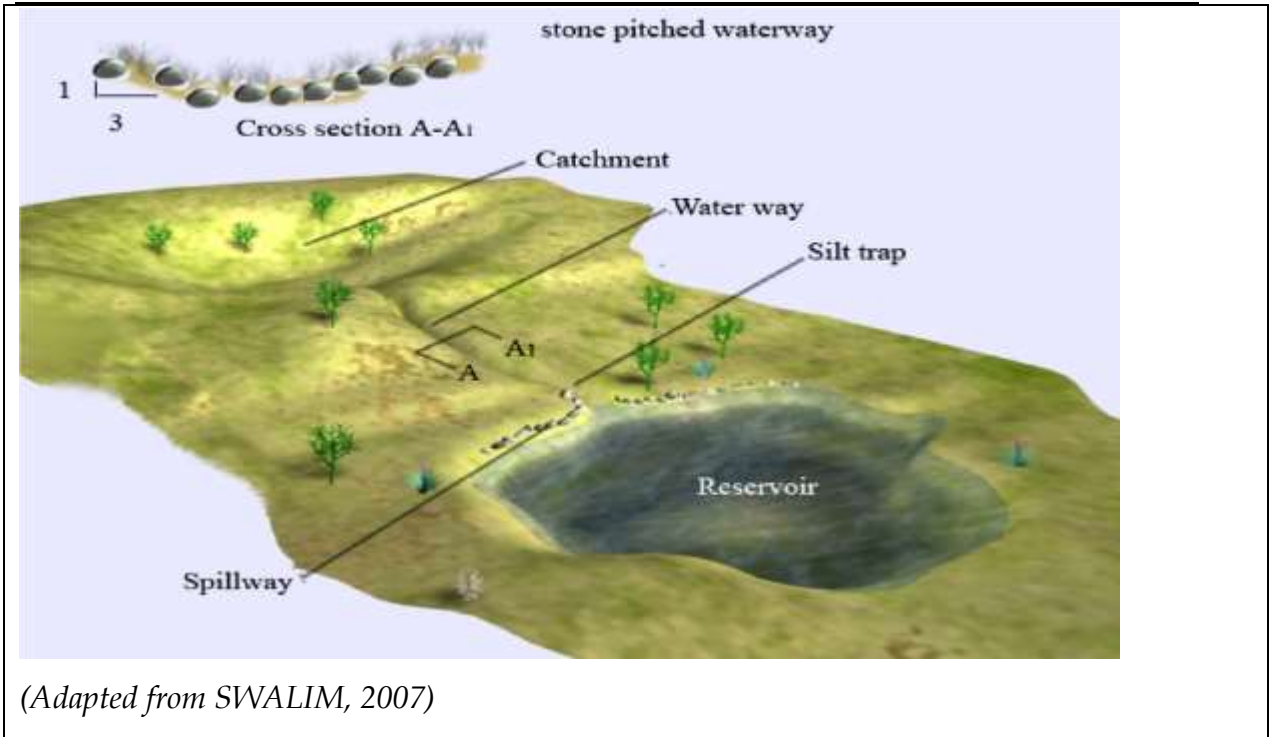


Figure 3 : Photo illustrating typical componenets of water pans

2.3.2 Stabilization of the walls of the Water-pan:

By ensuring proper embankment side slopes and compaction, Planting shrubs and grasses on the embankment wall Placing stones on the embankment sides

2.3.3 Operation and maintenance of the Water-pan:

Repair broken perimeter fence as need arises. Avoid direct entry of livestock into the water pan to prevent trampling on bed and walls where livestock draw off point is not provided, use portable wooden troughs, a drums cut into half or old tires to water livestock.

2.4 Project Implementation Activities

2.4.1 General Overview:

In order to predict impacts for this project, it is important to describe its various phases and the activities to be carried out in each phase. These have been described below:

- ❖ Community Mobilization
- ❖ Survey and design
- ❖ Environmental Impact Assessment

- ❖ Excavation of the water pan
- ❖ Fencing the water pan area to reduce health and safety risks of people and livestock.
- ❖ Installation a livestock watering/drinking point
- ❖ Installing water supply system (pipes and tanks)
- ❖ Capacity building on sustainable water management and regulation.
 - Water utilization and maintenance of the equipment.
 - Project supervision, monitoring and evaluation
 - Project Commissioning and handing over to community

2.4.2 Community Mobilization

This project activity involves: creating community awareness about the proposed Chepchirik water pan construction, site identification/verification/confirmation, and selection of community based organization to be in charge of the project.

2.4.3 Survey and Design

The survey and design is part of the preliminary activities that gives the details of the water pan parameters such as site dimensions for excavation; intake works; excess water release provision; volumes of excavation, embankment, reservoir, and other components incidental thereto and connected therewith.

2.4.4 Environmental and Social Impact Assessment (ESIA)

It is a requirement that EIA be conducted and EIA license issued by NEMA before commencing the water pan construction works. This project ensured to fulfil the requirements by initiating the process in compliance with the law.

2.4.5 Excavation of the water pan

The works will be contracted. The excavation will be done by machinery. The specific activities include:

- ❖ Site clearing and removal of top soils
- ❖ Excavation of the water pan
- ❖ Scooping, depositing and compacting soil on the embankment

- ❖ Excavating the silt trap
- ❖ Construction of spill way

The site is covered by grass, shrubs and light trees. Site preparation involves: clearing of grass, shrubs and trees. This stage will have some impacts on the environment and is discussed in chapter five of this report.

2.4.6 Fencing

A perimeter fence will be put around the water pan to restrict access. The objectives of fencing are to reduce water pollution and contamination; reduce vandalism, prevent risks of fall, allow proper management and accounting of water use.

2.4.7 Construction and installation of water use infrastructure

The water use infrastructure include water distribution system mainly pipes, a pump and storage tanks, water troughs for domestic and livestock use and other facilities where applicable. These works are technical and require technical personnel to execute. The project component will be contracted. Before construction, site clearing will be done. During construction, the major environmental concern is occupational, health and safety of workers.

2.4.8 Water Utilization, Management and Maintenance

The main water use is for domestic consumption and agricultural production. Other uses include livestock drinking. Water pollution will be minimized at source through the use of livestock water troughs and fencing to prevent them from directly accessing the water pan. Once the project has been commissioned, then maintenance schedule will be established. Maintenance includes repair and maintenance of pipes as well as spill way; repair of leakages and pipe bursts; cleaning and repairing livestock water trough, repair or replacement of booster pump whenever applicable. It also includes immediate environment greening and soil conservation at the water catchment area.

2.5 Project Sustainability

The community was involved in the earlier stages of project inception and will participate in the remaining stages of implementation, monitoring and evaluation. The project is planned to involve the community during the implementation stage. Capacity building on water management will also be conducted. This is the beneficiary approach that transfers knowledge to the benefiting community. At the same time linkage will be created between relevant government departments/ministries. In addition, Chepchirik water pan Management Committee will manage the project on behalf of the community. Community contribution in-kind such as land for excavating the pan and other infrastructure; provision of locally available materials; unskilled labour (site clearing during survey); security and management of the project among other is an indicator of community project acceptance.

2.6 Project Monitoring and Evaluation

KCSAP and the County government of Kericho being the main project development partners will use its already developed log frame to effectively monitor and evaluate implementation of activities in line with the set targets. Quarterly review with the benefiting community, line ministries and stakeholders will be conducted on progress towards achievement of set targets and outcomes. The project is planned to relay feedback to the target beneficiaries on progress and changes as they occur.

2.7 Cross-cutting Issues

The project has been planned to address environmental issues through catchments protection, tree planting and general environmental conservation as well as community education. There will be deliberate inclusion of men, women, boys and girls in the implementation of the projects in order to address gender issues. The water supply structures will be designed considering its users in terms of age and disability.

2.8 Equipment, Materials, Utilities & Waste:

Civil works will mainly comprise use of machinery i.e. a grader dozer and where necessary handheld tools. Other handled equipment's e.g. wheelbarrows, jembes and spades might be used. Equipment's, machinery, materials and utilities that will be required for construction may be assembled at site as appropriate. A specific location will be identified for holding these equipment's for good house-keeping and safety

2.9 Materials:

Materials to be used will include among others construction materials and various plumbing devices. For fencing locally available natural materials will be used by the CBO. The proponent and collaborators should seek local methods and alternatives to such materials.

2.10 Utilities:

Utilities that will be required for the project include water, grader fuel and labour. These must be used sustainably. Required labour for construction work is available locally. Highly specialized labor will also be available through the available channels of collaborations, but the proponent is not restricted to the source so long as the works is implemented in an economically and socially justifiable manner

2.11 Project Cost:

The total cost of the project is **Ksh.7, 410, 440** and is well articulated component by component and involves community contribution **KShs. 1, 795, 000** as well as funding from KCSAP of **KShs. 5,615, 400**.

3.0 BASELINE INFORMATION OF THE STUDY AREA

3.1 Project Target Areas:

KCSAP is being implemented in 24 Counties across Kenya. The project aims to increase agricultural productivity, build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya, and reduce emission of greenhouse gases (GHGs); and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response.

The KCSAP focuses primarily on: (i) improving water/soil management, especially within smallholder maize systems in the marginal rainfall zones – specifically, in smallholder mixed crop-livestock and crop forest (agro-forestry) production systems; (ii) promoting sustainable, community driven rangeland management and improved access to quality livestock services in ASALs – specifically, in pastoral/extensive livestock production systems; (iii) supporting the generation and dissemination of improved agricultural TIMPs and building sustainable seed systems; and (iv) enhancing access to quality agro-weather, climate, advisory, and market information services among farmers/herders for improved decision making.

3.2 Physical Environment

Chepchirik water pan is located in Buchenge Sub-location, Kapsaos Ward of Ainamoi Sub-county in Kericho County. Generally, the county falls within the Lake Victoria basin as all the streams end up draining in the lake. The proposed site is on a public land. Currently, it is the only water point in this Sub-location serving both domestic consumption and livestock use.

3.3 Bio-Physical Environment:

3.3.1 *Climate and Rainfall:*

The proposed Chepchirik Water-pan project is located in Buchenge Sub-location, Kapsaos Ward in Ainamoi Sub-county, Kericho County. The area lies in the drier part of Buchenge Sub-location with average annual rainfall of 1,000 - 1,200mm

distributed into two rainy seasons namely; long and short rains. Long rains occur in April – June period while short season comes in October - December. However, the second season has low reliability thus leading to acute water shortage during driest period of the area which occurs in January – March.

The area has temperature variation ranging between 10⁰ C, in the rainy season and 22⁰ C, during dry period.

The climatic conditions in the area have the potential to support a wide range of agricultural enterprises including climate smart agriculture (CSA) value chains such as Indigenous Chicken, Sorghum, Finger Millet, Banana, and Dairy. Production of these agricultural value chains (AVCs) is currently below the potential owing to poor distribution of rainfall and lack of appropriate water harnessing and conservation technologies.

3.3.2 Topography:

The proposed project lies in the part of Kapsaos Ward characterized by hilly but undulating topography with occasional deep valleys. The overall slope of the land is towards the North west, with the Water-shed consequently draining in the same direction. The project's Water-shed is expansive but well drained, with run-off generated emanating from as far as 10km away. Much of this run-off eventually drains into the Nyando/Kipchorian River, a major catchment within the larger Lake Victoria Basin.

Owing to the topography and location of the proposed project, high volumes of run-off water feed into the Water-pan, most of which are from roadside channels and adjacent farmlands and homesteads. This surface run-off water poses the challenge of land degradation manifested by soil erosion on farms and grazing fields, and emerging gullies.



Figure 4: Photo of Marram Road Contributing Run-off Water Discharge into Chepchirik Water-pan

3.3.3 Water Resources:

Chepchirik and the larger Buchenge Sub-location rely on a single spring found at the proposed site. The nearest alternative source of water is Nyando-Kipchorian River which is about 15Km away.

Ainamoi Sub-county lies west of the Mau escarpment which forms the catchment area of River Nyando. A few all-season Rivers and several seasonal ones transect the sub county forming the Nyando River. One of the main rivers is Kipchorian whose source is Western Mau Forest and flows through Londiani, Kipkelion and Chilchila Divisions to join river Nyando as the main tributary on the Kericho/Nyando border. However no main river passes through Tendwet location, the proposed project area. The site was however noted to have several springs that have continued to dry with time.

Buchenge Sub Location suffers acute water shortage for about 3 months out of the 12 months of the year owing to its relatively undistributed rainfall regime and high evaporation rates. Chepchirik Spring is the main source of water for both domestic and livestock use in the entire location with approximately 1,000 households and 3,000 heads of cattle.

In a good year the spring yields water for about 8–10 months and dries up for 2–4 months meaning that when this happens the user-community must seek for water from outside the sub-location.

3.3.4 Geology and Soils

The area surrounding the proposed Water-pan site is characterized by fertile agricultural lands.



Figure 5: Photo of Typical Farmland around the proposed Project - with limited in-field Soil and Water Conservation measures

3.3.5 Vegetation:

The site lies in an area surrounded by croplands, with cultivation occurring within a reach of about 200 meters to the eye of the Water Spring found at the site. The site is also surrounded in all directions by few shrubs and trees. During excavation, few shrubs will be cut down at the area where embankment will be constructed causing impact on flora and fauna around the site.

3.3.6 Wildlife:

The area is predominantly under agricultural activities and no wildlife conservation activities occur in the entire area. Farming has greatly reduced the biodiversity of the area with no notable wild animals seen during the field survey.

3.4 Social Environment

3.4.1 Population:

The proposed Chepchirik Water-pan is located in Kapsaos Ward, which is one of the KCSAP focal intervention areas. In terms of KCSAP zonal sub-divisions, the project lies in Buchenge Zone covering an area of about 11.7 square Km. The Zone is inhabited by 3,073 people residing in 8 Villages comprising of 618 households (KNBS, 2009). The current number of HHs is estimated at about 1,000 with population projected to be more than 5,000 people. The documented population statistics of the Ward is as indicated in the following table.

Table 3: Population Statistics for Kapsaos Ward

N0.	KCSAP Zone	Area Km²	Population (2009 Census)	No. of HHs (2009 Census)	No. of Villages
1	Maso	19.4	9,181	1,731	24
2	Kapsaos	19.1	10,420	1859	19
3	Tendwet	12.2	6,367	1,221	12
4	Buchenge	11.7	3,073	618	8
TOTAL		62.4	29,041	5,429	63

3.5 Economic Environment

3.5.1 Commercial Farming:

Buchenge Sub-location generally has favorable climatic and soil conditions to support intensive agricultural production systems. Coffee is the main cash crop in the area, but tea is also grown in some parts of the Sub-location. Cultivation of food crops mainly maize, sorghum, millet, cabbages, kales, beans, banana and Irish potatoes is also done.

The major livestock enterprises are Dairy and Poultry rearing; with most farmers keeping indigenous livestock owing to their suitability to the prevailing climatic conditions. The greatest limitation to agricultural production in the area is poor distribution of rainfall and fairly high evaporation rates. And yet large volumes of run-off water generated during rainfall events go untapped. This is an opportunity

Inadequate or irregular supply of livestock feeds is the single most bottlenecks to attaining high yield in dairy industry. Dairy herd in the Sub-location have low milk yields averaging 3 -4 liters per cow per day, ostensibly due to low feed intake, as pastures dry up in the long dry period between January and March.

Potential for irrigated agriculture is great, and can be exploited if farmers can get trained on CSA technologies, innovations and management practices (TIMPs)

4.0 RELEVANT LEGISLATIVE AND REGULATORY FRAMEWORK

4.1 Introduction

It is a legal requirement in Kenya that a development of such magnitude as the proposed Chepchirik Water pan adheres to the relevant legal parameters. This section therefore describes the policy, legal, and institutional framework pertaining to the proposed development. These frameworks have been put in place to ensure that development projects adhere to environmental conservation standards at all times. Since development activities have the potential to damage the environment, it is desirable that development interventions are made sustainable.

The proposed development will certainly cause changes in the landscape; these environmental changes include exposure of the soils, land compaction, loss of vegetation, and waste generation among others. It is these issues that legislation sets to address. In recognition of the importance of environmental conservation in development endeavours, Kenya government has put in place a number of policies, institutional and legislative frameworks to guide development. These instruments aim at minimizing environmental degradation which may occur in the process of undertaking development activities.

4.2 Environmental policy

In order to achieve economic development goals while safeguarding environmental integrity, Government of Kenya developed EMCA, 1999 as the legal instrument to help in regulating environmental activities in the country. The broad objectives of the national environmental policies include;

- ❖ Optimal use of natural resources while improving environmental quality;
- ❖ To conserve resources such that the resources meet the needs of the present without jeopardizing needs of future generations;
- ❖ Develop awareness that inculcate environmental stewardship among the citizenship of the country;

- ❖ Integrate environmental conservation and economic activities in the development process;
- ❖ Ensure that national environmental goals contribute to international obligations on environmental management.

To achieve this, it is the policy that appropriate reviews and evaluations of developmental plans and operations are undertaken to ensure compliance with the environmental policy.

4.3 Institutional Arrangement

Presently, there are over twenty (20) institutions and departments which deal with environmental issues in Kenya. Some of these institutions include National Environmental Council (NEC), National Environmental Management Authority (NEMA), Forestry Department, Kenya Wildlife Services (KWS) and others. There are also local and international NGOs championing environmental protection in the country. Among these institutions, NEMA plays the regulatory role in the management of environment in Kenya.

4.4 Legal Framework

There are several legal provisions on environmental protection, which regulate the development of infrastructure like the one which is the subject of this proposal. Summaries of the various legislations relevant to the proposed development are as follows:

4.4.1 The Environmental Management and Coordination Act, 1999 (Amended in 2015)

The act defines the legal and administrative co-ordination of the diverse sectoral initiatives in the field of environment. The act harmonizes the sector specific legislations touching on the environment in a manner designed to ensure greater protection of the environment. In terms of policy direction, this act is guided by the national environmental council (NEC), while enforcement falls under the Director General of the National Environmental Management Authority (NEMA).

Thus, NEMA enforces the Act on behalf of the Cabinet Secretary responsible for Environment. Its functions include:-

- ❖ The coordination of various environmental management activities;
- ❖ Initiation of legislative proposals;
- ❖ Research, investigations, and surveys in the field of environment.
- ❖ Creation of environmental education and awareness programmes;
- ❖ Advise the government on regional and international agreements to which Kenya is party to;
- ❖ Executing the Environmental Impact Assessment (EIA) under the Environmental Impact (Assessment and Auditing) regulations, 2003, among other duties.

4.4.2 The Environmental Impact (Assessment and Auditing) Regulations, 2003

Environmental Impact Assessment under the act is guided by the Environmental Impact Assessment (Assessment and Auditing) Regulations of the year 2003, which was issued through legal notice no. 101. The regulations stipulate ways of conducting environmental impact assessment and audits. The proposed project falls under the second schedule of EMCA, 1999 Section 58 (1), (4) which requires that Environmental Impact study is done. As stipulated by the legal notice No. 101, 2003, PART V, Section 31 (3) (a) (i) and (ii) it is necessary that an environmental assessment be undertaken to provide baseline information upon which subsequent environmental control audit shall be based.

4.4.3 The Physical Planning Act; Laws of Kenya, Chapter 286

This act provides for the preparation and implementation of national, regional, and local development policies guidelines and strategies. The Act is enforced by the Director of Physical Planning on behalf of the Minister responsible for lands and settlement. He advises the commissioner of lands on appropriate uses of land, and on land management. This Act also has a direct bearing on the proposed development providing prohibition, and offers controls on the use and development of land and buildings.

4.4.4 Land Planning Act (Cap. 303)

Section 9 of the subsidiary legislation (The Development and Use of Land Regulations, 1961) under this Act requires that before the local authorities submit any plans to the Minister for approval, steps should be taken as may be necessary to acquire the owners of any land affected by such plans.

4.4.5 Electric Power Act No. 11 of 1997

The Electric Power Act No. 11 enacted in 1997 deals with generation, transmission, distribution, supply and use of electrical energy as well as the legal basis for establishing the systems associated with these purposes. In this respect, the following environmental issues will be considered before approval is granted:

- ❖ The need to protect and manage the environment, and conserve natural resources;
- ❖ The ability to operate in a manner designated to protect the health and safety of the project employees; the local and other potentially affected communities.

Under schedule 3 of the Electric Power (licensing) Regulations 2003, it is mandatory to comply with all safety, health, and environmental laws. Moreover, schedule 2 (regulation 9) of the Electric Power (licensing) Regulations 2003 stipulates that licensing and authorisation to generate and transmit electrical power must be supported by the following documents which are approved by NEMA.

1. Environmental Impact Assessment Report (EIA) or
2. Initial Environmental Audit Report (IEA) and;
3. Environmental Management Plan (EMP)

4.4.6 Land Titles Act Cap 282

The Land Titles Act Cap 282 section 10 (1) states that there shall be appointed and attached to the Land Registration Court a qualified surveyor who, with such assistants as may be necessary, shall survey land, make a plan or plans thereof and define and mark the boundaries of any areas therein as, when and where directed by the Recorder of Titles, either before, during or after the termination of any

question concerning land or any interest connected therewith, and every area so defined and marked shall be further marked with a number of other distinctive symbol to be shown upon the plan or plans for the purposes of complete identification and registration thereof as is herein after prescribed.

4.4.7 Forestry Act (Cap 385)

This forestry act is implemented by the ministry of environment and natural resources and its provisions for the establishment, control, and regulation of central forest and other forests of Kenya. It encourages sustainable conservation of all types of vegetation. The Act is enforced by the conservator of forests while research issues are undertaken by the Kenya Forestry Research Institute.

4.4.8 The Wildlife Conservation and Management Act

The Kenya Wildlife Service is responsible for the protection of Kenya's indigenous animals, plants, and habitats. Its operations are guided by the Wildlife Conservation and Management Act.

4.4.9 The Constitution of Kenya

Under the current Constitution Kericho County Government assumes a number of roles in its area of jurisdiction, which includes the study entity area. The roles include issuance of licenses for businesses, collection of refuse, setting up of adequate lighting, provision of water and sewerage services in the area, among others.

4.4.10 The Public Health Act; Laws of Kenya, chapter 242

The act prohibits activities that may be injurious to human health. It then becomes the responsibility of the local authority to maintain clean and sanitary conditions.

This Act:

- ❖ Calls for cleanliness of premises;
- ❖ Calls for supply of potable water for human purposes;
- ❖ Offers guidelines on waste water disposal and management; and
- ❖ Prohibits the discharge of emissions that may be injurious to health.

4.4.11 Occupation safety and health Act (2007)

The act makes provisions for health, safety, and welfare of person employed in places of work. Part VI of the act covers health general provisions, part X welfare general provisions and XI health, safety and welfare special provisions issues, which includes;-

- The state of cleanliness;
- Sanitary conveniences;
- Drainage of floors;
- overcrowding;

<p>Part X covers:-</p> <ul style="list-style-type: none"> ○ Supply of drinking water, ○ Washing facilities, ○ Accommodation of clothing, ○ Facilities for sitting ○ First Aid. 	<p>Part XI deals with welfare issues, which include:-</p> <ul style="list-style-type: none"> ○ Permit to work ○ Meals in certain dangerous trade ○ Protective clothing and appliances
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These are all necessary for the continuous running of facility.

4.4.12 The Factories (First Aid) Rules, Legal Notice No. 160, 1977

This specifies the content of the first aid box, first aid training of personnel and measures to be undertaken in the incidence of minor injuries.

4.4.13 The Water Act 2016 (No. 8 of 202); Laws of Kenya

The Water Resource Management Authority (Currently known as WRA) has been established under this act to:

- ❖ Develop principles and guidelines for allocation of water resources;
- ❖ Monitor and re-assess water resource management strategy;
- ❖ Monitor and enforce permission attached to water use;
- ❖ Regulate and protect resources quality from adverse impacts;
- ❖ Manage and protect water catchments;
- ❖ To liaise with other bodies for better regulation and protection of water resources.

The Water Act provides for the conservation and controlled use of water resources in Kenya. Under the Ministry of Water, the Act prohibits pollution of water resources and controls the discharge of industrial and municipal effluents into the ocean and other water bodies.

These affect developments in their impacts to water resources and in their ability to have the required demand of water consumption for their stated activities. The above acts taken together guide the development of such infrastructure as the one proposed by the proponent.

4.5 World Bank's Safeguard Policies:

The objective of the World Bank's environmental and social safeguard policies is to prevent and mitigate undue harm to people and their environment in the development process. These policies provide guidelines for bank and borrower staffs in the identification, preparation, and implementation of programs and projects. Safeguard policies have often provided a platform for the participation of stakeholders in project design, and have been an important instrument for building ownership among local populations. (World Bank, 1999-2006)

4.5.1 World Bank Safeguard Policy 4.01-Environmental Assessment

The environmental assessment process provides insights to ascertain the applicability of other WB safeguard policies to specific projects. This is especially the case for the policies on natural habitats, pest management, and physical cultural resources that are typically considered within the EA process. The policy describes an environmental assessment (EA) process for the proposed project. The breadth, depth, and type of analysis of the EA process depend on the nature, scale, and potential environmental impact of the proposed project. The policy favours preventive measures over mitigation or compensation measures, whenever feasible.

The operational principles of the policy require the environmental assessment process to undertake the following:

- ❖ Evaluate adequacy of existing legal and institution framework including applicable international environmental agreements. This policy aims to ensure that projects contravening the agreements are not financed.
- ❖ Stakeholder consultation before and during project implementation
- ❖ Engage service of independent experts to undertake the environmental assessment
- ❖ Provide measures to link the environmental process and findings with studies of economics, financial, institutional, social and technical analysis of the proposed project.

Develop programmes for strengthening of institutional capacity in environmental management. The requirements of the policy are similar to those of EMCA which aims to ensure sustainable project implementation. Most of the requirements of this safeguard policy have been responded to in this report by evaluating the impact of the project, its alternatives, existing legislative framework and public consultation.

4.5.2 Bank Safeguard Policy 4.36-Forests

This safeguard policy provides measures for protection of forests through impact evaluation and conservation of forest during project development. This policy is not triggered because the proposed project area does not have natural forest. The area is fully settled with various land uses but a few community members have privately owned tree plantations in the area. It is advisable that the trees be preserved as much as possible as the sections neighbouring the trees are open land that can be used to re-align the route of the transmission line. If other project factors necessitate the harvesting of the trees, then it is recommended that rehabilitation programmes be developed.

4.5.3 Bank Safeguard Policy 4.11-Physical Cultural Resources

This policy assists in preserving physical cultural resources and helps reduce chances of their destruction or damage. The policy considers Physical Cultural Resources (PCR) to be resources of archaeological, paleontological, historical,

architectural, and religious (including graveyards and burial sites), aesthetic or other cultural significance. The project shall not traverse any homes in rural Kapsaos Ward. There are no such sites at Chepchirik or near the proposed water pan site therefore this policy is not triggered.

4.5.4 Bank Safeguard Policy 4.12-Indigenous People

This policy requires project to be designed and implemented in a way that fosters full respect for Indigenous Peoples' (IPs) 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. This policy will not have any repercussion on the Kapsaos community since the project Ward is not settled by any IPs. Further, there will be no displacement of any community.

4.5.5 World Bank Safeguard Policy BP 17.50- Public Disclosure

This BP encourages Public Disclosure (PD) or Involvement as a means of improving the planning and implementation process of projects. This procedure gives governmental agencies responsibility of monitoring and managing the environmental and social impacts of development projects particularly those impacting on natural resources and local communities. The policy provides information that ensures that effective PD is carried out by project proponents and their representatives. The BP requires that Public Involvement should be integrated with resettlement, compensation and indigenous peoples' studies. Monitoring and grievances address mechanism should also be incorporated in the project plan. The proposed project incorporated public participation and stakeholders' consultation as part of the ESIA studies in order to collect the views of the local communities and their leaders for incorporation in the project mitigation plan. The consultation was successful and the community members gave a number of views that have been considered in the mitigation plan.

5.0 PUBLIC PARTICIPATION

5.1 Introduction

This chapter describes the process of the public consultation and participation followed to identify the key issues and impacts of the proposed project. Views from the general public, local leaders, surrounding institutions and development partners who in one way or another would be affected or rather interested in the proposed project were sought through interviews and public meetings as stipulated in EMCA, 1999.

5.2 Objectives of the consultation and public participation

The objective of the consultation and public participation was to:

- (i) Disseminate and inform the stakeholders about the project with special reference to its key components and location.
- (ii) Gather comments, suggestions and concerns of the interested and affected parties.
- (iii) Incorporate the information collected in the EIA study.

In addition, the process enabled,

- (i) The establishment of a communication channel between the general public and the team of consultants, the project proponents and the Government.
- (ii) The concerns of the stakeholders be known to the decision-making bodies at an early phase of project development.

5.3 Interested and Affected Parties Consulted:

See the full list of the people/Stakeholders consulted in the appendix section of this report.

5.4 Consultation and Public Participation Methodology:

The Consultation and Public Participation (CPP) process is a policy requirement by the Government of Kenya. It is a mandatory procedure stipulated by EMCA, 1999 section 58, on EIA for the purpose of achieving the fundamental principles of

sustainable development. It is an environmental and social assessment exercise which was conducted between 8th and 22nd of March, 2019. The exercise was conducted by the consultant and his team in three ways, namely: (i) Focus Group Discussions (FGD) and Key Informant Interviews (KII), (ii) Field surveys and observations and (iii) Public meetings. A major public meeting that was held on 22nd of March 2019 on site captured the concerns of the people especially those directly affected by the project.

It was possible to meet a representative population at the time of this meeting due to the nature of the project. The number of people affected by the project was very high given that Chepchirik Water-pan is the major source of water in the area. Similarly, a number of local institutions (e.g. MCA Office, Schools, churches etc.) and farmer groups (Youth groups, Women Groups etc.) had great interest in the proposed project. Completion of the questionnaires and the issues raised during the public meeting enabled the identification of the specific issues from the stakeholders' response which provided the basis upon which the aspects of the ESIA was undertaken.

The purpose for such interviews was to identify the positive and negative impacts and subsequently promote proposals on the best practices to be adopted to mitigate the negative impacts. It also helped in identifying any other miscellaneous issues which may bring conflicts in case project implementation proceeds as planned.

In general, the following steps were followed in carrying out the entire CPP process:-

- i. Identification of institutions and individuals interested in the process-database of the interested and affected parties
- ii. Administration of questionnaires to the different target groups and local community members along the proposed project site
- iii. Meetings at various levels and with different target groups

The one major meeting that was held at the project site was exhaustive in terms of the stakeholders that were consulted as they were found to be truly representative of the target population.

From the field work, it was apparent that majority of the stakeholders were aware of the proposed project. The direct impacts of the project were also known, especially to the community members. The project was nevertheless received positively, and Chepchirik Water-pan Development Group members expressed eagerness on the prospect of the commissioning of the project.

Local communities and major stakeholders independently gave their views, opinions, and suggestions. They supported the project idea together with the circumstances and conditions under which project is to be established.

5.5 Issues Raised

This sub-section covers the views and opinions of the key stake holders. It highlights both positive and negative socio-economic and environmental impacts anticipated during the project phases. This is followed by suggested mitigation measures that the proponent should incorporate to minimize environmental degradation and promote sustainable development. This section ends by highlighting the opinions and expectations of the stakeholders as they were presented at the public meeting:

- ❖ The proposed project was long overdue and no objection was raised from the local residents; they were for the idea that the project commences immediately
- ❖ Soil erosion was rampant
- ❖ There was a previous Water-pan in the same spot which was filled up with sediment
- ❖ The proposed Water-pan would help provide water which they have to walk long distances to look for and give their animals
- ❖ As a result of the above, there would be reduced water use conflicts
- ❖ A management committee should come up with a Resource management plan to ensure water-use rules are not violated, and that safety of the auxiliary structures is guaranteed.

- ❖ That members must avail their labour when needed
- ❖ Management should be proactive and improve community communication and consultation methodologies.
- ❖ Among the positive measures mentioned by the members present included:
 - Availability of water
 - Soil conservation
 - Community unity due to shared resource use
 - Animal safety once a drinking point is made
 - Social- reduced time to get water. More time for children to go to school and parents to concentrate on other economic activities
 - Sustainable agriculture
- ❖ **Challenges** noted by members present included:
 - Drowning of children or even older members of the society. Members were made aware and committed to adhere to safety measures such as keeping off children from the pan, and fencing the water pan area. A watering trough would be provided to ensure safety.
 - Members also noted that there was chronic lack of drinking water and wondered whether a treatment/filtering technology could turn part of the water into a clean source for human consumption. The water treatment will take place at the storage tanks.
 - Land ownership was communal. It was also agreed that MoU would be signed by the landowners adjacent to the proposed site to confirm their support for the project where the project might extend slightly touching the edges of their lands as they had observed and promised verbally.
 - Government Agencies e.g. WRA, NEMA, Fisheries and Marine Department, etc should be all round on the ground to monitor the project and ensure adherence to the laws of the land.

6.0 POTENTIAL ENVIRONMENTAL IMPACTS

This section identifies both negative and positive impacts associated with the proposed project. These are identified according to the proposed project phases namely: Construction Phase, Operational Phase and the Decommissioning Phase.

6.1 Overview of Impact Segments

6.1.1 *Construction Phase:*

During excavation of pan and construction and installation of other infrastructure, potential negative impacts include: loss of grazing land; loss of potential agricultural land; interference by curious onlookers who finally waste their time. The cleared grass, shrubs and light trees as well as excess excavated soil will form unwanted heaps around water pan.

6.1.2 *Operation Phase*

When the proposed water pan is commissioned, it is bound to change environmental, physical, biological and socio-economic parameters in the project site and its environs, and the nation in general. The predicted impacts on various parameters are highlighted below:

(i) Physical Environment:

The implementation of the project will lead to minor loss of vegetation cover in the pan area and the surrounding where other infrastructure are established. A significant portion of land will also be cleared for crop production. There is also change in the land use at the water points. Similarly emission of exhaust fumes from machinery, incidentally affect the operators and its environs. The effects are minimal however mitigation measures are highlighted in the EMP

(ii) Ecology:

Ecology is the study of relations between organisms with respect to their environment. There is no significant ecological change due to small scope of the project. However, there will be change of flora and fauna from naturally

undisturbed sections of land to high activity level point (human beings, livestock, wildlife, fish, snakes, trees, grass, birds, garden crops) favoured by water availability and green environment.

(iii) Socio Economic Impacts:

The proposed project will improve socio-economic status of the local community and its neighbouring environment. Water will be available for crop production, domestic use, livestock and others. This will create daily income for the people hence uplifting their economic status. The implementation of the project will bring water close to the community thereby reducing distance to water points. Women and children in particular will have more time for other activities. Women will have time for household chores, gardening and income generating activities while children will have time for studies. It is expected to improve livestock production as well as community livelihood and health. Adequate water reduces the rate of rural-urban migration. A greater population will therefore be maintained in the area that can put their efforts on farm cultivation and improved livestock production leading to the rise in the local economy and the entire nation in general. Adequate clean water will enable subsistence kitchen gardening nearby leading to food security, improved nutrition and employment creation.

(iv) Environmental Health and Safety:

According to International Labour Organization (ILO), Occupational Health and Safety (OHS) is a service that is essentially preventive, promotive and responsible for advising employers and employees and their representatives in health and environmental requirements for optimal health of workers and safe work environment while WHO states that occupational health and safety programmes should aim at promoting and maintaining highest degree of physical, mental and social well-being in all occupations.

During the construction and operation phase of this project the operators and service providers should adhere to laid down work place regulation by wearing protective gears and observing working time. These efforts will bear fruit if the project management committee embraces the OHS requirements.

(v) Transfer of Knowledge:

With expected collaborations and intention of the project as an entry point into individual community members adopting similar proposals on a small scale level, there is no doubting that there is going to be plenty of technological transfer by the project.

BOX 1: Summary of Positive Impacts

- (i) Reduced land degradation by harnessing road water run-off and turning it from “problem water” to productive input for livestock and crop production
- (ii) Availability of water for animal and crop husbandry for food security. The project will enable establishment of kitchen garden crops and vegetables under micro irrigation hence improved nutrition and health.
- (iii) Reduced soil erosion in adjacent farms due to reduction of surface runoff thereby improving soil cover and planting of Napier grass
- (iv) This also has an effect on improved productivity.
- (v) Increased tree cover by introducing water-efficient agro-forestry tree species for water and environmental conservation
- (vi) Availability of water for domestic use. By distributing treated water to homesteads or designating a water point for domestic water, the water will be comparatively clean hence reduced water borne diseases and improves human health.
- (vii) Water will be available for livestock. This improves livestock production. Livestock breeds are expected to improve leading to increased milk and meat production.
- (viii) The water pan may act as fish pond for fish farming. In addition the fish will act as biological control of mosquitoes as fish feeds on mosquito larvae.
- (ix) The water project will reduce water conflict among neighbouring communities with regard to watering livestock
- (x) The project will bring water close to the community. This reduces the distance to water points. Women and children will spend less time while fetching water. Women will have time for house chores and other economic activities such as kitchen gardening and income generating ventures while children will have time for studies and recreation. Also mud wall houses will be smeared regularly and clothing cleaned as frequent. Overall, this will improve performance in schools and socio-economic status

of the benefiting community.

- (xi) The project can be used as a model demonstration for similar projects and its design can be adopted by individuals in the community thus knowledge transfer.
- (xii) Establishing tree nurseries adjacent to the water pan will help in afforestation programmes

BOX 2: Summary of Expected Negative Impacts

- (i) Loss of grazing land by community members as the site is used for project implementation.
- (ii) During excavation of the water pan and other infrastructure, there is the likelihood of loss of man-hours by curious onlookers and that of the workers due to interference.
- (iii) There is also a likelihood of overgrazing around the water trough point(s).
- (iv) The water pan will encourage rapid multiplication of mosquitoes that causes malaria. It is expected that malaria prevalence will increase.
- (v) There is the potential of increased chances of the public health and occupational health hazards and safety (OHS). Accidents may occur during construction or during the operation phase. Some of the OHS concerns include ergonomic related problems. An effective use of protective gear and adherence to place of work regulation is recommended.
- (vi) During dry season, there is a likelihood of water conflict between the users and neighbouring communities. This leads to insecurity and even loss of life. There is therefore the need to form project management committee to regulate the use of water and to amicably resolve conflicts through dialogue. In addition provincial administration to provide security and restrict influx of livestock from other areas. Furthermore, there is the need to put in place early warning and response systems in place.
- (vii) Loss of life due to drowning of children and increased cases of snake bites
There is a likelihood of theft, vandalism or damage infrastructure damage during operational phase of the project
- (viii) Abandoning the water project and associated activities leads to waste of precious commodity, possible resurgence of erosion and leaving of an opening that is hazardous in nature. There is therefore the need for landscape restoration to its original state before disturbance.

7.0 MITIGATION MEASURES AND MONITORING PROGRAMMES

7.1 Introduction:

This section highlights the mitigation measures for the expected negative impacts of the proposed project. The potential impacts and the possible mitigation measures have herein been analysed under three categories: Construction, Operational and Decommissioning Phases.

7.2 Mitigation of Related Impacts:

The table below presents the mitigation measures. Note that these have been captured in depth in the methodology, design and design alternative sections of this report:

Potential Impact 1	Loss of grazing and potential agricultural land for project implementation
Project Activities	Excavation of water, construction and installation of related works
Environmental Receptor	Land, Human
Duration	Project lifespan
Magnitude	Long term
Mitigation Measures	This is an opportunity cost foregone.
Significance	Direct/minimal negative/adaptable impact
Potential Impact 2	Loss of man-hours by curious onlookers and that of workers due to interference
Project Activities	During construction phase
Environmental Receptor	Human being and livestock
Duration	Short term
Magnitude	Minor
Mitigation Measures	Keep away idlers and livestock by putting warning signs at strategic places and informing the residents.
Significance	Minor, direct, occasional, avoidable impact.
Potential Impact 3	Dust/Air pollution
Project Activities	Excavation of the water pan and other infrastructure.

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Environmental Receptor	Livestock, wildlife, human beings and plants.
Duration	Short term
Magnitude	Medium
Mitigation Measures	Appropriate scheduling of activities. Construction monitoring. Dust suppression through sprinkling water. Proper servicing of equipment to reduce exhaust fumes. Communication with residents. Provision of dust protective screens.
Significance	Minor negative/indirect/sporadic/avoidable impact
Potential Impact 4	Obstructive heap of cleared shrubs and trees as well as excavated soil
Project Activities	Site Clearing and preparation.
Environmental Receptor	Livestock, human beings, wildlife, water and land tillage machinery
Duration	Short term
Magnitude	Minor
Mitigation Measures	Use material as reinforcement
Significance	Minor, direct, avoidable impact
Potential Impact 5, 6 & 7	Loss of vegetation, habitat, land degradation & loss of income
Project Activities	Site clearance
Environmental Receptor	Land, flora, fauna, endemic species
Duration	Immediate/medium term
Magnitude	Small
Mitigation Measures	The removal of vegetation, ecological habitat and loss of income is unavoidable, and is the main trade-off to be made against the economic benefits to be derived from the project. By design a few vegetation will be removed to pave way for implementation of the water project. There is therefore the need for rehabilitation through planting of grasses and trees around the water pan, practice agro-forestry and general environment greening to restore flora and fauna habitat.
Significance	Direct/minor negative/reversible impact
Potential Impact 8	Increased Vector-borne diseases e.g. malaria due breeding of

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	Mosquitoes
Project Activities	During Operational phase (pool of water)
Environmental Receptor	Human
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> • Use mosquito nets and clear unnecessary bushes and grass around homesteads • Equip dispensaries with malaria drugs
Significance	Minor, indirect, un-avoidable impact.
Potential Impact 9	Accidents
Project Activities	During construction and operation phase
Environmental Receptor	Workers
Duration	Short to long term
Magnitude	Minor
Mitigation Measures	Wear protective/safety gear and adhere to work place regulations.
Significance	Minor, direct, occasional, avoidable impact.
Potential Impact 10 & 11	Water Conflict, Increased Insecurity and loss of life
Project Activities	Competition for scarce water among local community and neighbours during dry season
Environmental Receptor	Human being
Duration	Short term
Magnitude	Medium
Mitigation Measures	<ul style="list-style-type: none"> • Form project management committee to regulate the use of water and pasture and to amicably resolve conflicts. • Area administration to provide security and restrict influx of livestock from other areas. • Put in place early warning and response systems in place.
Significance	Direct, medium negative, occasional, avoidable impact.
Potential Impact 12	Drowning of children and snake bites
Project Activities	During operational phase

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Environmental Receptor	Human being
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> • Have a perimeter for the water pan and restrict children from the site. • Equip the dispensaries with drugs to treat snake bites
Significance	Direct, short term negative, occasional, avoidable
Potential Impact 13	Theft, vandalism and damage of infrastructure
Project Activities	During operational phase
Environmental Receptor	Human being
Duration	Long term
Magnitude	Minor
Mitigation Measures	Involve community at all levels of project implementation for acceptance and ownership and provide water for domestic and livestock.
Significance	Direct, short term negative, occasional, avoidable
Potential Impact 14	Waste of land due to project abandonment
Project Activities	Decommissioning/abandonment
Environmental Receptor	Human, land
Duration	Long term
Magnitude	Medium
Mitigation Measures	Demolition and disposal of structures, landscape restoration by removing pipeline, filling depressions, removing unused equipment, structures and facilities to give room for new activities.
Significance	Medium negative, Direct, Occasional, avoidable impact.

8.0 ANALYSIS OF PROJECT ALTERNATIVES

This section analyses the project alternatives in terms of site, design, technology, waste management options and beneficiary. It also looks at uncertainties during the project cycle.

8.1 The “No Project” Alternative:

This option will mean that the project will not be undertaken. This implies that the proposed project will not be implemented. Thus, opportunities created by the project will not be realised. Even though, if positively affirmed, the site would remain intact, and any concerns of environmental and alteration would be non-existent, the no option was not considered viable because:

- ❖ The donor objectives would not be met
- ❖ The positive impacts associated to the project would not come to light
- ❖ Pressure on existing resources would not be reduced.
- ❖ Socio-economic benefits from the proposed project would not be accrued.

8.2 The ‘Yes Project’ Alternative:

This option was considered viable as opposed to the ‘no project’ because:

- ❖ All the positive impacts as raised above would be realised.
- ❖ Under the proposed construction alternative, the Proponent would be issued with an EIA license. In issuing the license, NEMA would approve the Proponent’s proposed excavation of the water pan and activities incidental thereto and connected therewith provided all environmental measures are complied with during the planning, design, excavation/ construction, operation and decommissioning phases. Due to NEMA approval, excavation/construction and operation of the proposed water pan project, the positive and negative impacts given in chapter five will be experienced.

8.3 Relocation Alternative

Relocation option to a different site is an option available for the project implementation. At present the proponent does not have an alternative site for the target residents of Buchenge. This means that the donor has to look for another suitable site. Looking for the land to accommodate the water project and completing the transfer of land ownership or lease agreement may take a long period although there is no guarantee that the land would be available.

Assuming that the land is available the cost of starting community mobilization, survey/design and conducting EIA may cost an additional substantial amount of money that is not available. The proponent would also have to spend another one month to redo the process according to site conditions and whatever had been done and paid to date will be counted as a loss to the collaborators. This is a delay that our economy cannot afford. This would also lead to a situation like No Project Alternative. The other consequence of this is that it would be a discouragement to the sponsor and the benefiting community.

8.4 Analysis of Alternative Construction Materials and Technology

The water pan will be excavated using machinery. Excavation of the water pan using manual labour and hand tools is not suitable for a water pan. It is not only relatively expensive but takes a longer time. *It should be noted that water pans would be conveniently excavated over short window of time that is during the dry and for this case before the end of government financial year.* Equipment that saves energy (pump) and water (irrigation system) will be given first priority without compromising on cost or availability factors. Materials will be sourced locally whenever applicable and local labour will be optimised.

8.5 Solid Waste Management Alternatives

There are no much wastes that will be generated from the proposed water pan project. However an integrated solid waste management system is recommendable. The Proponent will also manage the wastes generated in accordance with Waste Management Regulations of 2006. The proponent will give priority to reduction at source of the materials. This option will demand a solid

waste management awareness programme in the management. Recycling, reuse and composition of the waste will be the alternative in priority. This will call for a source separation programme to be put in place. Sanitary land filling is the best option the proponent needs to consider

Uncertainties may arise during the project cycle from a variety of aspects in any development.

8.6 Uncertainties:

(i) General Uncertainties:

- (a) Changes that may occur in baseline conditions due to external factors over the lifetime of the project.
- (b) Uncertainties related to policy initiatives that might influence the assessment of future baseline and post development conditions.
- (c) Uncertainties in design information, which in the current state is dealt with by a good definition of design parameters for the development.
- (d) Uncertainty with respect to project implementation and planning, since the detailed program and means of excavation/construction may be influenced by the choice of contractor, and the detailed design of the development

(ii) Specific Uncertainties:

- (a) Possibility of presence of unsuitable geological formation that renders the site unsuitable for the water pan due to highly porous soils, solid rock among other uncertainties.
- (b) Water conflict between the various users may render use of the water pan not achieve the intended purpose.
- (c) Failure by the sponsor to release funding for the project implementation. This leads to stalled project that waste precious expectations and resources

9.0 ENVIRONMENTAL MANAGEMENT/MONITORING PLAN

9.1 Introduction

The proponent of the proposed project acknowledges the fact that the proposed project activities will have some impacts on the biophysical environment, health and safety of its employees and members of the public, and socio economic well-being of the local residents. Thus, the main focus will be on reducing the negative impacts and maximizing the positive impacts associated with the project activities through a programme of continuous improvement.

An environmental management/monitoring plan has been developed to assist the proponent in mitigating and managing environmental impacts associated with the life cycle of the project. The EMP has been developed to provide a basis for an Environmental Management System (EMS; ISO 14001 principles) for the project. It is noteworthy that key factors and processes may change through the life of the project and considerable provisions have been made for dynamism and flexibility of the EMP. As such, the EMP will be subject to a regular regime of periodic review.

The EMP Involves construction, operational and decommissioning phases of the proposed project respectively. In general, the tables outline the potential safety, health and environmental risks associated with the project and detail all the necessary mitigation measures, their financial costs, as well as the persons responsible for their implementation and monitoring. The EMP will be used as checklist in future environmental audits.

9.2 Significance of an EMP

An Environmental Management Programme is an important result of an Environmental Report because it provides a framework or checklist for project monitoring and evaluation/audit. Some of the mitigating measures proposed, will be incorporated into the project designs. The monitoring plan should be implemented during the whole project cycle. The monitoring involves the

observation, review, and assessment of onsite activities to ensure adherence to regulatory standards and the recommendations made to reduce negative impacts. The programme must be comprehensive and address relevant issues, with a reporting component that will be made available to the regulatory agencies based on a mutually agreed frequency. The monitoring report includes but not limited to:

- a) Raw data collected
- b) Table/graphs (where appropriate)
- c) Discussion of results with respect to the development in progress, highlighting parameters, which exceed standards.
- d) Recommendations
- e) Appendices with photos/data, etc.

The EMP for the proposed water pan project provides a logical framework within which identified negative environmental impacts can be mitigated and monitored. It assigns responsibilities of actions to be taken, and provides a timeframe within which mitigating measures and monitoring are done. The EMP has addressed and identified potential negative impacts and mitigating measures.

9.3 Desktop Preparation Phase

This refers to the stage whereby all the documents and designs pertaining to this project were being undertaken in various offices. Some of these activities have since been completed while others are ongoing.

9.4 Implementation and Operational Phase

This is the longest stage of project activities. It is at this stage that the intended project activities are accomplished. During this phase a lot of care and concerns are considered in matters concerning impacts

9.4.1 Mitigation Measures for Impacts Anticipated During Construction Phase

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs.)
1. Minimize Solid Waste Generation				
Generation of solid waste	Use excavated soil for embankment	Contractor	2 months	-
	Polythene bag should be reused/recycled	Contractor	Throughout	-
2. Minimize vegetation disturbance at and/or around construction site				
Vegetation disturbance	Ensure proper demarcation and delineation (fencing the project site) of the project area to be affected by construction works and also after the construction through to operation and decommissioning phases.	Proponents (KCSAP)	1 week	5,500
Loss of grazing and potential agricultural land	This is an opportunity cost foregone. Practice intensive farming.	Community Members, Specific Land owners at the whose edge of their farms is likely to be affected (have already consented willingly through writing)	Entire Project life	Nil to project
Loss of vegetation, habitat, land degradation & loss of income	Rehabilitation through planting of grass and trees along pipeline and around the water points and general environment greening to restore flora and fauna and habitat.	Community Members, relevant collaborator	1 year	Catered
3. Reduce dust emissions				

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Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs.)
Fugitive dust, Exhaust fumes, Air pollution	Appropriate scheduling of activities. Construction monitoring. Dust suppression through sprinkling if any. Proper servicing of equipment to reduce exhaust fumes. Communication with residents.	Public works Office, Community, KCSAP	Excavation period	Routine work
4. Minimize water pollution				
Water pollution	Block excavated soil from being washed into the water pan by compacting them around the pond and planting trees and grass on top.	Proponents	Throughout construction period	10,000
5. Minimize occupational health and safety risks				
Approval of project design	Ensure that design for water Pan is approved by the Ministry of Water	Proponents	One-off	0
Health and safety	<ul style="list-style-type: none"> Sensitize the construction team on occupational health and safety Discourage unauthorized idlers at the site Provide adequate PPE's to workers 	Proponents	One-off	0
Site accidents	<ul style="list-style-type: none"> Train community members on basic safety 	Collaborators	Before commissioning of project	Tender procedure

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Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs.)
	<ul style="list-style-type: none"> Provide written instructions on how to avoid and respond to accidents. Safety gears should be given as necessary. 	Collaborators, Community.	Once	Negligible
	<ul style="list-style-type: none"> Leaving the site as clean as possible. 	All stakeholders on site.	Always	Routine
	<ul style="list-style-type: none"> Provide a well-stocked onsite first aid box 	Contractor	Once	Contractor cost
	<ul style="list-style-type: none"> Provide a list of contact persons and ambulance to be contacted during accidents 	Public Works, Contractor	Once	Negligible
Loss of life due to drowning of children and snake bites	<ul style="list-style-type: none"> Have a perimeter for the water pan and restrict children from the site. Equip the area dispensaries with drugs to treat snake bites 	Community, public Health	Project period	<ul style="list-style-type: none"> Value of life 180,000
Sanitary conveniences	Suitable, efficient, clean, well-lit and adequate sanitary conveniences should be provided for construction workers	Proponents	One-off	10,000
First Aid	Well stocked first aid box which is easily available and accessible should be provided within the premises	Proponents	One-off	5,000

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Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs.)
Increased Malaria prevalence	Clearing bushes Keep fish in the water pan Use of mosquito nets by those close to the water pan.	Community, Ministry of health,	Continuous	Varies
6. Ensure the general safety and security of the site and surrounding areas				
Insecurity	Ensure the general safety and security at all times by providing day and night security guards	Proponents	Continuous	-
	Ensure only authorized personnel get access to the site.	Security Officer	Continuous	-
7. Environmental monitoring of the project				
Environmental concern during the construction phase	The proponent will liaise with the environmental consultants throughout the construction phase and ensure that the conditions of approval are adhered to.		Throughout construction phase	-
Oil and fuel Spill	Equipment, oil and fuel storage will be monitored and maintained on a regular basis. Any indication of leaks, discharge to the ground will be addressed immediately. Equipment maintenance on site will be minimal and monitored. In an event of oil/fuel spill, the affected soils will be scooped and disposed away from water course and terrestrial and aquatic life.	Public works Office	Excavation period	Routine work
8. Other Forms of Interference				

ENVIRONMENTAL IMPACT ASSESSMENT REPORT OF THE PROPOSED CHEPCHIRIK COMMUNITY WATER PAN

Loss of man-hours by curious onlookers and that of workers due to interference	Keep away idlers and livestock by putting warning signs at strategic places and informing the residents.	Chepchirik water pan management committee, County Public works Officer	Excavation period	Negligible
Water Conflict, insecurity and loss of life	<ul style="list-style-type: none"> • Form project management committee to regulate the use of water and pasture and to amicably resolve conflicts. • Local administration to provide security and restrict influx of livestock from other areas. • Put in place early warning and response systems in place. 	Chepchirik Community, KCSAP	Before commissioning of project	Mainstreamed
9. Other Forms of Interference				
Water Quality Issues	<ul style="list-style-type: none"> • Due to its open siting and surface water inflows in ponds, the water can become polluted and cause health hazards. Guinea worm, water hyacinth, mosses, algae may invariably invade the pond in large quantities. • Each household to treat the water for domestic use. 	Public health/ Individuals	Always	Value of life
Theft, vandalism and damage of infrastructure	<ul style="list-style-type: none"> • Construct livestock water troughs and kiosks close to community for them to own and protect the entire project. 	Community/ KCSAP	Project period	Varies

9.4.2 Mitigation Measures for Impacts Anticipated during Operation Phase

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs)
Minimization of solid waste generation and ensuring more efficient solid waste management				
Solid waste generation	Ensure that solid waste generated is regularly disposed of appropriately	Proponents/Contractor	Continuous	0
	Comply with the provisions of Environmental Management and Co-ordination (Solid Waste) Regulations 2006	Proponents/Contractor	Continuous	0
Minimize water pollution				
Water pollution	Ensure the polythene does not find its way into the river	Proponents and Ministry of Water Officers	continuous	0
Riparian encroachment	Sensitize the group on the usefulness of the riparian area and restrict cultivation.	Proponents/NEMA/Agriculture officers	One-off	10,000
Oil spills	Ensure that the pump area is impermeable so that all spills are contained. Use funnel when refueling and any maintenance should be done in the workshop.	Proponent/Contractor		5,000
Ensure more efficient water use				
Water management	Promptly detect and repair embankment when they leaks	Proponents	Continuous	-

ENVIRONMENTAL IMPACT ASSESSMENT REPORT OF THE PROPOSED CHEPCHIRIK COMMUNITY WATER PAN

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs)
	Encourage water demand management at household level	Proponents/ Chepchirik water pan management committee	Continuous	-
Minimization of health and safety impacts				
Disease outbreak	-Keep the dairy well fed and clean in adequately sized enclosures	Proponents	Throughout operation phase	-
Risk of Drowning	Fence the water pan and construct a proper gate	Proponents	Once off	15,000.00
Ensure the general safety and security of the project site and surrounding areas				
	Ensure the general safety and security at all times by providing day and night security guards	Proponents	Continuous	-

9.5 Winding up phase

This phase is more hypothetical than real. The basic rehabilitation measures are required to be undertaken once all operation activities have stopped. The activities, actions, mitigation measures person responsible to undertake the same and time span for doing this is given below

9.5.1 Mitigation measures for the impacts anticipated during the decommissioning phase

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs)
1. Demolition waste management				
Demolition waste	The soil from the embankment to be used for landscaping the area	Proponents	Once-off	25,000
	All materials that will not be used for other purposes must be removed and recycled/reused as far as possible	Proponents	Once-off	15,000
2. Minimizing Land wastage				
Waste land due to project abandonment	Demolition and disposal of structures, landscape restoration by removing pipeline, filling depressions, removing unused equipment, structures and facilities to give room for new activities.	Community	Decommissioning	Varies
3.Rehabilitation of project site				

ENVIRONMENTAL IMPACT ASSESSMENT REPORT OF THE PROPOSED CHEPCHIRIK COMMUNITY WATER PAN

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (KShs)
Site degradation	Implement an appropriate re-vegetation programme to restore the site almost to its original status	Proponents	Once-off	20,000
	Consider use of indigenous plant species in re-vegetation	Proponents	Once-off	0

10.0 ENVIRONMENTAL MONITORING AND AUDITING

10.1 Introduction

Monitoring to be undertaken will be both active and reactive. Active monitoring will include the following:-

- ❖ Monitoring of the achievements of specific plans of the EMP, performance criteria and fulfilment of objectives;
- ❖ Systematic inspection
- ❖ Surveillance and monitoring of the work environment, including the organization of work and activities involved;
- ❖ Monitoring of workers' health; and
- ❖ Monitoring of compliance with regulations and other requirements.

Reactive monitoring will include the following:-

- ❖ Work related injuries, ill health (including record keeping and monitoring of sickness/absence), disease and accidents;

10.2 Specific Project Monitoring parameters

Chepchirik Water-pan development group will adopt a participatory approach in monitoring and evaluation of sub project activities that will involve all stakeholders. Each team will monitor activities under it using indicators specified in the framework below and report to the unit. The approach will ensure accountability in the utilization of sub project resources vis-à-vis envisaged results; provide lessons that will allow correction and/or modification of plan. A number of intermediate and final indicators will be monitored to demonstrate progress towards attaining the sub project goal.

The framework shows the monitoring and evaluation plan for all the outcome and intermediate outcome indicators of the sub project. This includes the baselines, targets, data collection methods and responsibility and frequency of data collection. Community and household surveys will be used as the main

methodology for collecting data on most of the outcome indicators as specified in framework.

The system is intended, in the first instance, to help stakeholders to routinely track the progress and performance of sub project components and activities, including quantity, quality, timeliness, and cost effectiveness of the outputs. It will also provide a systematic means for periodic assessment of activities and accountability for decisions and actions taken, and results achieved in relation to resources used, from the standpoints of Kenya Climate Smart Agriculture Project.

10.3 Environmental Monitoring Parameters

Monitoring will involve measuring, observing, recording and evaluation of physical, socio-economic and ecological variables within the project area and the neighbourhood. This may include the following: -

- ❖ Positive impact analysis
- ❖ water quality monitoring;
- ❖ Solid waste disposal monitoring; and
- ❖ Public Complaints monitoring

10.3.1 Environmental Monitoring Programme

Indicator	Action required	Responsibility	Time-frame
Objective 1: To monitor impacts on biophysical environment			
Soil erosion	There should be regular checks to ascertain that top soils are not washed away. Restore eroded paths and other surfaces.	Environmental Management Committee	Continuous
Loss of natural vegetation	Monitor density of natural vegetation around the project site. Also, take stock of plants species around the project and see if there are any changes	Environmental Management Committee	Bi-annually

Indicator	Action required	Responsibility	Time-frame
Objective 2: To monitor water pollution risks			
Area cleanliness	Conduct regular inspections to identify any inappropriate solid waste disposal practices or lacking facilities. Scattered litter will be an indicator of bad solid waste disposal practices.	Chepchirik water pan management committee	Continuous
Objective 3: To monitor health, safety and socio-economic impacts			
Incidents/accidents	Collect data on the number, magnitude and frequency of occurrence of incidents/accidents including drowning children, falls, etc within the project site and investigate their causes for appropriate remedial action.	Chepchirik water pan management committee	For all occurrences
Occupational diseases	Regular medical examination of workers should be done to monitor and detect any occupational diseases associated with the work	Chepchirik water pan management committee	Annually
Complaints	Surveys should be conducted through interviews and public.	Chepchirik water pan management committee	Annually
Compliance with relevant legislation	List all the relevant environmental, health, safety and other relevant legislative requirements and conduct regular examination/audit of levels of compliance to them.	Chepchirik water pan management committee	Annually.
Self-environmental audit	EMCA, 1999 requires that an annual environmental audit be conducted to determine compliance level to the national environmental regulations and allow for continual improvement.	Chepchirik water pan management committee	Annually.

10.4 Environmental Auditing

The KCSAP will ensure that during the project activity period, all environmental parameters are well adhered to by the implementing group. Team composition will involve the County Environment Officers.

11.0 CONCLUSION AND RECOMMENDATION

11.1 Conclusions

The study has established that the positive impacts which will accrue as a result of establishment of the proposed project far much outweigh the anticipated negative impacts which can however be adequately mitigated. The proponent will be committed to maximizing on the positive impacts which will have far reaching effects. Also the proponent is committed to putting in place adequate measures to mitigate the anticipated negative impacts.

11.2 Recommendations

Since the proponent has proved to be environmentally and financially credible, we hereby recommended that the proposed project be approved subject to the following conditions:-

- ❖ The proponent applies for necessary licenses from the relevant authorities and adheres to the conditions therein.
- ❖ The proponent shall implement the proposed EMP to the letter and strictly adhere to the mitigation measures recommended so as to achieve the fundamental principles of sustainable development.

REFERENCES

- 1 EMCA (1999), Environmental (Impact Assessment and Audit) Regulations 2003.
- 2 Environmental Management and Coordination (Waste Management) Regulations 2006.
- 3 Occupation Safety and Health Act 2007.
- 4 Occupation Safety and Health Act 2007.
- 5 Odoyo-Bittar J. (2014). Environmental Issues in Project Planning & Management: A Synthesis Paper, University of Nairobi
- 6 Public Health Act (Cap 242). Government Press, Government of Kenya
- 7 UNEP (Industry and Environment), UNIDO, IFA: Environmental Management Systems, Technical Report No. 26 part 2, Paris France 1998
- 8 UNEP, An Environmental Impact Assessment – Framework for Africa, Nairobi, Kenya, 1994
- 9 UNEP, Policy Guidelines for the Control of Environmental Pollution in Urban Areas of Developing
- 10 Water Act 2005. Government Press, Government of Kenya
- 11 World Bank (1991). Environmental Assessment sourcebook volume I, II and III: Policies, procedures and cross-sectoral issues. World Bank, Washington.

APPENDICES

Appendix 1: Copy of ESS Screening Checklist

KCSAP KERICHO 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... <i>Kericho County</i>	
Name of CPCU/Monitoring Officer/Researcher <i>Okal Jacob (CESSCO)</i>	
Sub-project location... <i>Buchenge Sub Location, Kapsaos Ward, Ainamoi Sub-County</i>	
Name of CBO/Institution... <i>Chepchirik Water Development Group</i>	
Postal Address:..... <i>N/A</i>	
Contact Person... <i>Henry Too</i> ... Cell phone:... <i>0724 305184</i>	
Sub-project Name <i>Chepchirik Community Water Pan</i>	
Estimated cost (KShs.)... <i>5.1 Million</i>	
Approximate size of land area available for the sub-project <i>2 acres</i>	
Objectives of the subproject <i>To construct a water pan to support production of Banana and Dairy</i>	
Activities/enterprises undertaken <i>1. Excavation of the pan</i>	
How was the sub-project chosen? <i>During public participation of the formulation of phase II of Kericho County CIDP 2018-2022</i>	
Expected subproject duration: <i>6 Months</i>	

Section B: Environmental Issues

Will the sub-project:	Yes	No
Create a risk of increased soil erosion?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Create a risk of increased deforestation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Create a risk of increasing any other soil degradation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Affect soil salinity and alkalinity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Divert the water resource from its natural course/location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

KCSAP KERICHO COUNTY –ESS SCREENING CHECKLIST

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

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

Section C: Socio-economic Issues

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

KCSAP KERICHO COUNTY -ESS SCREENING CHECKLIST

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

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cause contamination of watercourses by chemicals and pesticides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cause contamination of soil by agrochemicals and pesticides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Experience effluent and/or emissions discharge?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Export produce? Involve annual inspections of the producers and unannounced inspections?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Require scheduled chemical applications?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Require chemical application even to areas distant away from the focus?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Require chemical application to be done by vulnerable group (pregnant mothers, chemically allergic persons, elderly, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

KCSAP KERICHO COUNTY -ESS SCREENING CHECKLIST

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Members of these VMGs in the area who could benefit from the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VMGs livelihoods to be affected by the subproject?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

Section G: Land Acquisition and Access to Resources

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

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

Section H: Proposed action

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

KCSAP KERICHO COUNTY –ESS SCREENING CHECKLIST

(iii) Recommended Course of Action

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

- CPCUs and CDE/NEMA¹ will provide detailed guidance on mitigation measures as outlined in the ESMF; and
- Specific advice is required from CDE/NEMA¹, Lead Officer and CPCUs² 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: **Henry Too**

Position / Community: **Chair Person –PMC Chepchirik Water Pan**

Date **11th April 2019**


¹ County Director of Environment /National Environmental Management Authority ² County Project Coordinating Unit
³ National Project Coordinating Unit

KCSAP KERICHO COUNTY -ESS SCREENING CHECKLIST

Field Appraisal Officer (CDE/NEMA) Recommendation

The project requires EIA done and provide Mitigation Measures to address uncertainties

Name: SAMUEL OMBETE Signature: [Signature] Date: 02 DEC 2019



Note:

Project category	Characteristics
A	Full and extensive ESIA needed- irreversible environmental impacts; impacts not easy to pick, isolate and mitigation cost expensive; ESMP design not easily done; Must have the EIA done at future annual EAs instituted
B	Site specific environmental impacts envisaged; mitigation measures easy to pick, not costly at 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

Appendix 2: Engineering designs for the proposed project.

(Attached as separate report)

Appendix 4: Copy of EIA License

NEMA/PR/KRC/5/2/532

Application Reference No.
 Registration No. **0055780**

For Official Use



nema
mudogho yetu | ujali wetu | wazi wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENT IMPACT ASSESSMENT LICENSE

This is to certify that the Environmental Impact Assessment Project Report received from
KENYA CLIMATE SMART AGRICULTURE PROJECT (KCSAP)(Name of individual/firm) of.....**P.O. BOX 112-20200, KERICHO**.....(Address)
 Submitted to the National Environment Management Authority (NEMA) in accordance with the Environment Impact Assessment and Audit Regulations 2003 regarding.....**PROPOSED CHEPCHIRIK COMMUNITY WATER PAN**.....(title of project)whose objective is to carry on
EXCAVATION AND CONSTRUCTION OF A WATER PAN FOR USE BY CHEPCHIRIK COMMUNITY
(briefly describe purpose)located at
BUCHENGE SUB LOCATION, KAPSAOS WARD IN AINAMOI SUB COUNTY, KERICHO COUNTY.....(locality and county)has been reviewed and a license is hereby issued for implementation of the project, subject to attached conditions

Date this.....**20TH**.....Day of.....**JUNE, 2019**.....

Signature.....*[Handwritten Signature]*.....

SEAL

Director General
The National Environment Management Authority

CONDITIONS OF LICENSE

1. This license is valid for a period of **24 months** (time within which the project should commence) from the date hereof.
2. The Director-General shall be notified of any transfer/variation/surrender of this license.



P.T.O.

ISO-9001-2008 Certified

General Conditions

1. The project is for the construction of a community water pan at Chepchirik by Kenya Climate Smart Agriculture Project (KCSAP).
2. The licence shall be valid for 24 months from the date of issue.
3. Without prejudice to the other conditions of this license, the proponent shall implement and maintain an environmental management system, organizational structure and allocate resources that are sufficient to achieve compliance with the requirements and conditions of this licence.
4. The Authority shall take appropriate action against the proponent in the event of breach of any of the conditions stated herein or any contravention to the Environmental Management and Co-ordination Act, 1999 and regulations there under.
5. This licence shall not be taken as statutory defense against charges of pollution in respect of any manner of pollution not specified herein.
6. The proponent shall ensure that records on conditions of licences/approval and project monitoring and evaluation shall be kept on the project site for inspection by NEMA's Environmental Inspectors.
7. The proponent shall submit an Environmental Audit Report in the first year of occupation/operation/commissioning to confirm the efficacy and adequacy of the Environmental Management Plan.
8. The proponent shall comply with NEMA's improvement orders throughout the project cycle

A. Construction

1. In the event the project borders a river or stream, pursuant to regulation 6 (C) of water regulations, 2006, the proponent shall protect the riparian reserve by ensuring that NO development activity is undertaken within the full width of the river or stream to a minimum of six (6) metres and a maximum of 30 metres on either sides based on the highest recorded flow level.
2. The Land ownership document should be kept and availed whenever required.
3. The proponent shall put up a project signboard as per the Ministry of Works Standards indicating the NEMA license number among other information.
4. The proponent shall ensure that all excavated material and debris is collected, re used and where need be disposed off as per the Environmental Management and Coordination (Waste Management) Regulations 2006.
5. The proponent shall ensure strict adherence to the provisions of Environmental Management and Coordination (Noise and Excessive Vibrations Pollution Control) Regulations 2009.

6. The proponent shall ensure strict adherence to the Occupational Safety and Health Act (OSHA), 2007.
7. The proponent shall ensure that construction workers are provided with adequate personal protection equipment (PPE), sanitary facilities as well as adequate training.
8. The proponent shall ensure that construction activities are undertaken during the day (and not at night) - between 08.00 hrs and 17.00 hrs; and that transportation of construction materials to and from site are undertaken during weekdays (and not weekends) off peak hours.
9. The proponent shall ensure strict adherence to the Environmental Management Plan developed throughout the project cycle.
10. The proponent shall ensure that the development adheres to zoning specifications issued for development of such a project within the jurisdiction of Kericho County with emphasis on approved land use for the area.

B. Operational Conditions

Temp'

1. The proponent shall ensure that all equipment used for operations are well maintained in accordance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations 2009.
2. The proponent shall ensure that all solid waste is handled in accordance with the Environmental Management and Coordination (Waste Management) Regulations 2006.
3. The proponent shall ensure that all workers are well protected trained as per the OSHA, 2007
4. The proponent shall comply with the relevant principal laws, by-laws and guidelines issued for development of such a project within the jurisdiction of County government of Kericho and other relevant Authorities
5. The proponent shall ensure that environmental protection facilities or measures to prevent pollution and ecological deterioration such as solid waste management, effluent discharge management, and Landscaping, occupation and health measures mechanisms are designed, constructed and employed simultaneously with the proposed project.
6. The Water extraction points and the treatment premises shall be fenced off and secured to ensure safety of the water produced.

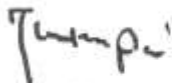
1. The proponent shall seek written approval from the Authority for any operational changes under this licence.
2. The proponent shall ensure that the Authority is notified of any malfunction of any system within 12 hrs on the NEMA hotline 020 606041 and mitigation measures put in place
3. The proponent shall keep records of all pollution incidences & notify the Authority within 24 hrs.
4. The proponent shall notify the Authority of its intent to decommission three months in advance in writing.

D. Decommissioning Conditions

1. The proponent shall ensure that a decommissioning plan is submitted to the Authority for approval at least three (3) months prior to decommissioning
2. The proponent shall ensure that all pollutants and polluted material is contained and adequate mitigation measures provided during the phase.

The above conditions will ensure environmentally sustainable development and must be complied with.

NOTE: THE CONDITIONS OF APPROVAL GO HAND IN HAND WITH THE EIA LICENSE AND FAILURE TO ADHERE TO THE CONDITIONS IS BREACH OF THE LICENSING CONDITIONS.



Samuel Ondeng)

COUNTY DIRECTOR OF ENVIRONMENT/KERICHO

Appendix 5 Project Appraisal Report

CHEPCHIRIK WATER-PAN DEVELOPMENT PROJECT

A Preliminary Project Appraisal Report

1.0 PROJECT INFORMATION:

PROJECT NAME:	Chepchirik Water-pan Development Project
CLIENT/GROUP:	Chepchirik Water Dam Project
REGISTRATION NO:	KER/HDM/SHG/2017/522
PROJECT LOCATION:	Chepchirik Village Buchenge Sub-location Tendwet Location
ADMINISTRATIVE WARD	Kapsaos Ward
SUB-COUNTY	Ainamoi
COUNTY	Kericho
Date:	16 October, 2018

2.0 APPRAISAL TEAM:

Eng. Odoyo J. Bittar	Coordinator, KCSAP Kericho
Absae F. Seda	Director, Met. Services (CTAC Member)
Vincent N. Monari	Water & Irrigation (CTAC Member)
Hon. Erick Koskei	MCA Kapsaos Ward

3.0 PROJECT IDENTIFICATION:

The project was identified in 2017 during County public participation that led to the formulation of CIDP-II meant to be implemented in the period 2017/2018 to 2021/2022.

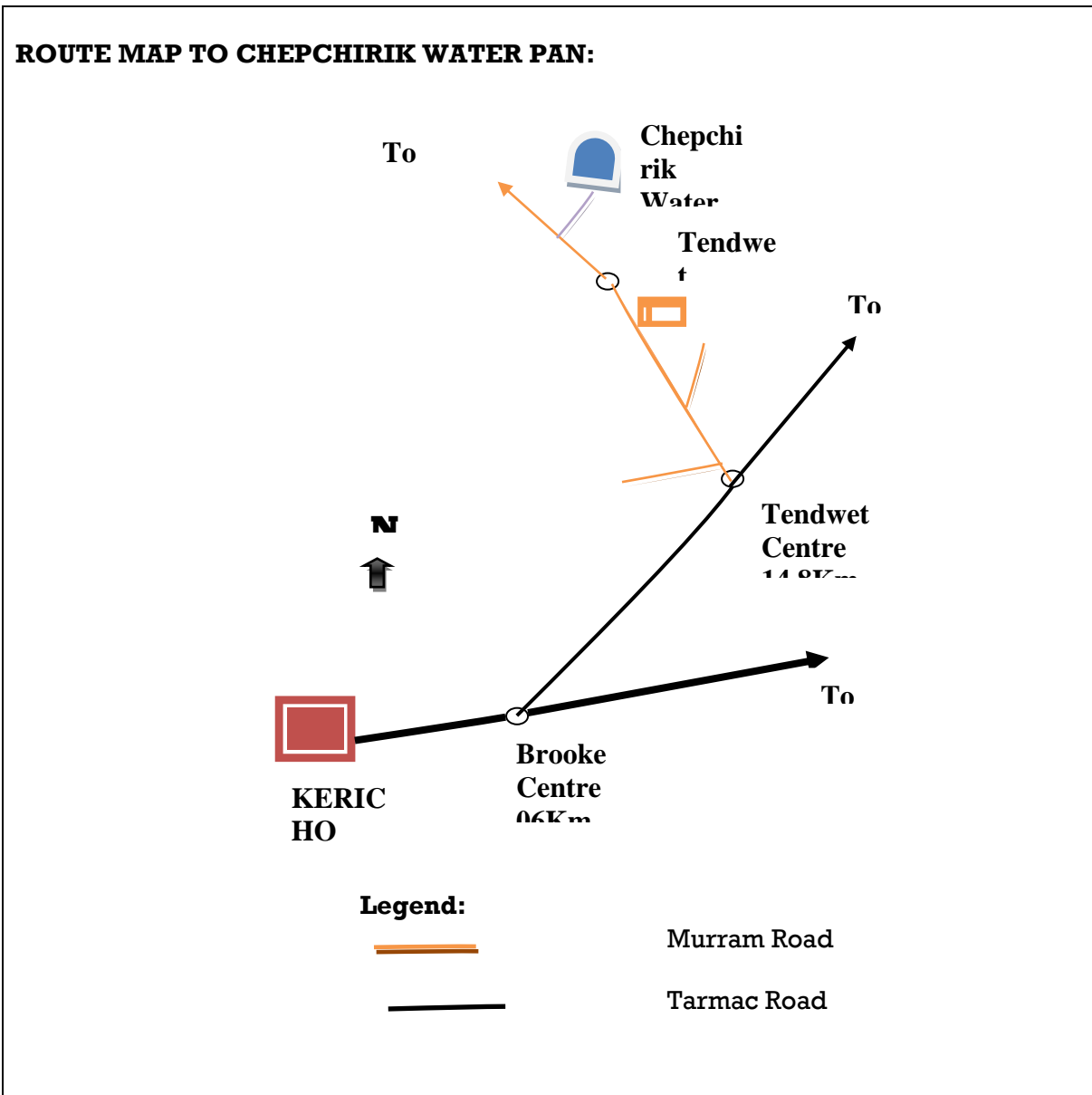
In May 2018 Kericho CPCU extracted from CIDP-II a list of projects with relevance to KCSAP triple wins of: (i) increasing agricultural productivity, (ii) increasing resilience to climate change (adaptation), and (iii) decreasing incidences of green house gas (GHG) emission (mitigation). Chepchirik Water-pan qualified into this list which is the pool from which KCSAP will continue to identify County Sub-projects to be funded under window-II or county level grants.

In Sept. 2018 CTAC qualified the Chepchirik Water-pan for year-1 execution under category III. Category-III projects are those formulated around CSA technologies or TIMPS and, are addressing objective-2 of increasing resilience to changes in climate. Category- I is concerned with crop-based enterprises and category II, livestock-based enterprises. The project received approval of CPSC

in the meeting of 11 Sept, 2018.

Further approved was given during consultative meeting held on 13th October, 2018 in Naivasha between the Governor and CECs, on one side and the MCAs on the other. The MCA for Kapsaos Ward, Hon. Erick Koskei re-affirmed his prioritization of the project as was proposed by the community in 2017.

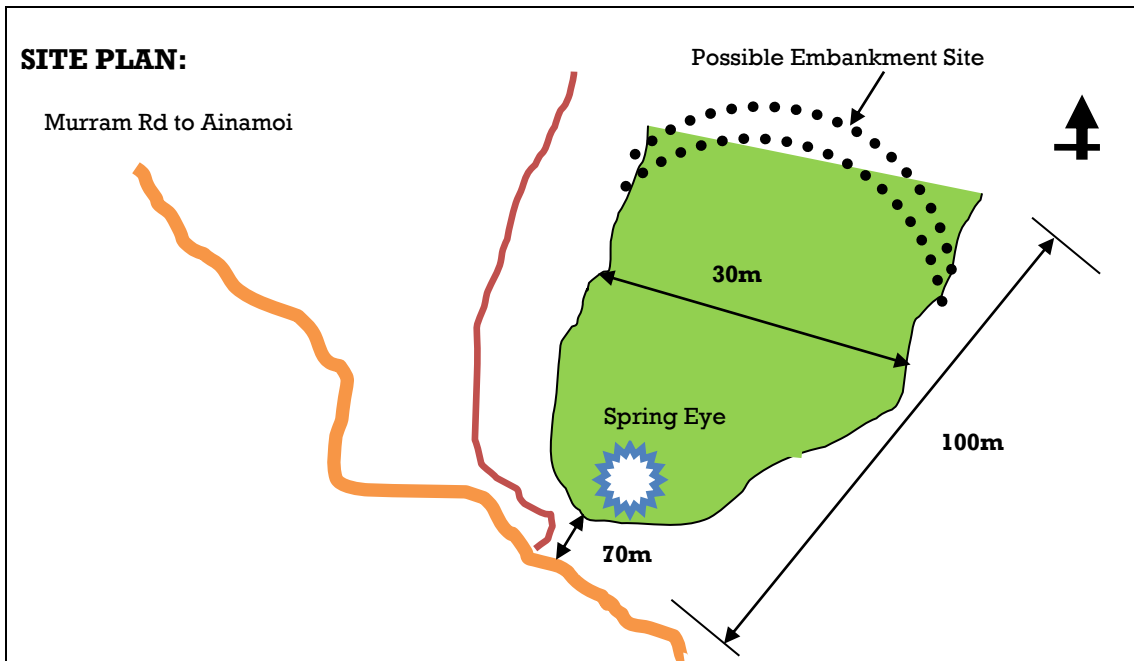
Upon receiving the approvals CPCU initiated appraisal exercise to gather preliminary data about the proposed project. Two field visits were made to the site for further engagement with project owners/community.



4.0 LAND OWNERSHIP:

Chepchirik Water-pan occupies public interest (PI) land registration No. **KER/KAPSAOS/1339** owned by Chepchirik community. The land measures about 0.8ha (or 2.0 Acres) in a valley which serves as a waterway for road water run-off from Tendwet – Ainamoi Road. The current value of the land is estimated at Ksh. 1.5Million.

An undeveloped water-spring emerges from the upper edge of the valley and flows into the water-pan area. The water-spring is the main source of water for the surrounding community, and is being managed by Chepchirik Water Dam Group registered in 2017 by Ministry of Labour, Social Security and Services under certificate of registration No. KER/HDM/SHG/2017/522.



5.0 THE PROBLEM:

Buchenge Sub Location suffers acute water shortage for about 3 months out of the 12 months of the year owing to its relatively undistributed rainfall regime and high evaporation rates. Chepchirik Spring is the main source of water for both domestic and livestock use in the entire location with approximately 1,000 households and 3,000 heads of cattle.

In a good year the spring yields water for about 8 – 10 months and dries up for 2 – 4 months meaning that when this happens the user-community must seek for water from outside the sub-location. The nearest alternative source of water is Nyando-Kipchorian River which is about 15Km away. During dry period residents (mainly women and youth) trek the long distances to Nyando River, a return trip which takes about 3 – 5hours depending on the mode of ferrying the water. Majority (99%) of the women and children carry water on their backs while the rest use donkeys.

The water problem in Buchenge Sub Location has negative effects beyond agriculture sector. Residents report that education sector continues to bear the brunt of the water crisis as some pupils often miss classes when assisting their parents to transport water. Others go without lunch whenever their parents are on water fetching mission, a situation which affects their attentiveness in school.

6.0 JUSTIFICATION:

The proposal to develop Chepchirik water source promises significant social, health and economic impacts on the lives of Buchenge population. With land area of 2.0 acres it is possible to achieve dam/pan of between 24,000 and 32,000 cu. m. (24.0-32.0 million litres). At an average Household (HH) consumptive usage of 100litres/day this amount of water can supply the 1,000 HHs for a period of 8 months, which is longer than the dry gap in the area of 3 months.

This implies that there will be excess water to undertake other economic activities such as crop, commercial tree nursery and livestock production.

7.0 POTENTIAL WATER USAGE ACTIVITIES IN THE AREA:

Agricultural land in the water-pan area is approximated at 180 acres. About 100acres can possibly be commanded by gravity while the remaining 80 acres will require pump-fed system. Economic activities with CSA-implications are already taking place in the area. Some of these include:

Small-scale bucket Irrigation for coffee and horticultural crops, mainly African Leafy Vegetables, Kales and Cabbages. With a more reliable water supply, the community intends to up-scale current efforts while also diversifying into the new enterprise of market-demanded Banana production.

Dairy Farming pre-dominated by cross-breed and local zebu animals estimated at about 3,000 in the entire Sub-Location. Most farmers rely on free grazing complemented with “cut-and-carry” feeding methods. However, a few farmers especially in the environs of the Water-pan have initiated Napier grass cultivation as a first step towards adopting stall feeding owing to reducing land availability.

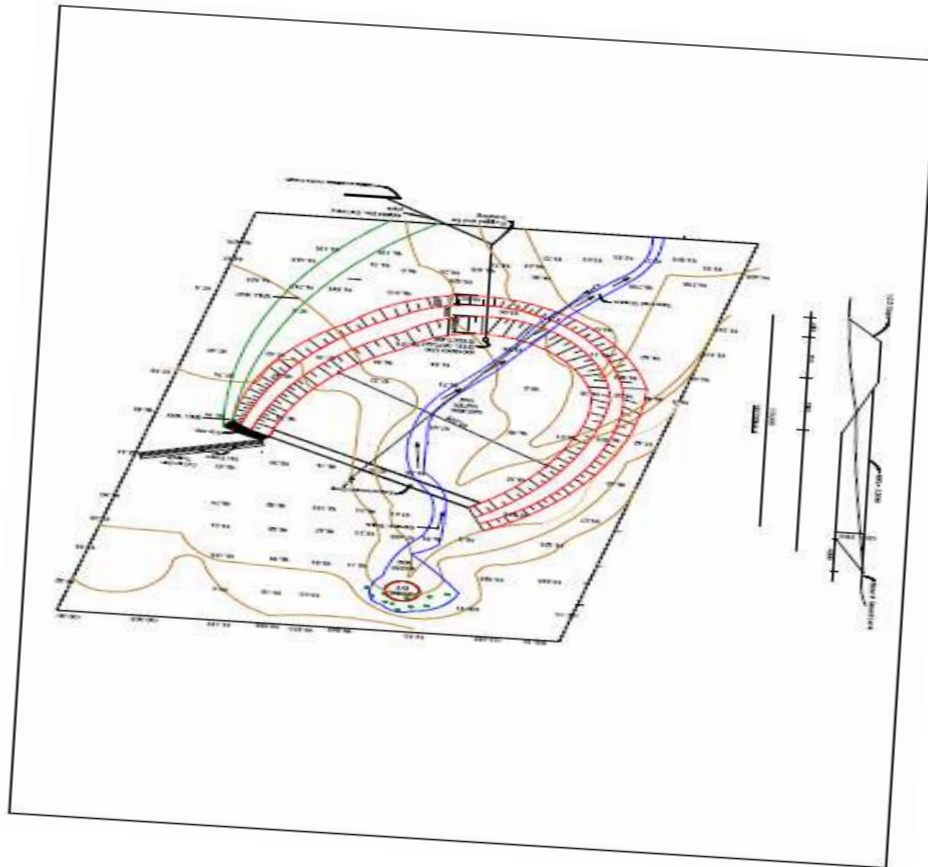
Possible social usage of the water-pan water supplies include; domestic supplies to the 1,000HHs and local institutions namely: Tabain primary school, Sinendet primary school and Buchenge Dispensary.

8.0 COMMUNITY CONTRIBUTION:

The Chepchirik Group and the entire Buchenge community have committed to make in-kind contributions in form of:

- **Labour**: mainly unskilled in the aspect of embankment stabilization, collecting locally available materials e.g. stones, and poles;
- **Fencing Materials**: in areas where locally available materials will be required, if provided in the design.
- **Land**: which is communally owned by the Buchenge community valued at Ksh. 1.5Million.
- **Social Support**: in form of cooperation with the development partners i.e. KCSAP, County Government of Kericho, National Government of Kenya (GoK), and others.
- **Political Goodwill**: promised by the Member of County Assembly (MCA), Hon. Erick Koskei representing Kapsaos Ward.

9.0 PRELIMINARY IMPRESSION OF THE DAM/WATER-PAN:



Drawing: CHEPCHIRIK EARTH DAM

Design by: Eng. Odoyo J. Bittar **Status:** Preliminary; awaiting detailed survey and accurate ground measurements

Table 1: Chepchirik Water-pan Group Members met during the Appraisal Visit on 16th September, 2018

N0.	NAME	RESPONSIBILITY
1.	Henry Too	Chairman
2.	Peter Koech	Secretary
3.	Bernard Lang'at	Treasurer
4.	Joseph Ng'eno	Member

ENVIRONMENTAL IMPACT ASSESSMENT PROJECT REPORT THE PROPOSED CHEPCHIRIK COMMUNITY WATER PAN PROJECT

5.	Sheila Lang'at	Member
6.	Wesley Maritim	Member
7.	Wilson Yegon	Member
8.	Geoffrey Bett	Member
9.	Betty Lang'at	Member
10.	Joseph Lang'at	Member
11.	Daniel Koech	Member
12.	Viola Moti	Member
13.	Beatrice Lang'at	Member
14.	Selina Lang'at	Member
15.	Hon. Erick Koskei – Area MCA	Patron of the Group

Appendix 6: Public Participation

Appendix i: Photo Gallery



Photos: Ongoing public participation inside Chepchirik AGC church



Photos: Left shows participants filling in questionnaires, centre and right shows community members leaving after public participation

The Proposed Chepchirik Community water pan project

CHEPCHIRIK WATER-PAN DEVELOPMENT PROJECT

PROJECT APPRAISAL MEETING

MINUTES OF SITE MEETING HELD ON 16TH OCTOBER, 2018

AGENDA:

1. Introductory Remarks by Area MCA – Hon. Eric Koskei
2. Objective of the Meeting – Eng. Odoyo J. Bittar (CTAC Secretary)
3. Background of the Chepchirik Project and Ownership
4. Constraints and Challenges
5. Group Vision and Activities
6. Community Responsibilities
7. AOB

ATTENDANCE:

- | | | |
|-------------------------|---|---|
| 1. Hon. Erick Koskei | - | Area MCA (Chairing) |
| 2. Eng. Odoyo J. Bittar | - | CTAC Secretary: Coordinator, KCSAP (taking minutes) |
| 3. Absae Seda | - | CTAC Member: County Director of Met. Services |
| 4. Vincent Monari | - | CTAC Member: Rep. Director of Water & Irrigation |
| 5. Henry Too | - | Chair: Chepchirik Water Dam Group |
| 6. Peter Koech | - | Secretary: Chepchirik Water Dam Group |
| 7. Bernard Lang'at | - | Treasurer: Chepchirik Water Dam Group |
| 8. Selina Lang'at | - | Member: Chepchirik Water Dam Group |
| 9. Joseph Ng'eno | - | Member: Chepchirik Water Dam Group |
| 10. Sheila Lang'at | - | Member: Chepchirik Water Dam Group |
| 11. Wesley Maritim | - | Member: Chepchirik Water Dam Group |
| 12. Wilson Yegon | - | Member: Chepchirik Water Dam Group |
| 13. Beatrice Lang'at | - | Member: Chepchirik Water Dam Group |
| 14. Geoffrey Bett | - | Member: Chepchirik Water Dam Group |
| 15. Daniel Koech | - | Member: Chepchirik Water Dam Group |
| 16. Betty Lang'at | - | Member: Chepchirik Water Dam Group |
| 17. Joseph Lang'at | - | Member: Chepchirik Water Dam Group |
| 18. Viola Moti | - | Member: Chepchirik Water Dam Group |

Min. 1/CHEP-1/09/2018: Remarks by Area MCA

The Area MCA, Hon. Erick Koskei called the gathering to order at 8.40 am and notified the group members about the presence of visitors from County Government of Kericho (CGK). Self introductions between the group and CTAC team then followed.

In his remarks the MCA reminded the group about the proposal they made to County Government in 2017 during public participation when the County was seeking public views on projects to be included in CIDP-II. The group was informed that Kenya Climate Smart Agriculture Project (KCSAP), a project which is being implemented by CGK with support from The World Bank, has picked Chepchirik Water-pan from the CIDP-II with a view of considering it for funding. The group was informed that the KCSAP team visited the site so as to get more information about the project.

The MCA further mentioned that all MCAs recently had a consultative meeting with Governor, and that many projects were proposed for consideration by KCSAP. He said the group is lucky that Chepchirik Water-pan was able to be picked alongside 3 others. Out of the 30 Wards only 3 MCAs had projects in their areas picked by the County. So, group members must do their best to make Chepchirik Water-pan qualify for KCSAP funding.

Min. 2/CHEP-1/09/2018: Objective of the Appraisal Visit

This was led by KCSAP County Project Coordinator (CPC), Eng. Odoyo J. Bittar. He first gave a brief background of what KCSAP is about and the project areas it is covering in the County. The CPC explained that Chepchirik Water-pan project has gone through 4 stages of vetting, ending with the Governor/MCAs/CEC's one held in Naivasha on 13 October, 2018. He said the visiting officers are part of a technical advisory team (CTAC) mandated by the CGK to provide technical advice on appropriateness of the projects to be executed by KCSAP. The team was therefore visiting so as to get more information about the project in order that a funding proposal can be done for consideration by KCSAP National Office, Nairobi (NPCU) and World Bank.

The CPC cautioned that the group should not construe their visit as the final decision in having the project implemented. Other vetting stages are still ahead: at NPCU and World Bank. He concluded by explaining that only the most suitable and beneficial projects i.e. those which most effectively address the KCSAP development goals, will be funded. For that matter, the group was asked to provide all the necessary information so that a good proposal can be developed.

Min. 3/CHEP-1/09/2018: Background of Chepchirik Project

This session was conducted through "question and answer" approach in-order to get precise answers. The CTAC used a checklist of issues that helped in probing.

Answers were provided in the following areas:

- Official name of the group
- Legal or registration status
- Existence of a management committee
- Land ownership and security of title
- Group membership
- Project coverage – geographical area representation
- The main focus of the water project: agriculture, livestock or domestic Target population of consumers: HHs, Individuals etc etc.....

Min. 4/CHEP-1/09/2018: Constraints and Challenges

Question and answer method was again used for data/information gathering. The Chepchirik community identified the following constraints and challenges:

- Poor distribution of rainfall thereby leading to alternate periods of excessive surface water run-off and periods of acute water scarcity.
- Environmental degradation in form of gullies and soil erosion caused by water runoff from built-up areas such as schools, market centres, roads and homesteads.
- Prolonged period of drought leading to either very low (insufficient) yield or "drying-up" of the spring in some years.
- Very scarce alternative water sources in the area due to the nature of terrain i.e. very sharp and deep valleys draining all the water away from the sub-location.
- High evaporation rates caused by very windy conditions coupled with high offseason temperatures.
- Long distances (averaging 15km) to the nearest permanent rivers, mainly River Nyando/Kipchorian. Women take about 3-5 hours on a return trip to Nyando river during drought when the Chepchirik Spring dries up.
- Education is negatively impacted by water scarcity as students miss school to assist parents with the task of fetching water. Sometimes parents fail to prepare lunch for their students thus leading to lack of concentration in schools.
- Lack of water for livestock thus low milk yields.

Min. 5/CHEP-1/09/2018: Group Vision and Activities

The group said that their core focus is on developing the Chepchirik Water-pan/spring so as to yield enough water that can provide for their domestic needs, water their animals and also enable them to engage in commercial crop growing throughout the year. They believe that the water run-off they witness in the area is so enormous that if well harnessed can be able to

satisfy all their needs. They observe that much of the run-off in the area is generated by far-off catchments; some as far as 10Km away.

Some of the activities they envision are:

- Irrigated horticulture involving Bananas, African Leafy Vegetables, Kales etc whose market is expanding due to increase in population occasioned by devolved system of government.
- Form water-users association to regulate use of water from the water-pan, once it is developed.
- Expanding coffee farming to cash-in on the current good market caused by cultivation shrinkage in the traditional coffee growing regions.
- Improve dairy farming by introducing high yielding dairy cattle: use irrigation systems to establish high quality pastures and forages.
- Find alternative employment to the idle young generation through engagement in profit-oriented agriculture.
- Improve HH nutrition through agro-enterprise diversification

Min. 5/CHEP-1/09/2018: Community Responsibilities

In the probable event that they are supported to develop the water source, Chepchirik Group and the wider Buchenge Location community commit that they will make the following contributions:

- Provide labour (mainly unskilled) in appropriate aspects of the project e.g. planting grass to stabilize the embankment;
- Donate local materials such as fencing poles and stones if the design will recommend their use in the project;
- Save the CGK and KCSAP the cost of purchasing land by commuting the value of the existing community land Reg. NO: KER/KAPSAOS/1339 to count as part of the Group's contribution.
- Social capital in terms of protecting the project implementers from undue conflicts and interference.
- Political goodwill and protection offered by the Area MCA who is the Patron of the group. The MCA and other Ward Leaders will also constitute the uppermost level of grievance resolution mechanism (GRM) to deal with disruptive issues which may affect the project execution.

Min. 5/CHEP-1/09/2018: AOB

- **The Chairman of Chepchirik Water-pan Group**, Mr. Henry Too thanked the CTAC team for picking their project out of the many projects listed in the CIDP. He expressed hope that the information they have given will facilitate preparation of a good proposal

which will stand a high chance of being approved. The Chair asked the appraisal team to feel free to ask for any further information that they may need.

- **The CPC:** Eng. Odoyo J. Bittar commended the group for very good information and clear vision they have for their project. He said that since Kapsaos Ward is one of the KCSAP project areas the County staff will continue to engage with the farmers so that more projects can be identified for support. CPC informed the group that KCSAP is soon coming to engage with them through a participatory process to learn and identify more issues that may be addressed by the project.

There being no other business the meeting ended at 10.05s a.m.

Signed Date.....

Chairman: Chepchirik Group

Signed Date.....

Secretary: Chepchirik Group

Signed Date..... 26/10/2018

Secretary: CTAC

Signed Date.....

Area MCA: Kapsaos Ward

MINUTES OF THE PUBLIC PARTICIPATION OF CHEPCHIRIK WATER PROJECT HELD AT A.G.C CHEPCHIRIK CHURCH ON 22/03/2019.

MEMBERS PRESENT

1. ENG. ODOYO BITTAR – COUNTY REPRESENTATIVE
2. PAUL KARANJA – EIA EXPERT
3. CATHERINE CHEBET SEILE – EIA EXPERT
4. NAOMI KOSGEI – ENVIRONMENTALIST AND FIELD ASSISTANT
5. COMMUNITY MEMEBERS (ATTACHED ATTENDANCE LIST)

AGENDA

1. Opening remarks
2. Introductions
3. History of the area
4. Project status
5. AOB
6. Closing remarks

Min 1/03/2019: Opening remarks

The meeting was called to order at 1:30 PM by the chairperson. He welcomed everyone to the meeting and asked one of the members to open with a word of prayer.

Min 2/03/2019: Introductions

The chairperson then introduced the members present together with the team of experts. He asked the people to introduce themselves by name and where they came from. Most of the people present in the meeting were women and a few men representatives. It was noted that water has become a major issue and most of the members were still out in search of water, none the less the members of Chepchirik Water Project anticipated for the start of the project to help them sort their current water predicament.

The team of experts also introduced themselves and explained the purpose of their visit and what they expected from the members of Chepchirik. They handed over the questionnaires and explained what was expected from them and told them that if they found any difficulties in answering the questions they would be assisted by the team of experts.

Min 3/03/2019: History of the area

One of the group members gave a brief history of the area. The water pan was in existence since the 1960's and served the community as a water source for domestic animal use as well as for drinking purposes and general domestic uses. The water pan had pipes running from it to a tap and one drum for

the domestic animals. With time the water pan underwent silting from run-off from the nearby farms as well as the road all the way from Tendwet center.

The Community Development Fund (CDF) later came to assist and further dug the water pan and removed the silt. The county government also came along and planted the indigenous trees in the land allocated for the water pan. A fence was also erected a year ago after the acquisition of the title deed. The water pan dried up after the onset of the dry seasons leaving the villagers dependent on a single borehole that allows drawing of water in shifts to allow for the water to recharge. The community supports the project as it will be of importance in irrigational practices as well as domestic uses.

Some issues cited in regards to the water pan was the silting that has been a nuisance for a long time as well as leakage from the edges of the water pan that affects the containment of water in the pan. No issue of land disagreements had been cited and it was of concern that the cattle drinking point needed to be raised and cleaned and the pipes repaired.

Min 4/03/2019: Project status

The project status as of the time of the meeting was ongoing. It was explained by the engineer that the project was underway as expected and that the water engineers had scheduled a day to visit the site. Also of importance to note was that the main purpose of the visit was to conduct public participation so as to enable the completion of the Environmental Social Impact Assessment (ESIA) project report. It was explained that public participation was mandatory for this particular project. The members were made to understand that the project would commence once the project is received by the National Environment Management Authority (NEMA), reviewed and licensed.

The members present were asked about their roles and responsibilities once during the construction phase and the operation phase of the project. Most of them agreed that they were required to plant trees and Napier grass and cassava to help in conserving the soils to minimize erosion and silting of the dam. The people were also expected to do embanking in their farms and create silt traps to help reduce siltation in the water pan. Terracing near the site was to be done to prevent erosion on site.

The chairperson also asked what could be done to prevent the storm from the upper region from accessing the pan. The Engineer replied that the storm water would be useful in refilling the pan but much needed to be done by the members to prevent siltation including making silt traps. He also explained that Kericho is facing problems in terms of water availability. He also reiterated on the value chain and that the project will help in the growth of bananas, finger millets and sorghum among other expected benefits. Giving an example to them he took note of Ukambani as an arid area that supplies food to most parts of the country from irrigation.

Engineer Odoyo asked the members of Chepchirik Water group to formulate a committee to ensure that there is sustainable use of the water resources. This will ensure that there is equity in the use of the water resource to avoid social conflicts.

Min 5/03/2019: A.O.B

The members were asked if they have any registered groups and whether there were any activities they had done to generate income. Most of them said that the groups were there and were actively involved in table banking. They were told to write good proposals on their projects so that they can be able to receive funding for their projects by the government. To note was that the groups would be given tutors paid by the county government who will teach them sustainable agricultural practices.

The members were asked that the groups have a committee to ensure that the financial money (grants) are not mismanaged. He added that there are communities grants given to the ordinary people, the vulnerable groups up to 20million, and the funds are given based on the committee decision after going through the group proposals. The projects should focus on drought resistant crops and value chain should be focused on, coffee is not part of the project at the moment. The engineer promised to help the group in the area.

Min 6/03/19: Closing remarks

Since there was no other agenda the members were asked if they had finished filling their questionnaires and most of them had finished filling and were asked to hand in their filled in questionnaires. Since there was no other business the meeting ended with a word of prayer from one of the members

MINUTES CONFIRMED BY:

CHAIRPERSON:

DATE:

SIGNATURE:

SECRETARY:

DATE:

SIGNATURE:

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN PROJECT AT BUCHENGE, TENDWET, IN KAPSAOS WARD, KERICHO COUNTY

	NAME	ID. NO.	CONTACTS	SIGNATURE
1.	HENDY TOO	1770704	0724265184	<i>[Signature]</i>
2.	RUTO EVANS	31120698	0703771826	<i>[Signature]</i>
3.	Wilson K. Bell	21882700	0712716441	<i>[Signature]</i>
4.	Samuel K. Cheruway	5224176	0729549994	<i>[Signature]</i>
5.	ANNA BI	6607363	0725284467	<i>[Signature]</i>
6.	Esther Yegon	4748878	070487146	<i>[Signature]</i>
7.	STRAH CHEPCHIRIK			
8.	LANGAT BERNAB	13668948	0729518977	<i>[Signature]</i>
9.	Joseph Langat	13103748	0719595375	<i>[Signature]</i>
10.	Daniel BI	23691408	0711965620	<i>[Signature]</i>
11.	ROSPELA RATICH	20164645	0708695899	<i>[Signature]</i>
12.	KOSON PETER KIBET	20954522	0720640974	<i>[Signature]</i>
13.	DASH MASHIMUCHI	26455963	0796584957	<i>[Signature]</i>
14.	CAROLINE KEMGI	20451380	0722556864	<i>[Signature]</i>
15.	HELENA C. CHEPCHIRIK	33000921	0711171656	<i>[Signature]</i>
16.				
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PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

The EIA/EA Experts are carrying out Environmental and Social Impact assessment for the proposed Chepchirik Water Pan project. In order to ensure environmental sustainability of the project, the proponents wishes to meet the requirements of Environmental Management and Coordination Act (EMCA, 2015) under the jurisdiction of National Environmental Management Authority (NEMA) in the object of Environmental Impact Assessment (EIA) and Audit (EA) as a requirement under the EIA/Audit regulations 2003, and Schedule 2 of EMCA 1999.

Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: SARAH C KEDNGENOH TEL..... -

ID. NO: SIGN: *Sarah*

Gender Male Female

Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Good agricultural practices that will generate vegetables for the livelihoods
- The livestock will have adequate water: less time wastage and exhaustion

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes

(b) No

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

Ensure that the machinery operates in caution to avoid any injuries or accidents.

(ii) Operation

Try to prevent siltation as a result of erosion from the road.

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

The project should proceed for sustainable agriculture and improved livelihoods. No objection for the project.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: DANIEL BI TEL: 0711965610

ID. NO: 23653143 SIGN: KB

Gender Male Female

Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

It will improve soil conservation, water provision, and improve economic activities

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes

(b) No

If Yes, please list them

N/A

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

N/A

(ii) Operation

N/A

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

More sub pan to be constructed and power source be used to pump water from the pan.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: KOSIA PETER WISIT..... TEL. 0320642924.....

ID. NO: 20994822..... SIGN: Peter.....

Gender Male

Female

Age 18-30

30-45

Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes)

(No)

What is the approximate distance between your home and the proposed project site?

<100m

100-200m

200-500m

>500m

Do you support the activities of the proposed project?

Yes No

IF No, state why? N/A.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

Cattles will get water for drinking, people also will get water to drink, proposed project will help irrigation farm

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes

(b) No

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

during construction the process should be slowly to strengthen the proposed pan project.

(ii) Operation

It should not have time limit so as to allowed no negative factors.

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project

It should be constructed to be of high volume of water so as to allowed large consumption.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: Joseph Langat TEL: 0719 595375
ID. NO: 12103748 SIGN: [Signature]

Gender Male Female
Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

The proposed project will help us to have water for livestock, irrigation and also for drinking.

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes []

(b) No [x]

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

Unauthorized person should be around in the construct site.

(ii) Operation

During operation the site should fence to reduce the livestock for any disturbances.

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

The villagers should plant the trees around the dam.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: LARGAT BENAB TEL 0729 518877

ID. NO: 13668948 SIGN: [Signature]

Gender Male

Female

Age 18-30

30-45

Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes)

(No)

What is the approximate distance between your home and the proposed project site?

<100m

100-200m

200-500m

>500m

Do you support the activities of the proposed project?

Yes

No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Improved agriculture through irrigation
- Better dairy farming
- Less time wasting in search for water

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

- (a) Yes (b) No

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

- Fencing to prevent access accidents

(ii) Operation

- Build gabions to prevent slitting and erosion in the dam
- Create different points for extraction of drinking and livestock water

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

- No objection for the project

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: SARAH KHERONIO STELE TEL 0796 631340

ID. NO: 6608802 SIGN: [Signature]

Gender Male

Female

Age 18-30

30-45

Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes)

(No)

What is the approximate distance between your home and the proposed project site?

<100m

100-200m

200-500m

>500m

Do you support the activities of the proposed project?

Yes

No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

..... improved agriculture through irrigation

..... improved dairy farming

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes [] (b) No [x]

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

..... Build gabions to prevent fencing to prevent excess erosion

(ii) Operation

..... Build gabions to prevent soil erosion

..... Create different points for extraction of drinking ^{water}

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

..... No objection for the project

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: DASY CHEPCHIRIK TEL: 0196 884 957

ID. NO: 26455963 SIGN: [Signature]

Gender Male

Female

Age 18-30

30-45

Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes)

(No)

What is the approximate distance between your home and the proposed project site?

<100m

100-200m

200-500m

>500m

Do you support the activities of the proposed project?

Yes

No

If No, state why?

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Improved learning by pupils
- Better agricultural practices

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

- (a) Yes [] (b) No [X]

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

- Maintain the vegetation and retain all indigenous trees to avoid vegetation loss

(ii) Operation

- Ensure that the water pan is fenced to reduce risks of drowning

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

- The project should be fastened to help community

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: SARAH CHEPCHIRIK WARD TEL 0722 556 869

ID. NO: SIGN: [Signature]

Gender Male Female

Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

.....
..... Farming

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes (b) No

If Yes, please list them

.....

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

.....
.....

(ii) Operation

.....
..... Cont. K
..... your M.B.Y. F.N.C.

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

.....
..... is Good Project

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: ROSPOLA ROICH TEL: 0708 695 899

ID. NO: 20164625 SIGN: CR

Gender Male Female
 Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

Livestock Production Agriculture Products
Dairy farming Poultry keeping, Horticulture

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes | |

(b) No | |

If Yes, please list them

Soil Erosion - Time Wasted during dry season

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

Drainage Community training
Cattle trough

(ii) Operation

Clean water, fencing - High maintenance
Dairy production will be high

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

Time saved if the project is completed
High income from livestock of agriculture

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: HEKDET TAD TEL: 072425184
 ID. NO: 1770704 SIGN: [Signature]

Gender Male Female
 Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Availability of water for irrigation.
- Availability of water for drinking.
- Availability of water for fish ponds.

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes | |

(b) No | M

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

- It should be constructed to be deep so as not to easily overflow.

(ii) Operation

The operation should be followed wisely through technicians.

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project

Planting natural trees to preserve water.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: Wilson J. Bett TEL: 0712716141

ID. NO: 21832700 SIGN: WB

Gender Male Female

Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chepchirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

It will be a good thing for the community because it will provide water for drinking and irrigation. It will also create jobs during construction and operation.

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes

(b) No

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

(ii) Operation

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

I will be a member of the community because of the water pan project. It will be a good thing for the community because it will provide water for drinking and irrigation.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: HELENY C. CHEBOCHAK TEL: 0716171686

ID. NO: 33000921 SIGN: Hu

Gender Male Female
 Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why? _____

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Kusaidia njembe na maji ya Kungu
- maji ya Kungu mboga aina mbali mbali

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes []

(b) No []

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

- Cattle trough
- Spring Protection

(ii) Operation

- Fence/Fencing
- Tree planting
- soil conservation

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

Migration

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: JAMUEL K. CHEPKWONY TEL: 0729549284

ID. NO: 5224176 SIGN: [Signature]

Gender Male

Female

Age 18-30

30-45

Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes)

(No)

What is the approximate distance between your home and the proposed project site?

<100m

100-200m

200-500m

>500m

Do you support the activities of the proposed project?

Yes

No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

(a) The proposed project will enhance the community with modern farming through irrigation. It will highly boost adequate food production in the area. It will boost much on the economy of the area.
 In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes

(b) No

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

→ Construction must be constructed in moderate time so as to be constructed in a quality manner.

(ii) Operation

→ Operation should be wisely followed by technicians for example, overflow of water.

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

The proposed water pan project should be constructed in a manner that serves a large volume of water to the community.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: AUTO KIPKURWI EVANS TEL: 0703 771 826

ID. NO: 31120698 SIGN: [Signature]

Gender Male Female
 Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chepchirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

IF No, state why?

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Will provide the cows drinking point
- Drinking water source in the area.
- Vegetable irrigation water will reduce the hunger

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes []

(b) No [✓]

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

(ii) Operation

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: Esther J. Jagon TEL: 0704873146

ID. NO: 4748675 SIGN: Esther

Gender Male Female

Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

If No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Cows drinking points

- The residents will benefit from the pan.

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes []

(b) No []

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

(ii) Operation

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: A. N. NIAH 'BII TEL: 0725289467

ID. NO: 6607363 SIGN: [Signature]

Gender Male Female
 Age 18-30 30-45 Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes) (No)

What is the approximate distance between your home and the proposed project site?

<100m 100-200m 200-500m >500m

Do you support the activities of the proposed project?

Yes No

If No, state why?

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- ① Cattle, animals and people will get enough water and feeds improving nutrition
- ② Positive impact on increased yields & continued production:

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes []

(b) No [X]

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

(ii) Operation

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project.

The project will give a permanent solution to water crisis in our area

Thank you for your comments

PUBLIC PARTICIPATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF CHEPCHIRIK WATER PAN, AT BUCHENGE IN TENDWET, KAPSAOS WARD, KERICHO COUNTY

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Kindly give us your opinion regarding the project's environmental impacts.

SECTION 1: RESPONDENT'S DETAILS

NAME: EMILI CHELANGAT LANGAT TEL: 0726357077

ID. NO: 4273100 SIGN: 

Gender Male

Female

Age 18-30

30-45

Above 46

SECTION 2: QUESTIONS

Are you aware of the proposed construction of Chephirik Water Pan PROJECT?

(Yes)

(No)

What is the approximate distance between your home and the proposed project site?

<100m

100-200m

200-500m

>500m

Do you support the activities of the proposed project?

Yes

No

IF No, state why?.....

SECTION 3: QUESTIONS ON IMPACTS

What are the positive impacts that will result from the proposed project?

- Drinking water for both people and cattles
- Availability of water for irrigation farmers.
- Fish ponds.

In your own view, are there any negative Social or Environmental impacts associated with the proposed project?

(a) Yes |

(b) No |

If Yes, please list them

What do you suggest should be done to minimize any negative impacts during the following stages:

(i) Construction

The construction period should be long to ensure quality of the dam.

(ii) Operation

Should operated with all necessary techniques so as to be high quality project.

SECTION 4: PERSONAL OBSERVATION

Give any other information that may be necessary concerning the proposed Chepchirik Water Pan Project

The project should be cared by planting trees all around the dam with well fenced area.

Thank you for your comments