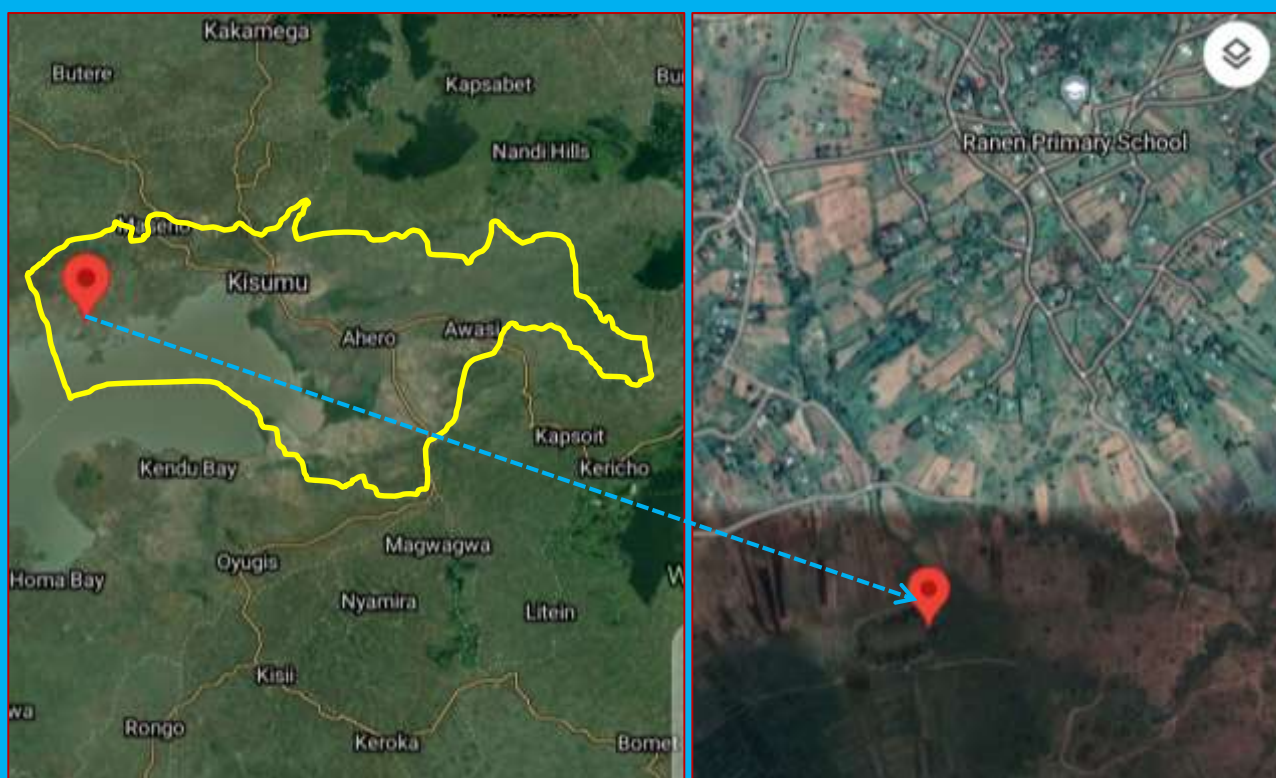




**Kenya Climate Smart Agriculture (KCSAP)-Kisumu County**

**ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT  
SUMMARY PROJECT REPORT (SPR)**

**FOR THE PROPOSED REHABILITATION AND EXPANSION  
OF JOWI WATER PAN FOR DOMESTIC, LIVESTOCK AND  
MICRO-IRRIGATION ON L.R. NO. KISUMU/ALUNGO/1656  
IN KOBUDO VILLAGE; WEST SEME WARD; SEME SUB-  
COUNTY IN KISUMU COUNTY.**




**PREPARED BY:**  
**LEAD SECURITIES LTD**  
**EIA/EA FIRM OF EXPERTS**  
**REG. NO. 7306**

**JANUARY 2022**



**DECLARATION**

We, the undersigned certify that to the best of our knowledge and belief, this report is correct and gives the true reflection of the status of the proposed Rehabilitation and Expansion of Jowi Water Pan for Domestic, Livestock and Micro-Irrigation at GPS Coordinates -0.156206N; 34.497230E; 1143m a.m.s.l on L.R. No. Kisumu/Alungo/1656 in Kobudo Village; North Alung'o Sub Location; South West Seme Location; West Seme Ward; Seme Sub-County in Kisumu County with respect to its impacts on the socio-economic and biophysical environments. The report was prepared in accordance with the Environmental Management and Coordination (Amendment) Act 2015 and the Environmental (Impact, Audit and Strategic Assessment) Regulations (2009) for submission to the National Environment Management Authority (NEMA).

**CONSULTANT**

 <p>LEADS &amp; ASSOCIATES          SAMANU KIBOI          NAKURU-KIJABE ROAD,          P.O BOX 100-20000 NAKURU.  <a href="mailto:leads@riti.co.ke">leads@riti.co.ke</a></p>		<p><b>NEMA REGISTRATION NO. 7306</b></p> <div style="border: 1px solid black; width: 100%; height: 100%; text-align: center; padding: 20px;">                 Stamp/Seal             </div>
<b>NAME OF EXPERT</b>	<b>DESIGNATION</b>	<b>SIGNATURE / DATE</b>
Amos K. Kiboi	Expert NEMA Reg. No 1343	

**SIGNED BY AND ON BEHALF OF THE PROPONENT:**

**COUNTY GOVERNMENT OF KISUMU**  
 (Department of Agriculture, Irrigation, Livestock & Fisheries)

**KENYA CLIMATE SMART AGRICULTURE PROJECT (KCSAP)**  
 Project Coordinating Unit - Kisumu  
 P. O. BOX 1700 – 40100  
 KISUMU, KENYA.

Name .....Designation.....

Signature:.....Date/Stamp.....

## **ACKNOWLEDGEMENT**

Lead Securities Limited Firm of Experts is grateful to the Almighty for giving us strength, time and wisdom to perform this task. Secondly we would like to acknowledge the participation and contribution from the following individuals during the preparation of this report.

Kenya Climate Smart Agriculture Project (KCSAP) for guidance particularly during planning and mobilization as well as provision of information relevant to the task and participation and contribution during public engagement, review and validation of this report.

We appreciate the participation and contribution by the County Government of Kisumu administration including County Director of Agriculture (CDA) (Mr. Oketch), County Director of Livestock (CDL) (Mr. Charles Kakuku), Liaison Officer (Mr. Aggrey Ogusi), Sub County Livestock Officer (Mr. Peter Ogutu), Ward Administrator (Joshua Ngesa), Ward Manager (Judith Chili) and Village Administrator (Peter Owanga).

Lead Securities Limited acknowledge with thanks the role played by National Government including Water Resources Authority (WRA) lead by Regional Manager (RM) Lake Victoria South Basin Area, department of social services (Seme Ward), Chief (South West Seme Location), Assistants Chiefs (North Alung'o, Alwala and East Kodinga Sub Locations).

We appreciate the participation and contribution by professionals led by Professor K'olewe.

Lead Securities Limited also acknowledge the role played by Jowi Water Pan SHG led by the Secretary Mr. William Owang for participation and contribution during public engagement as well as availing relevant information on Jowi water pan including historical information, project data and other related information.

Finally appreciate the local community for attending, participating and contributing during the public baraza and engagement and any other person who may have contributed directly or indirectly to the success of this report. Thank you all and may God bless you abundantly.

## TABLE OF CONTENT

DECLARATION .....	ii
ACKNOWLEDGEMENT .....	iii
TABLE OF CONTENT .....	iv
LIST OF TABLES .....	vi
LIST OF FIGURES .....	vii
LIST OF ABBREVIATIONS AND ACRONYMS .....	viii
EXECUTIVE SUMMARY .....	ix
CHAPTER ONE .....	1
1.0 INTRODUCTION .....	1
1.2 SPR justification .....	1
1.3 Methodology .....	2
1.4 Organization of chapters .....	2
CHAPTER TWO 2.0 NATURE/PURPOSE OF THE PROPOSED PROJECT .....	4
2.1 Introduction .....	4
2.2 Project Activities .....	4
CHAPTER THREE .....	7
3.0 PROJECT LOCATION .....	7
3.1 Rainfall .....	7
3.2 Soil type and Topography .....	7
3.3 Supportive Infrastructure .....	7
3.4 Economic activities .....	7
3.5 Land ownership .....	8
CHAPTER FOUR .....	11
4.0 PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATION .....	11
4.1. Introduction .....	11
4.2. Objective of Community and Stakeholders Consultation .....	11
4.3 Categorization of Community Participants and stakeholders .....	11
4.4 Methodology of Public Participation and Consultation .....	11
4.4.1 Planning and Reconnaissance Survey .....	11
4.4.2 Neighbour/Stakeholder Involvement and Participation .....	12
4.4.2.1. Public Baraza .....	12
4.4.2.2 Key Informers .....	12
4.4.2.3 Administration and Analysis of Questionnaires .....	13
4.4.3 Summary of Issues Raised by the Community and Stakeholders and Response .....	16
CHAPTER FIVE .....	20
5.0 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES .....	20
5.1 Introduction .....	20
5.2 Positive Environment and Social impacts .....	20
5.3 Anticipated Negative Impacts during Construction Phase .....	21
5.4 Anticipated Negative Impacts during Operation Phase .....	21
5.5 Anticipated Negative Impacts during Decommissioning Phase .....	22
5.6 Mitigation Measures .....	22
CHAPTER SIX .....	27
6.0 ENVIRONMENTAL MANAGEMENT PROGRAMME & MONITORING PLAN (ESM&MP) .....	27
6.1 Construction Phase .....	27
6.2 Operational Phase .....	30
6.3 Winding up phase .....	36
CHAPTER SEVEN .....	37
7.0 CONCLUSION AND RECOMMENDATION .....	37
7.1. Conclusion .....	37
7.2 Recommendation .....	37
REFERENCES .....	38
ANNEX A1: MINUTES FOR PUBLIC CONSULTATION MEETING .....	39
ANNEX A2: ATTENDANCE LIST FOR PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATION .....	45
ANNEX A3: SAMPLE QUESTIONNAIRES .....	50
ANNEX A4: SAMPLE KEY INFORMANT INTERVIEW (KII) FORM .....	56

ANNEX A5: LAND DOCUMENTS .....	57
ANNEX A6: WATER PAN LOCATION DETAILS .....	59
ANNEX A7: WATER PAN SITE ACCESSIBILITY .....	60
ANNEX A8: WATER PAN DRAWING.....	61
ANNEX A9: JOWI-KORINDE WATER USERS CBO.....	62
ANNEX A10: SAMPLE PHOTOS .....	66
ANNEX A11: ESS Screening Checklist .....	71
Annex A12: National Lands Commission Concurrence letter to undertake the Investment. ....	79
Annex A13: Design structures for Jowi Water pan .....	80
Annex A13: Bill of Quantities Summary for the project.....	81

**LIST OF TABLES**

Table 1: Proposed Mitigation Measures against Negative Impacts

Table 2: ESM&MP for the Construction Phase

Table 3: ESM&MP for the Operational Phase

Table 4: ESM&MP for the Decommissioning and Closure Phase

**LIST OF FIGURES**

Figure 1: Satellite Map Showing the Location of Proposed Jowi Water Pan Site

Figure 2: Survey Map Showing the L.R. No of the Proposed Jowi Water Pan

Figure 3: Percentage of respondents' years as residents

Figure 4: Percentage of respondents on project awareness

Figure 5: Percentage of respondents on Jowi water pan project benefits

Figure 6: Percentage of respondents on negative impacts of the proposed Jowi water pan

Figure 7: Percentage of respondents on mitigation measures

**LIST OF ABBREVIATIONS AND ACRONYMS**

CBO:	Community Based Organization
CDA:	County Director of Agriculture
CDL:	County Director of Livestock
CPCU:	County Project Coordinating Unit
CWP:	Community Water Point/Stand
EMCA:	Environmental Management and Coordination Act
ESIA:	Environmental and Social Impact Assessment
ESMMP:	Environmental and Social Management and Monitoring Plan
GHG:	Green House Gases
GPS:	Global Positioning System
KCSAP:	Kenya Climate Smart Agriculture Project
KWS:	Kenya Wildlife Service
LWT:	Livestock Water Trough
NEMA:	National Environment Management Authority
NPC:	National Project Coordination
OD:	Open Defaecation (OD)
OHS:	Occupational Health and Safety
PH:	Public Health
PMC:	Project Management Committee
SHG:	Self Help Group
SPR:	Summary Project Report
WRA:	Water Resources Authority
WRUA:	Water Resource Users Association



## EXECUTIVE SUMMARY

The proposed rehabilitation and expansion of Jowi water pan is one of the projects being implemented by KCSAP in three sub-counties in Kisumu County including Kisumu East, Nyando and Nyakach and spread across six Wards (Kolwa East, East Kano/Wawidhi, Awasi/Onjiko, Central Nyakach, West Nyakach and North). The water pan project is aimed at responding to and reducing adverse effects of climate change in Kisumu County and to meet the rising demand for food and nutrition.

The water pan project will contribute to KCSAP objective of increasing Agricultural Productivity and building resilience to climate change risks in the targeted small holder farming and pastoral communities in Kisumu County particularly component one (1) that is up-scaling Climate-Smart Agricultural Practices.

The rehabilitation and expansion of Jowi water pan is among the activities listed under schedule II of the Environmental Management and Co-ordination (Amendment) Act, 2015 requiring Environment and Social Impact Assessment. **The Water Pan Project falls under Low Risk Project and therefore requires SPR.** This is according to the amended second schedule of EMCA Legal Notice No. 31 dated 30<sup>TH</sup> April 2019 and the NEMA Public Notice on Processing of ESIA Reports dated 12<sup>th</sup> March 2020. *The SPR was also as a result of the recommendation of the County Director Environment (CDE) based on the screening report.*

The approach and methodology involved a number of tools and techniques for data collection. These included review of secondary data on the project and locality; review of relevant legislation, regulations and policies; field visit for site observation, documenting discussions with local community, key informants, neighbours and stakeholders; preparation of draft report for review and validation by the client (KCSAP); preparation of final report and submission to NEMA for processing and issuance ESIA License. The use of these various tools was aimed at reducing biases, obtaining the true facts on the ground and seeking opinions from various stakeholders and interested parties in order to obtain as much and accurate information as possible.

The issues and concerns were addressed through involvement of various stakeholders including KCSAP; CDA; CDL; Liaison Officer; Sub County Livestock Officer; Ward Administrator; Ward Manager; Village Administrator; WRA; department of social services; chiefs; assistant chiefs; local professionals; Jowi Water Pan SHG; Youth; Women and peace committee.

The main expected positive impacts include: a) availability of water for livestock, domestic and micro-irrigation use especially during the dry season; b) reduced distance and time for fetching water therefore more time for other activities; c) reduced nomadism (migration from one place to another in such of water and pasture); d) efficient and effective utilization of available pasture; e) improved livestock production/health and reduction of livestock mortality; f) availability of water for fish production for subsistence and commercial purposes; g) improved food/nutrition security; h) availability of water for other economic and social activities; i) Improved hygiene, reduced water borne diseases thus improved health; j) creation of rural employment; k) rural economic growth and development; l) improved rural social amenities; m) improved community livelihood and reduction of rural poverty; n) increased generation of revenue to the county and national government.

During construction phase the following negative environmental impacts are anticipated: a) loss of vegetation cover; b) workers accidents and hazards; c) water contamination by construction machinery; d) potential loss of water in the pan due to drainage to allow construction.

During operation phase, the following negative impacts are anticipated: e) overgrazing around the water pan; f) water pollution by livestock, human and wildlife wastes due to direct

abstraction and Open Defaecation (OD); g) land degradation leading to increased soil erosion and environment pollution around the water pan, path ways and corridors leading to the water pan; h) Reduction of agricultural land for grazing and crop production for water pan expansion and auxiliary works; i) Flooding due to overland flow and overflow from water pan leading to crop damage and related hazards; j) drowning of children, ; k) increased malaria due enhanced mosquito breeding; l) water conflict among competing uses (domestic, livestock and irrigation) especially during the dry season; m) Human-wildlife, Livestock-wildlife and Human-Human conflicts; n) spread of livestock communicable diseases and livestock theft due to the concentration of livestock around the water pan; o) boundary conflict among local neighbouring farms and villages; p) Water and pasture conflicts among neighbouring farms and villages; q) theft, vandalism or damage of water infrastructure among other **social negative impact include gender based violence and sexual harassment (GBV/SH); risks of increased incidences of Human Immuno-deficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) and Sexually Transmitted Infections (STIs); and risks of increased spread of corona virus disease (COVID-19).** The negative environmental and social impacts will be mitigated as provided for in this report. These negative impacts are expected during project implementation, operation and decommissioning.

Mitigation measures to negative impacts have been suggested and will be used by the proponent during project cycle. These include: a) fencing of the water pan to limit direct access preventing water pollution, drowning of children, livestock and wildlife; b) construction of livestock water trough, community water point to avoid direct abstraction that leads to water pollution by humans, livestock and wildlife; c) Formation of water management committees and sub committees to regulate water use and resolve conflicts including water, pasture, boundary, wildlife among others.

The identified negative impacts as well as mitigation have been captured in detail in the ESMMP.

The cost of implementing the ESMMP of KShs. 357,000 is **already incorporated in the project cost** of KShs. 18,310,975.00 consisting of KCSAP grant 14,047,375.00, County contribution of KShs. 3,810,000.00 and Community contribution of KShs. 453,600.00. The ESMMP will be shared with selected contractor for compliance during construction.

**Conclusion:** The water project is technically sound, socially acceptable, financially feasible and environmentally friendly. The community is willing and able to contribute in kind to the implementation of the project as well as management. This is essential for project sustainability. The anticipated negative impacts during project implementation, operation and decommissioning are mainly temporal, occasional and avoidable. There is no significant threat to the implementation of this project however; all emergent environmental issues should be responded as they arise. The proponent is willing and able to address all the mitigation measures to negative impacts as well as emergent environmental issues.

**Recommendation:** The implementation of the water project should be supervised by a qualified engineer to ensure that works are done according to specifications. Secondly, WRA to facilitate the establishment of Water Users Associations (WUAs) and Water Users Committees (WUCs) while KCSAP to facilitate the formation of water management committees and sub committees for management, conservation and regulation of water use and to resolve water and pasture conflicts. Finally, KCSAP, WRA and WRUA to promote alternative water sources especially roof catchment harvesting in schools and other institutions as well as homesteads in order to reduce the pressure on the existing water sources.

## CHAPTER ONE

### 1.0 INTRODUCTION

Water is the main constraint for human, livestock and crop production and the major cause of famine in Kobudo Village, North Alungo Sub Location, South West Seme, West Seme Ward in general. Due to increasingly more unpredictable rains, increasing demands from an increasing population, water resource is becoming scarce. Although rainfall occurs in two periods/seasons in a year, it is scanty and poorly distributed and therefore many people do not benefit. Many people especially women and children (pupils/students) spend a large percentage of their daily calories and time carrying water for domestic use. Often the water they fetch is polluted causing water borne diseases, yet it is the only source available to them. On the other hand, livestock travel for long distances in such of water and migrate from one place to another in such of pasture. There are no reliable sources of water and during dry season, the community members travel long distances to the water sources.

#### 1.1 justification of the project

In recognition of the above, Kenya Climate Smart Agriculture Project (KCSAP)-Kisumu County intends to rehabilitate and expand Jowi water pan from current 15000M<sup>3</sup> to 32,000M<sup>3</sup>. This project will provide water mainly for livestock, domestic and micro-irrigation.

The water pan project is aimed at responding to and reducing adverse effects of climate change in Kisumu County and to meet the rising demand for food and nutrition. The water pan project will contribute to KCSAP objective of increasing Agricultural Productivity and building resilience to climate change risks in the targeted small holder farming and pastoral communities in Kisumu County particularly component one (1) that is up-scaling Climate-Smart Agricultural Practices.

#### 1.2 SPR justification

The rehabilitation and expansion of Jowi water pan is among the activities listed under schedule II of the Environmental Management and Co-ordination (Amendment) Act, 2015 requiring Environment and Social Impact Assessment. **The Water Pan Project falls under Low Risk Project and therefore requires SPR.** This is according to the amended second schedule of EMCA Legal Notice No. 31 dated 30<sup>TH</sup> April 2019 and the NEMA Public Notice on Processing of ESIA Reports dated 12<sup>th</sup> March 2020. *The SPR was also as a result of the recommendation of the County Director Environment (CDE) based on the screening report and World Bank ESS OP 4.01 on Environmental Assessment (category B project).*

The water project is among projects listed under schedule II of the Environmental Management and Co-ordination (Amendment) Act, 2015 requiring Environment and Social Impact Assessment (ESIA) Report. This report seeks to establish possible impacts of the proposed rehabilitation and expansion of Jowi water pan project on the natural and socio-economic environment of the project area and its environs and the corresponding feasible/achievable mitigation measures to avoid/eliminate reduce/minimize to acceptable levels adverse environmental impacts and/or maximize social benefits.

### 1.3 Methodology

The approach and methodology involved screening, scoping, desk review; field data collection using a number of tools and techniques, analysis of data and preparation of report. The specific tasks/activities included review of secondary data on the project and locality; review of relevant legislation, regulations and policies; field visit for site observation, documenting discussions with local community, key informants, neighbours and stakeholders; preparation of draft report for review and validation by the client (KCSAP); preparation of final report and submission to NEMA for processing and issuance ESIA License. The use of these various tools was aimed at reducing biases, obtaining the true facts on the ground and seeking opinions from various stakeholders and interested parties in order to obtain as much and accurate information as possible.

The issues and concerns were addressed through involvement of various stakeholders including KCSAP; CDA; CDL; Liaison Officer; Sub County Livestock Officer; Ward Administrator; Ward Manager; Village Administrator; WRA; department of social services; chiefs; assistant chiefs; local professionals; Jowi Water Pan SHG; Youth; Women and peace committee.

### 1.4 Organization of chapters

The SPR report consists of seven chapters as follows:

**Chapter One (Introduction):** This gives the background information, objectives and justification of the project and SPR; approach and methodology for SPR and the outline of the organization of SPR report. In **Chapter Two (Nature of the Project):** The section covers project description including the project components, design, layout, activities, materials, equipment and project cost.

**Chapter Three (Project Location):** This section gives description of the project site and immediate neighbourhood including land ownership details (public, community or private); land documents (title deed, Allotment, Lease, Land Consent, MoU etc); conformity with land use plan or zonation plan; environmentally sensitive area to be affected and supportive environmental management infrastructure.

**Chapter Four (Public Participation and Stakeholder Consultation):** This section gives detailed description of public participation and stakeholder consultation including objectives, categorization of participants involved; approach/methodology of engagement and summary of issues raised by the community and stakeholders and response.

**Chapter Five (Potential Environmental Impacts and Mitigation Measures):** This section gives Potential environmental and social impacts and mitigation measures of the entire project cycle phases: Planning, Construction, operation and decommissioning.

**Chapter Six (Environmental Management Programme and Monitoring Plan):** This section gives Environmental and Social Management and Monitoring Plan for the entire project lifecycle including ESM&MP matrix, Project monitoring and Evaluation; Audits and Reviews; Water Quality Monitoring; the tasks, roles/responsibilities, timelines and costs involved.

**Chapter Seven (Conclusion and Recommendation):** This section gives the summary of the overall findings and recommendation on the way forward in the implementation of the project and environment and social compliance with respect to SPR.

**References:** This section sections gives the list of sources of information used in compilation and preparation of SPR report.

**Annexes:** This section gives the detailed information of supportive documents including minutes; list of participants during public participation and stakeholder consultation; project designs/ drawings; land documents among

## CHAPTER TWO 2.0 NATURE/PURPOSE OF THE PROPOSED PROJECT

### 2.1 Introduction

The proposed Jowi water pan project is being implemented by County Government of Kisumu and through Kenya Climate Smart Agriculture Project (KCSAP). The water will be used mainly for livestock, domestic use and micro-irrigation. The water pan will be excavated using machinery. Excavation of the water pan using manual labour and hand tools is not suitable for 32,250m<sup>3</sup> water pan. It is relatively expensive and takes a longer time. It should be noted that water pans are conveniently excavated over short window of time that is during the dry months before the long rains starts and also before the end of government financial year.

During the public participation and stakeholders' consultation, the community indicated that the Water Pan is expected to benefit many households and livestock in the following areas: 1) North Alungo Sub Location including the following villages: Oriang, Got Kotin, Rapogi, Obuombi and Kokedi; 2) part of Kadinga, Alwala, South Alungo and West Othany sub locations.

The water will be available for irrigation of high value crops including vegetables, tomatoes among others under drip irrigation. The irrigation component of the water pan project will also be used for demonstration and training of farmers. *However, the amount of water available for various uses (irrigation, livestock and domestic) need be accurately determined through feasibility study and Hydrological assessment. In addition also determine the acreage to be placed under irrigation, the number of livestock and people to benefit from the project based on water demands.*

### 2.2 Project Activities

The main project activities include: preliminary activities (survey and design; environment and social impact assessment; tendering process to select contractor ); mobilization of machinery, personnel and materials to site; construction of water pan involving excavation of 32,250m<sup>3</sup> water pan reservoir (**Drawings attached**); construction of collection trenches (inlet); construction of spill way (outlet for excess storm water); fencing of water pan; construction of auxiliary works including sanitary facility (toilet and bathroom); water use points {livestock water troughs (LWT) and Community Water Point/stand (CWP)}; Water Tower with 2 No 10,000 litres plastic tanks; Water Pumping system to elevated storage tanks at water tower; Irrigation System and related works and activities.

#### 2.2.1 Water Pan

- Catchment area (Not estimated: requires feasibility study and Hydrological Assessment)
- Sediment Load ((Not estimated: requires feasibility study and Hydrological Assessment)
- Effective Water pan volume  $\approx 32,250\text{m}^3$
- Pan Area  $\approx 12,000\text{m}^2$
- Average depth  $\approx 3\text{m}$
- Embankment height  $\approx 4\text{m}$
- Embankment slope = 1:3
- Inlet channel: 10m long x 2m wide x 0.5m deep = 10m<sup>3</sup>)
- Silt trap: 10m long x 5m wide x 1.0m deep = 50m<sup>3</sup>)
- Spill way: 20m long x 10m wide x 0.3m deep = 60m<sup>3</sup>

- Intake Draw off System: The water outlet system consists of column screens in the water pan and draw off pipeline leading to Livestock water trough, community water point and water tower.

### **Proposed materials and equipment**

Among the materials required are concrete, ballast, cement, sand metal fences, barbed wire, chainlink, Solar panels

The equipment required are Grader, D7 Bulldozer, trucks to ferry excavated soil to the waste dumping site

#### **2.2.2 Community Water Point**

The community water point covers an area 5.04m<sup>2</sup> (2400mm x 2100mm).

2 tap water fetching as indicated in the drawings.

#### **2.2.3 Livestock Water Trough**

The livestock water trough consists of cattle and shoats (Sheep and goats) water troughs measuring 6550mm x 1100mm x 440mm with self-regulating ball valve.

#### **2.2.4 Concrete Tower Platform**

- 6m high elevated water tower reinforced.
- Tower column bases (1200mm x 1200mm).
- 4No 250mm x 250mm reinforced concrete tower columns.
- 10,000 litres plastic tank (ROTO).

#### **2.2.5 Solar Pumping Mechanism**

The water lifting system consists of SF2 solar irrigation pump with 120W PV panel, suction lift of 7m and total lift of 15m/50ft) complete with 8 meters 1¼" suction pipe, 30 meters 1¼" deliver pipe and rubber hosepipe size 1" (100m long per pumping set).

#### **2.2.6 Sanitary Facility**

The sanitary facility consists of VIP latrine (1500mm x 1500mm) and bathroom (1500mm x 1500mm). The height of sanitary facility is 2390mm at the front and 2000mm at the rear (refer to attached drawing).

#### **2.2.7 Drip Irrigation System and Shade Net**

The drip irrigation system consists of 500m drip line and shade net (50% shade) covering 500m<sup>2</sup>. The drip irrigation system has a wooden platform 1.5m above ground surface to support 3,000 litres tank.

#### **2.2.8 Project Cost and Benefits**

The project is estimated to cost KShs. 18,310,975.00 consisting of KCSAP grant 14,047,375.00, County contribution of KShs. 3,810,000.00 and Community contribution of KShs. 453,600.00.

The water project is intended to provide water for livestock and micro-irrigation. In addition it will provide clean/potable drinking water; augment the existing water sources which are usually seasonal and unsafe for human consumption. It also aims at reducing the distance traveled by livestock, pupils/students and community members in search of this precious resource; reduce the spread of water borne diseases; relieve the burden on women and children in water collection and

enable them to participate in other economic activities. This will improve performance in schools. In general, the project contributes to improvement of water accessibility in the aforementioned benefiting villages/areas.



## **CHAPTER THREE**

### **3.0 PROJECT LOCATION**

The proposed project is located on Public Land at GPS Coordinates -0.156206N34.497230E on L.R. No. Kisumu/Alungo/1656 in Kobudo Village; North Alung'o Sub Location; South West Seme Location; West Seme Ward; Seme Sub-County in Kisumu County (**Land Search and National Lands Commission Concurrence letter to undertake the Investment attached**).

#### **3.1 Rainfall**

The project area receives relatively low rainfall slightly above 1000 mm per annum during the rainy season and an average of 500 mm during the dry season. The rainfall is determined by a modified equatorial climate characterized by long rains (March to May) and short rains (September to November). The area is generally warm with minimal monthly variation in temperatures between 23<sup>0</sup>C and 33<sup>0</sup>C throughout the year.

#### **3.2 Soil type and Topography**

The water pan site is on relatively flat while the neighbourhood topography is undulating and characterized by over-hanging huge granite rocks and small flat plains predominantly along water courses. Due to flash flooding, the project area (North Alung'o) has rich alluvial soils and black cotton soils which favour agricultural production in horticulture and rice. The nearby permanent rivers include Awach-Seme, Kisian and Obede. The seasonal streams feeding into Jowi Water Pan include Aora-Jowi seasonal stream, overflow flood from Obede River water and overland flow from Kombewa area.

#### **3.3 Supportive Infrastructure**

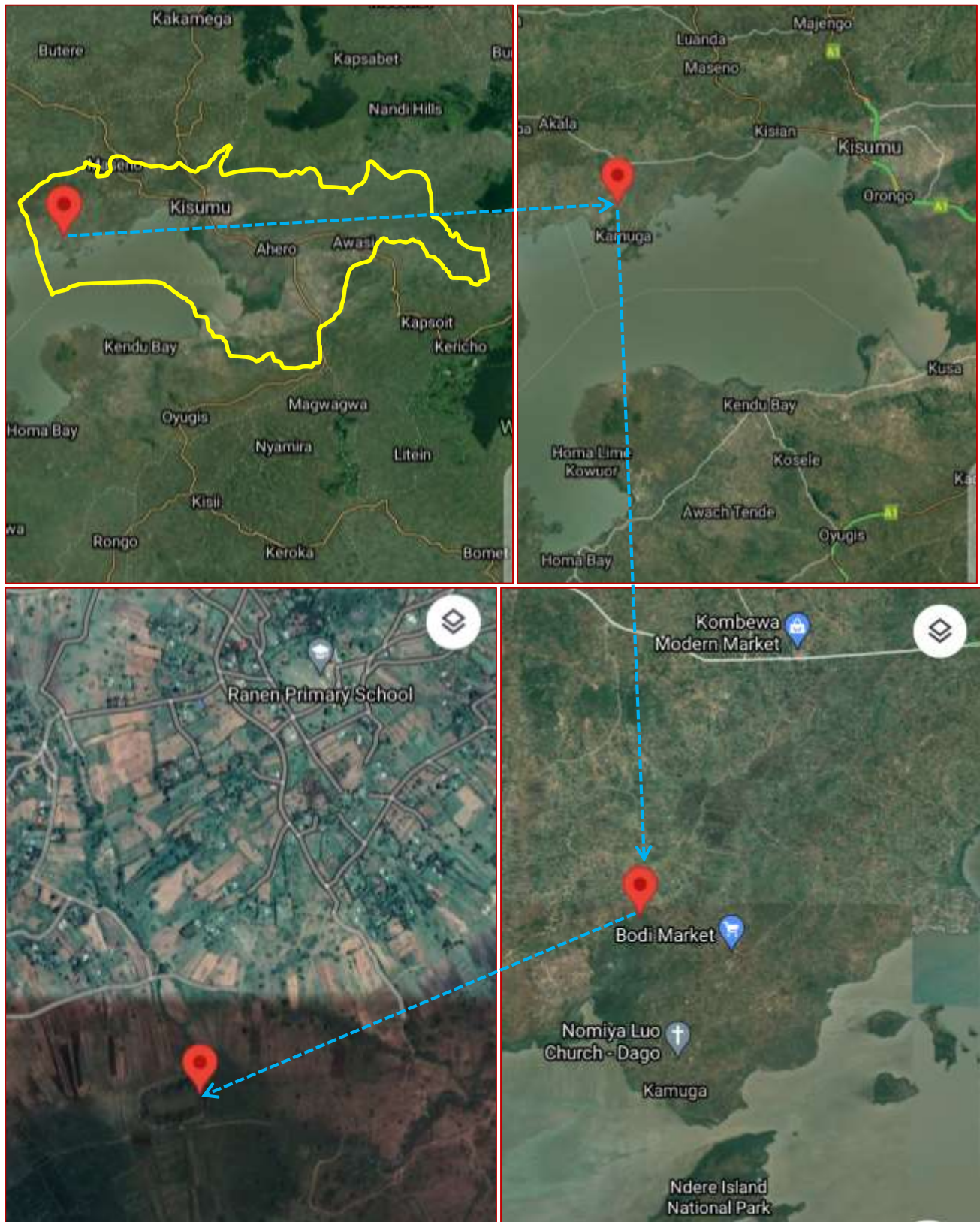
The road infrastructure in the area consists of several marrum roads leading to the site. However the roads terminate about 400m from the water pan. There is need for County government of Kisumu to rehabilitate these roads to improve accessibility. The water pan is also within reach of national grid (for powering water pump). The area is not connected to water system

#### **3.4 Economic activities**

The main economic activities in the area include rain fed crop production (maize, beans, sorghum, finger millet, grain amaranth, cow peas, soya beans, sun flower, sim sim, tomatoes, kales, onions, seat potatoes, cassava, paw paws, mangoes, among others) and livestock keeping (goats, sheep, cattle, donkeys, pigs, poultry, bee keeping among others) for subsistence and commercial purposes; fishing; investments in various enterprises and sectors (quarrying, shop keeping, hotel industry, ICT, transport among others).

### **3.5 Land ownership**

The proposed rehabilitation and expansion of Jowi water pan is located on public land L.R. No. Kisumu/Alungo/1656. site is **NOT located on gazetted protected or zoned area and is NOT out of character with its immediate environment**



**Figure 1: Satellite Map Showing the Location of Proposed Jowi Water Pan Site**



**Figure 2: Survey Map Showing the L.R. No of the Proposed Jowi**

## **CHAPTER FOUR**

### **4.0 PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATION**

#### **4.1. Introduction**

In order to consolidate the ESIA report, various tools and techniques were used for data collection. These included review of primary and secondary data about area, review of relevant legislation and policies, documenting discussion with neighbours in the month of January 2022. The use of these various tools was aimed at reducing biases, obtaining the true facts on the ground and seeking opinions from various stakeholders and interested parties in order to obtain accurate information as much possible. During public engagement/participation and stakeholder consultation a total of 69 people were involved including 41 male and 28 female.

#### **4.2. Objective of Community and Stakeholders Consultation**

The purpose of community engagement/involvement/participation and stakeholder consultation is to document their concerns, issues, opinions, suggestions and recommendation on proposed Jowi water pan. This is important in project implementation for acceptance, ownership, management and sustainability.

Good engagement practice, where decisions are informed by the views of stakeholders and consider the needs of the community, not only builds trust and understanding but assists with managing risk. Success can often be tied to the presence of robust and purposeful community participation and stakeholder consultation. Individuals within the community can have valuable local knowledge. Tapping into this knowledge not only assists with better decision making and relationship building, but it can also create opportunities and deliver innovative solutions to potential issues.

#### **4.3 Categorization of Community Participants and stakeholders**

The community members who were involved and actively participated included men, women, youth, people living with disabilities cutting across all ages. In addition several stakeholders were involved including: KCSAP; CDA; CDL; Liaison Officer; Sub County Livestock Officer; Ward Administrator; Ward Manager; Village Administrator; WRA; department of social services; chiefs; assistant chiefs; local professionals; Jowi Water Pan SHG; Youth; Women and peace committee. The issues, concerns, suggestions and recommendations are given in this report.

#### **4.4 Methodology of Public Participation and Consultation**

##### **4.4.1 Planning and Reconnaissance Survey**

The EIA Team held planning meeting with client (KCSAP) on 3<sup>rd</sup> January 2022 and visited the site for reconnaissance survey on 4<sup>th</sup> January 2022. This was meant to determine: a) the range of issues to be addressed in the Environment and Social Impact Assessment (ESIA) Report; b) significant issues that would need detailed assessment and reasons; c) issues that are not significant, very well understood; d) the boundaries for the ESIA in terms of geographical extent, timing and issues to be assessed; e) how the ESIA was to be conducted, the people to be involved and the timings; f) the main stakeholders who should be consulted during ESIA, their concerns, opinions and suggestions; g) the requirements for the collection of baseline and other relevant information; and h) consolidation of ESIA approach/plan and mobilization.

## 4.4.2 Neighbour/Stakeholder Involvement and Participation

### 4.4.2.1. Public Baraza

All relevant stakeholders were involved and actively participated in the preparation of this report. A public/stakeholders baraza was held on 10<sup>TH</sup> January 2022 (**Minutes and list of participants attached**). This was meant to address the social aspects of the project with the aim of obtaining the neighbours (residents and stakeholders) opinion on the proposed Jowi Water Pan.

The public were informed about Environment and Social Impact Assessment (ESIA) as provided in EMCA (Amendment) 2015 and that the act gives every person a right to clean and health environment and confers upon every person, the duty to protect and safeguard the environment.

They were informed about the importance conducting ESIA and that the focus on any development initiative is to improve the economic well-being of an area. In the same line these development should always consider the environmental well-being of the current population and the generation to come and thus a balance is attained between the two hence termed as sustainable development.

The participants were enlightened about the project design and the project phases and their roles; ESIA, its purpose/objectives, legal framework including legislation and policies governing environment; the rights and role of community towards environment protection and management. They were sensitized about environment policies, legislation and regulations including: Constitution of Kenya 2010; Land Act 2012; Land Registration Act 2012; National Land Commission Act 2016; Community Land Act 2016; Forest Conservation and Management Act 2016; Water Act 2016; EMCA (Amendment) 2015; Public Health Act CAP 242 among others.

They were informed that in Kenya, it is a requirement that every project has to be environmentally friendly. Section 58 of Environmental Management and Coordination (Amendment) Act (EMCA), 2015 and Regulation 4 of Environmental Management and Coordination (Strategic Assessment, Integrated Impact Assessment and Audit) Regulations, 2018, indicates that no proponent shall implement a project that is likely to have a negative environmental impact; or for which an environmental impact assessment is required under the Act or these Regulations; unless an ESIA has been concluded and approved in accordance with these Regulations.

### 4.4.2.2 Key Informers

The following Key informers were involved/engaged/interviewed.

#### 1. Water Resources Authority (WRA)

The Regional Manager (RM) Lake Victoria South Basin Area confirmed that Jowi water pan falls under the Northern shoreline Nyando Sub Basin. He encouraged the protection of catchment, water ways and compliance with water legislation, regulation and rules. He informed that there was the **need for storage permit from WRA for** Jowi water Pan and gave the following requirements: 1) Land ownership; 2) Registration for SHG or CBO; 3) PIN for SHG or CBO; 4) drawings for water pan; 5) Hydrological Assessment Report showing the hydrological features of the area; 6) WRUA comments and 7) storage permit fee of KShs.12,500.00.

#### 2. County Director of Livestock (CDL)

The County Director of Livestock Mr. Charles Kakuku stated that whenever the water is insufficient, there is competition among water users. He said that the amount of water required depends on the livestock population and breeds as well as irrigation methods. *He further stated that since irrigation is around the water pan, there was the need to control use of pesticides not to*

*pollute the water.* Such if not control through save use, is bound to cause health hazards to human and livestock.

He informed that during the dry season, water is needed most for irrigation, livestock and domestic uses. At this time water competition is high. He recommended the need to construct a bigger water pan to meet the demands. In addition he encouraged the establishment water pan management committee as well as the rules to regulate water use.

### **3. County Director of Agriculture (CDA)**

The County Director of Agriculture Mr. Oketch recommended the use of water conservation technologies and innovations including drip irrigation and shade net. He confirmed that the project will provide water for demonstration plots (learning) under intensive farming of high value crops such as tomatoes, vegetables among others where youths and women will be engaged at production and marketing level. He emphasized the need for rain water harvesting (roof and others) to reduce pressure on the water pan.

### **Other key people consulted included**

Sub County Livestock Officer (Seme) Mr. Peter Ogutu

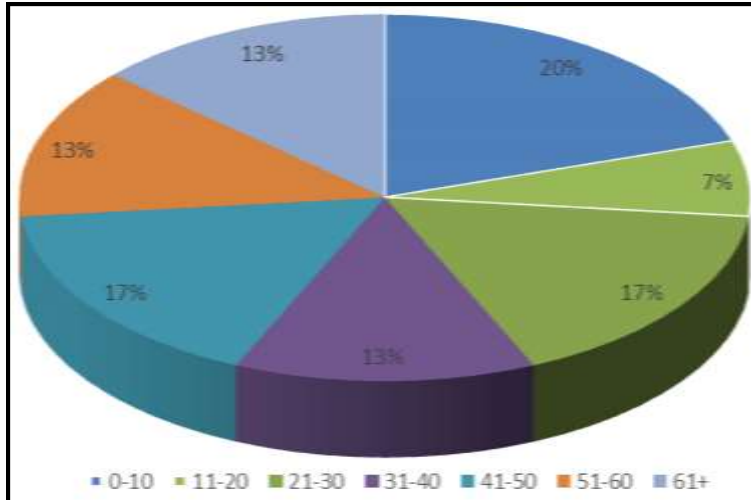
KCSAP representative (Mr. Vincent Omondi)

Project Engineer (Billiard Obingo); 7) Liaison officer representing the County Government (Aggrey Ogusi); 8) Ward Admin-West Seme Ward (Joshua Ngesa); 9) The Ward Manager Madam-West Seme Ward (Judith Chili); 10) Social Services-South West Seme Ward (Milicent Olocho); 11) The Secretary for Jowi Water Pan SHG and management committee (William Owang); 12) Chief-South West Seme Location (Shadrack Oluoch Ochola);

13) Assistant Chief-North Alung'o Sub Location (Jonathan Adira); 14) Assistant Chief Alwala Sub Location (Moris Omoso); 15) Assistant Chief-East Kodinga Sub Location (Dickson Awalo); 16) The village administrator-South West Seme Village (Peter Owanga); 17) Peace Committee (South West Seme Location)

#### **4.4.2.3 Administration and Analysis of Questionnaires**

Prior to administering the questionnaires, the residents and stakeholders were taken through the questions concerning the proposed Jowi Water Pan as contained in the questionnaires and how to fill them. They were told to freely fill the questionnaires individually and give a clear picture of potential impacts of the proposed development. The respondents are neighbours, beneficiaries and stakeholders of the proposed Water Pan. The summaries of questionnaires are given below.



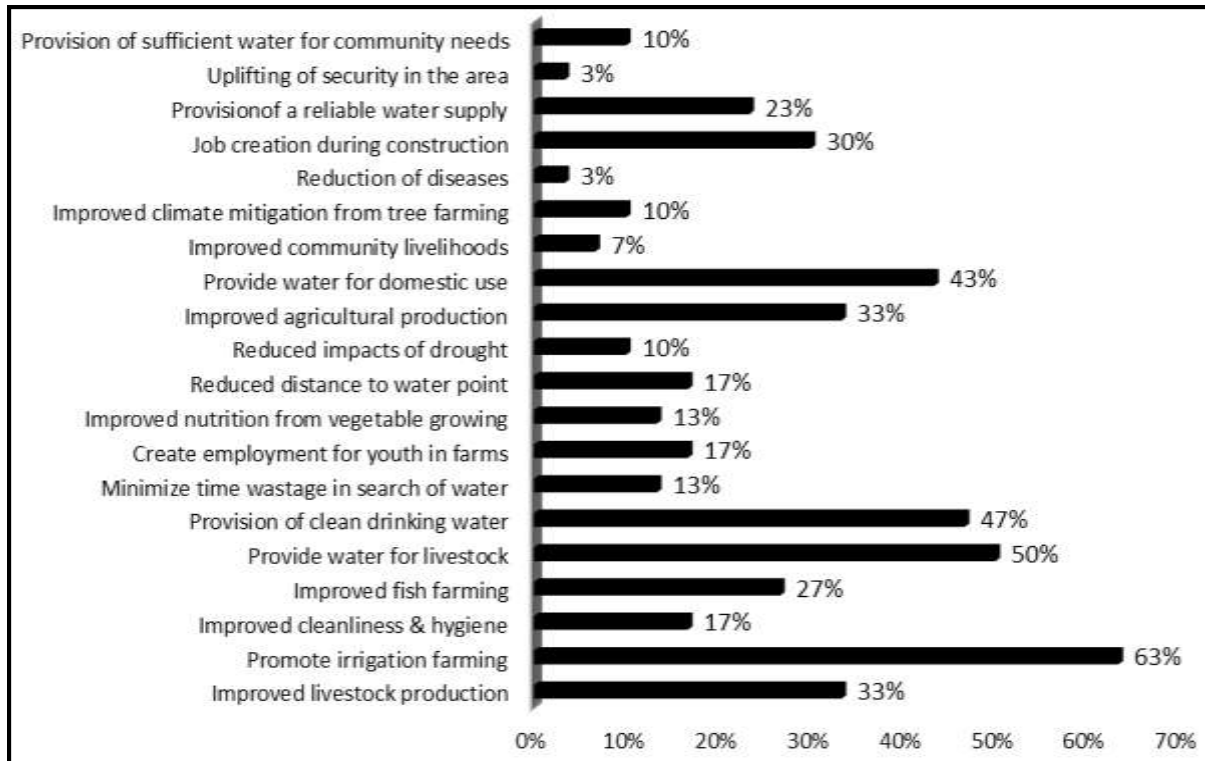
**Figure 3: Percentage of respondents' years as residents**



**Figure 4: Percentage of respondents on project awareness**

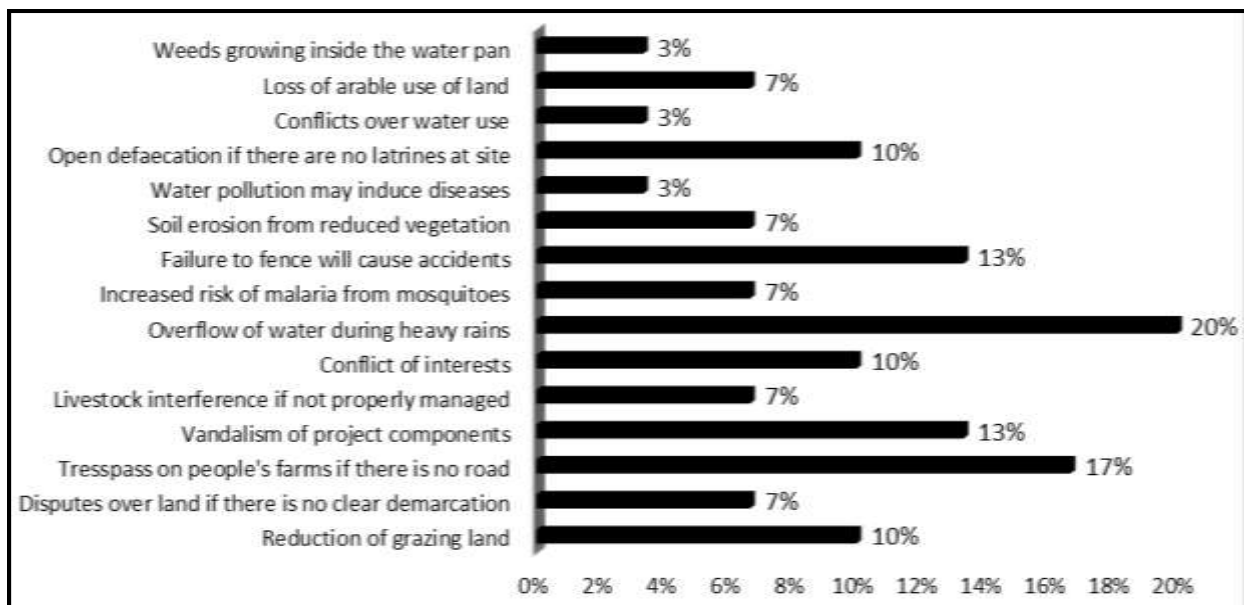
All (100%) of the respondents are aware of the proposed rehabilitation and expansion of Jowi Water Pan



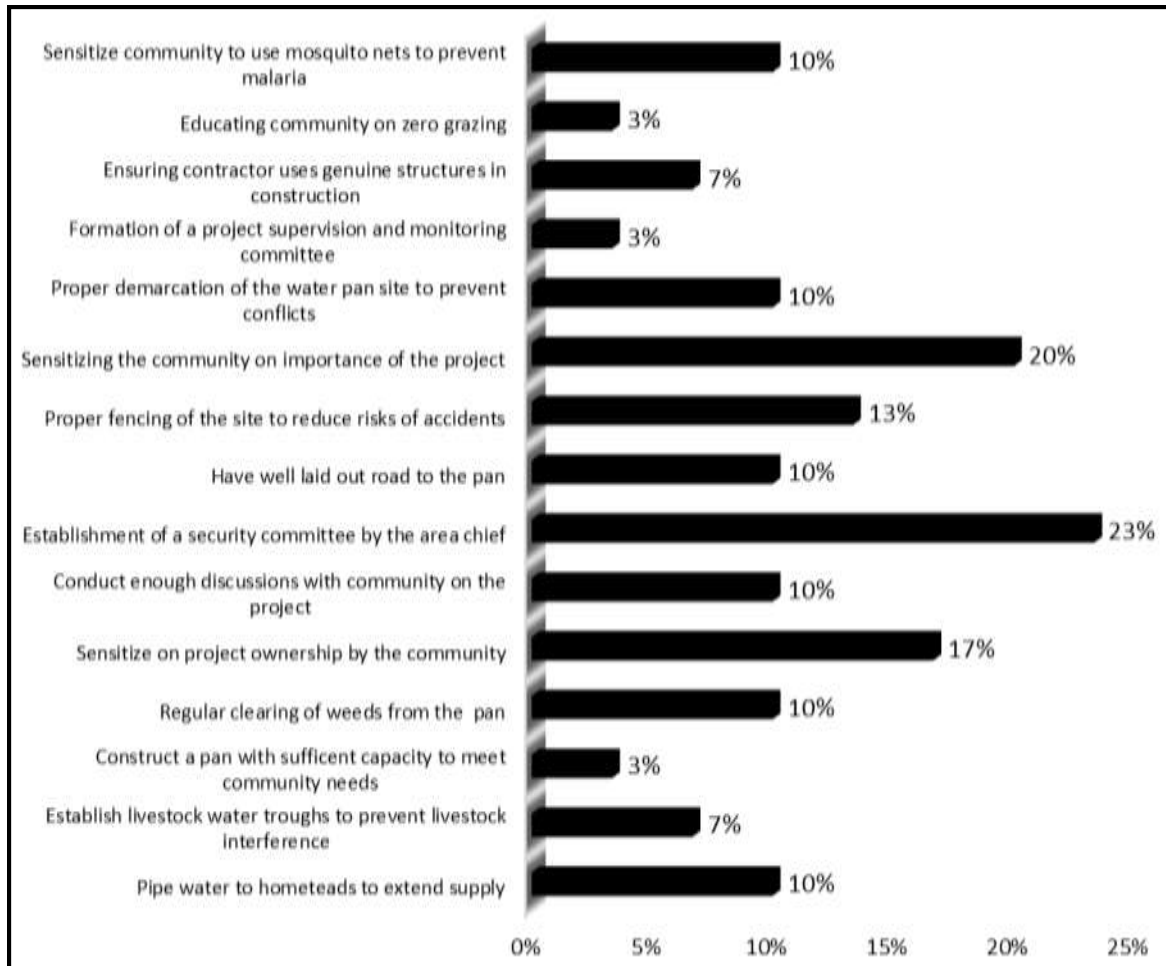


**Figure 5: Percentage of respondents on Jowi water pan project benefits**

Majority of the respondents (63%) felt that the water pan project will provide water for irrigation while 50% thought it would provide water for livestock. A significant number of respondents (47%) felt that it would provide clean drinking water.



**Figure 6: Percentage of respondents on negative impacts of the proposed Jowi water pan**



**Figure 7: Percentage of respondents on mitigation measures**

On whether they anticipate any problem, complain or conflict against the water pan project with respect to land, site/location, water, public health/safety, loss of livelihood and others, the respondents identified none, however the ESIA team identified the following:

- Water conflict with neighbouring local communities and competing uses.
- Water pollution by direct abstraction and wastes from livestock, wildlife and human (OD).

The following ways of resolving the above complains/conflicts were identified:

- Fencing of water pan
- Establish water management committee to regulate water use and resolve water and pasture conflicts
- Provide sanitary facility (toilet and bathroom)
- Provide alternative watering points for wildfowl

**Note:** The sample questionnaires are attached/appended/annexed.

#### **4.4.3 Summary of Issues Raised by the Community and Stakeholders and Response**

The community welcomed the project since water is their priority need for domestic, livestock and irrigation.

**Slow pace of project implementation process:** KCSAP to fast track.

**Water pan Pollution:** Conservation the water source and water ways particularly the tributaries as well as limiting direct abstraction through construction of CWP, LWT and Toilets.

**Water Conflict:** Establishment of PMC and water project management rules to regulate the access and use of water for various uses including domestic, livestock and irrigation.

The stakeholders emphasized the following:

**WRA:** Encouraged the protection of catchment, water ways and compliance with water legislation, regulation and rules.

**CDL:** Control of use of pesticides around the water pan, to avoid water pollution; construction of a bigger water pan to meet the demands and establishment of water pan management committee and rules to regulate water use.

**CDA:** Recommended the use of water conservation technologies and innovations including drip irrigation and shade net. He emphasized the need for rain water harvesting (roof and others) to reduce pressure on the water pan.

**KCSAP:** Promised to implement the project within the stipulated time frame; capacity build the PMC in order to adequately manage the project and encouraged the community participate actively during the entire project cycle.

**County Government:** Promised to improve infrastructure including access roads, electricity among other social amenities (Provide 20% of the project).

**National Administration (Chiefs/Assistant Chiefs):** Promised to assist in conflict resolution and provide security of infrastructure from mismanagement/vandalism.





**Public Participation Baraza at Jowi Water Pan Site on 10/01/2022**



## CHAPTER FIVE

### 5.0 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

#### 5.1 Introduction

There is a growing concern in Kenya and at global level that many forms of development activities cause damage to the environment. This has been aggravated by lack of awareness and inadequate information amongst the public on the consequences of their interaction with the environment.

This report has identified several environment and social impacts including positive and adverse effects of the proposed water project. The need to maximize the positive and reduce/mitigate the negative is essential before a project can win community acceptability. The project is embraced by the community and supported by stakeholders.

#### 5.2 Positive Environment and Social impacts

1. Water will be available for livestock thereby reducing livestock loss/mortality. This improves livestock production. Livestock health is expected to improve leading to increased milk and meat production.
2. Availability of water for micro-irrigation for subsistence and commercial farming. This will improve food and nutrition security as well as income generation.
3. Availability of water for domestic use including drinking, cooking, bathing, washing among others. *There is need for Feasibility study and Hydrological assessment to accurately determine actual acreage and population of livestock and people to benefit from the project.*
4. The water is comparatively clean hence improved hygiene, reduced water borne diseases and improves human and livestock health.
5. Reduction of distance to water points by livestock and people. Women and children (pupils/students) will spend less time while fetching water. Women will have time for house chores and other economic activities while children (pupils/students) will have time for studies improving performance in schools.
6. Availability of water for fish production for subsistence and commercial purposes.
7. The availability of water will enable livestock to be closer to pasture leading to better utilization of pasture and reduced nomadism (migration from one place to another in such of water and pasture).
8. The project brings more development to the community such as access roads, electricity, restaurants and other social amenities such as dispensaries and recreational facilities.
9. The project will reduce water shortage in the Kobudo and neighbouring villages and Sub Locations currently experiencing water scarcity.
10. Creation of rural employment. There will be availability of job opportunities to the local community during the construction phase of the project and in the value chain of crop/livestock production and marketing.
11. The proposed water project will lead to rural economic growth and development; improved community livelihood and reduction of rural poverty; and increased generation of revenue to the county and national government.
12. In general it contributes to improvement of water accessibility in area and neighbouring villages and Sub Locations; West Seme Ward; Seme Sub County; Kisumu County and Nation in general.

### **5.3 Anticipated Negative Impacts during Construction Phase**

The following anticipated negative impacts were identified. Its corresponding mitigation measures are given in section 5.6.

1. During excavation of the water pan, there will be minimal loss of vegetation cover around the water pan and related infrastructure.
2. There is the potential of increased chances of the public and occupational health hazards and safety (OHS). Accidents may occur during construction. Some of the OHS concerns include ergonomic related problems. An effective use of protective gear and adherence to place of work regulation is recommended.
3. During excavation of 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.
4. Water contamination by machinery. The machinery runs on fuel and lubricants including petrol, diesel, oil and grease. Any leakage will contaminate the water.
5. Potential loss of water in the pan due to drainage to allow construction.
6. There is spread of communicable diseases and increased unwanted pregnancies caused by construction workers.

### **5.4 Anticipated Negative Impacts during Operation Phase**

The following anticipated negative impacts were identified. Its corresponding mitigation measures are given in section 5.6.

1. The water project encourages overgrazing (over utilization of pasture) around the water point. This leads to land degradation (increased soil erosion and environment pollution) around the water pan, paths and corridors leading to the water pan.
2. Water pollution by livestock, human and wildlife wastes due to direct abstraction and Open Defaecation (OD).
3. Loss of life due to drowning of children and increased cases of snake bites. There is therefore the need to fence the water and provide safe water dispensing units including Livestock water trough and water stand for domestic use.
4. The water pan will encourage rapid multiplication of mosquitoes leading to increased malaria prevalence in the area.
5. During dry season, there is a likelihood of water conflict from competing uses (domestic, livestock and irrigation). There is therefore the need to form water project management committee to regulate the use of water and to amicably resolve conflicts through dialogue.
6. The water project will encourage the influx of livestock, people and wildlife into the site. This leads to conflict among human, livestock and wildlife leading to insecurity and occasional loss of livestock and human life. There is need for county administration to provide security and restrict influx of livestock from other far areas. Furthermore, there is the need to put in place early warning and response systems in place.
7. Concentration of livestock around the water point leads to spread of livestock communicable diseases and encourages livestock theft. It also encourages poaching since wildlife are expected to be at the water point during the night.
8. The water project will encourage boundary conflict among neighbouring farms and livestock corridors and intercommunity conflict among clans and villages leading to insecurity.
9. There is a likelihood of theft, vandalism or damage of water infrastructure during operational phase of the project.

### 5.5 Anticipated Negative Impacts during Decommissioning Phase

In the unlikely decommissioning of the project, there will be final disposal of materials at the expiry of the project lifespan. However, if there is change of site of any of the above components of the project, it is likely to have a negative impact on the environment. Abandoning the water project and associated activities leads to waste of precious land. There is therefore the need for landscape restoration to its original state before disturbance.

### 5.6 Mitigation Measures

The proposed mitigation measures to the anticipated/identified potential negative impacts are highlighted below. The negative impacts given in section 5.3-5.5 above are as a result of proposed project activities. The corresponding mitigation measures are given in table 2 below.

**Table 1: Proposed Mitigation Measures against Negative Impacts**

<b>Potential Impact 1</b>	<b>Loss of vegetation cover around the water pan and related infrastructure</b>
Project Activities	Construction
Environmental Receptor	Land
Duration	Long term
Magnitude	Small
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Plant grass at the slope of water pan embankment</li> <li>▪ Plant trees around the water pan</li> <li>▪ Minimize unnecessary removal of vegetation around the water pan</li> </ul>
Significance	Minor, direct, unavoidable impact
<b>Potential Impact 2</b>	<b>Site accidents</b>
Project Activities	Construction
Environmental Receptor	Human
Duration	Short term
Magnitude	Small
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Wear protective/safety gear and adhere to work place regulations.</li> </ul>
Significance	Minor, direct, unavoidable impact
<b>Potential Impact 3</b>	<b>Loss of man-hours by curious onlookers and that of workers due to interference</b>
Project Activities	During construction phase
Environmental Receptor	Human being
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, temporal, avoidable impact
<b>Potential Impact 4</b>	<b>Water contamination by machinery</b>
Project Activities	Construction
Environmental Receptor	Land, Water, Human, Livestock
Duration	Short term
Magnitude	Small
Mitigation Measures	The contractor to minimize water contamination by servicing machinery to prevent leakages and spillage of fuel and lubricants. 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.
Significance	Minor, direct, temporal, avoidable impact
<b>Potential Impact 5</b>	<b>Potential loss of water in the pan due to drainage to allow construction</b>
Project Activities	During construction
Environmental Receptor	Human, Livestock
Duration	Short
Magnitude	Medium
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ There is therefore the need to do construction during the dry season.</li> <li>▪ Alternatively the half split construction is adopted where half of the water is fully construction before draining the water into it to allow construction of the other half.</li> </ul>
Significance	Medium, direct, temporal, avoidable impact.
<b>Potential Impact 6</b>	<b>Spread of communicable diseases and increased unwanted pregnancies caused by construction workers.</b>
Project Activities	Construction
Environmental Receptor	Pupils, Women
Duration	Short term
Magnitude	Small
Mitigation Measures	Sensitize the community and workers on good morals and ways of preventing spread of communicable diseases such as STIs and unwanted pregnancies through protection
Significance	Minor, direct, occasional, avoidable impact.
<b>Potential Impact 7&amp;8</b>	<b>Overgrazing (over utilization of pasture) around the water pan and Land degradation/ Soil Erosion.</b>

Project Activities	Operation Phase.
Environmental Receptor	Land, Pasture, Water, Human
Duration	Long Term
Magnitude	Medium
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Restrict grazing of livestock around the water pan</li> <li>▪ There is need for proper compaction and murraming areas around the water pan.</li> <li>▪ Rehabilitation through planting of grass and trees; land scaping and general environment greening to restore flora and fauna habitat.</li> </ul>
Significance	Medium, direct, continuous, avoidable impact
<b>Potential Impact 9</b>	<b>Water pollution by livestock, human and wildlife wastes due to direct abstraction and Open Defaecation (OD).</b>
Project Activities	Operation Phase.
Environmental Receptor	Water, Livestock, human beings, wildlife
Duration	Long term
Magnitude	Medium
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Construct Livestock Water troughs</li> <li>▪ Construct Community water points</li> <li>▪ Construct toilets at the water pan</li> <li>▪ Fence the water trough</li> <li>▪ Sensitize the community on the reduction of water pollution</li> </ul>
Significance	Medium, direct, Continuous, avoidable impact
<b>Potential Impact 10</b>	<b>Flooding due to overland flow and overflow from water pan leading to crop damage and related hazards</b>
Project Activities	During construction and operation phase
Environmental Receptor	Land, Crop, Livestock, Human
Duration	Long term
Magnitude	Medium
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Install measuring points to monitor the water levels</li> <li>▪ Construct adequate spill way to drain excess water into existing water ways</li> </ul>
Significance	Medium, direct, occasional, avoidable impact.
<b>Potential Impact 11</b>	<b>Loss of life due to drowning of children and increased cases of snake bites</b>
Project Activities	During operation phase
Environmental Receptor	Human, Livestock
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Have a perimeter for the water pan and restrict children from the site.</li> <li>▪ Equip the dispensaries with drugs to treat snake bites</li> </ul>

Significance	Minor, direct, occasional, avoidable impact.
<b>Potential Impact 12</b>	<b>Increased Malaria due breeding of Mosquitoes</b>
Project Activities	During operation phase
Environmental Receptor	Human
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Use mosquito nets and clear unnecessary bushes and grass around homesteads</li> <li>▪ Equip the dispensaries with drugs to treat Malaria</li> </ul>
Significance	Minor, direct, continuous, avoidable impact.
<b>Potential Impact 13</b>	<b>Water conflict from competing uses (domestic, livestock and irrigation) especially during the dry season</b>
Project Activities	During operation phase
Environmental Receptor	Human, Livestock, Crop
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Form project management committee to regulate the use of water and pasture and to amicably resolve conflicts.</li> <li>▪ Develop more water projects (water pans and boreholes)</li> </ul>
Significance	Minor, direct, occasional, avoidable impact.
<b>Potential Impact 14, 15, 16, 17 &amp; 18</b>	<b>Human-Wildlife conflict, Livestock-wildlife conflict, Human-Human Conflict, leading to insecurity and occasional loss of livestock and human life.</b>
Project Activities	During operation phase
Environmental Receptor	Human, Livestock, Wildlife
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Ensure that water trough is filled with water overnight for wildlife</li> <li>▪ Develop more water projects (water pans and boreholes)</li> <li>▪ County administration to provide security and restrict influx of livestock from other areas.</li> <li>▪ Put in place early warning and response systems in place.</li> </ul>
Significance	Minor, direct, occasional, avoidable impact.
<b>Potential Impact 19, 20 &amp; 21</b>	<b>Spread of livestock communicable diseases, livestock theft and poaching of wildlife</b>
Project Activities	During Operation Phase
Environmental Receptor	Livestock, wildlife, human
Duration	Minor

Magnitude	Small
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ County department of veterinary services to vaccinate livestock</li> <li>▪ Promote community Policing</li> <li>▪ Increase security patrol</li> </ul>
Significance	Direct/minor negative/reversible impact
<b>Potential Impact 22, 23 &amp; 17</b>	<b>Boundary conflict among neighbouring people/farms, livestock corridors and intercommunity conflict among clans and villages leading to insecurity.</b>
Project Activities	During Operation Phase
Environmental Receptor	Human
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Establish water and pasture management committees</li> <li>▪ Promote intercommunity meetings</li> <li>▪ Mainstream peace building and conflict resolution</li> <li>▪ Promote community Policing</li> <li>▪ Increase security patrol</li> </ul>
Significance	Minor, direct, occasional, avoidable impact.
<b>Potential Impact 24</b>	<b>Theft, vandalism or damage of water infrastructure</b>
Project Activities	During Operation Phase
Environmental Receptor	Water, Livestock, Human
Duration	Long term
Magnitude	Minor
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Involve community at all levels of project implementation for acceptance and ownership</li> <li>▪ Provide water for livestock, domestic use and irrigation.</li> </ul>
Significance	Minor, Direct, occasional, avoidable impact.
<b>Potential Impact 25</b>	<b>Waste land due to project abandonment</b>
Project Activities	Decommissioning/abandonment
Environmental Receptor	Land, Water, Human
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, Direct, unlikely, reversible impact.

## CHAPTER SIX

### 6.0 ENVIRONMENTAL MANAGEMENT PROGRAMME & MONITORING PLAN (ESM&MP)

#### 6.1 Construction Phase

This is the shortest stage of project activities. It is at this stage that the intended project activities are being implemented. During this phase the works and activities has to be done in accordance with technical specifications.

**Table 2: ESM&MP for the Construction Phase**

<b>Impact</b>	<b>Action Required/Mitigation Measure</b>	<b>Monitoring indicators</b>	<b>Means of verification</b>	<b>Responsibility</b>	<b>Time frame</b>	<b>Cost (KShs)</b>
Loss of vegetation cover around the water pan, auxiliary works and related infrastructure	<ul style="list-style-type: none"> <li>▪ Plant grass at the slope of water pan embankment</li> <li>▪ Plant trees around the water pan</li> <li>▪ Minimize unnecessary removal of vegetation around the water pan</li> </ul>	Rehabilitated water pan immediate environ Acreage of vegetation loss	Initial and subsequent Environmental Audits	Community Contractor	During construction	Part of project cost
Site accidents	▪ Contract qualified and experienced manpower	Awarded contractor	Evaluation Report	Proponent	1 month	Part of project cost
	▪ Provide written instructions on how to avoid and respond to accidents. Safety gears should be given as necessary.	List of instructions on how avoid accidents Postas/Notices	Inspection Reports	Engineer/supervisor and contractor	Once	Negligible
	▪ Leaving the site as clean as possible.	Clean site	Supervision Reports	Contractor.	Always	Routine (Contractor cost)
	▪ Provide a well-stocked onsite first aid box	-Availability of first aid box -Number of first aid boxes stocked on site	Inspection Report	Contractor.	Once	Incorporated in project cost
	▪ Provide a list of contact persons and ambulance to be contacted during accidents	-Number of persons contacted -Postas/Notices	Inspection Reports	Proponent	Once	Incorporated in project cost

<b>Impact</b>	<b>Action Required/Mitigation Measure</b>	<b>Monitoring indicators</b>	<b>Means of verification</b>	<b>Responsibility</b>	<b>Time frame</b>	<b>Cost (KShs)</b>
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.	Availability of warning signs Number of idlers	Supervision Reports	Proponent, contractor	1 Week	Negligible
Water contamination by machinery	The contractor to minimize water contamination by servicing machinery to prevent leakages and spillage of fuel and lubricants. 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 courses and terrestrial and aquatic life.	Laboratory analysis indicating water quality Water quality	Water Quality analysis Reports	Contractor and proponent	During construction	KShs. 7,000.00 per sample
Potential loss of water in the pan due to drainage to allow construction	There is therefore the need to do construction during the dry season. Alternatively, the half split construction is adopted where half of the water pan is fully constructed before draining the water into it to allow construction of the other half.	-Amount of water loss in the pan due to drainage -Availability of water during construction	Supervision reports	Contractor	During construction	Part of project cost

Impact	Action Required/Mitigation Measure	Monitoring indicators	Means of verification	Responsibility	Time frame	Cost (KShs)
Spread of communicable diseases and increased cases of unwanted pregnancies possibly caused by construction workers.	Sensitize the community and workers on good morals and ways of preventing spread of communicable diseases such as STIs and unwanted pregnancies through protection	Number of Cases of communicable diseases	Public Health Reports	<ul style="list-style-type: none"> <li>▪ Operator/ Proponent</li> <li>▪ Public Health</li> </ul>	Continuous	Mainstreamed

## 6.2 Operational Phase

This is the longest stage of project activities. It is at this stage that the intended project activities have been completed, commissioned and is in operation. During this phase a lot of care and concerns are considered in matters concerning impacts.

**Table 3: ESM&MP for the Operational Phase**

<b>Impact</b>	<b>Action Required/Mitigation Measure</b>	<b>Monitoring indicators</b>	<b>Means of verification</b>	<b>Responsibility</b>	<b>Time frame</b>	<b>Cost (KShs)</b>
Overgrazing (over utilization of pasture) around the water point as well as Land degradation/ Soil Erosion.	<ul style="list-style-type: none"> <li>▪ Restrict grazing of livestock around the water pan</li> <li>▪ There is the need for rehabilitation through planting of grass and trees; landscaping and general environment greening to restore flora and fauna habitat.</li> </ul>	<p>No of livestock grazing around water pan</p> <p>Rehabilitated water pan immediate environ</p>	<ul style="list-style-type: none"> <li>▪ Inspection report</li> <li>▪ Initial and subsequent Environmental Audits.</li> </ul>	<ul style="list-style-type: none"> <li>▪ County</li> <li>▪ Community</li> </ul>	Continuous	Community contribution (In kind)
Water pollution by livestock, human and wildlife wastes due to direct abstraction and Open Defecation (OD)	<ul style="list-style-type: none"> <li>▪ Construct Livestock Water troughs</li> <li>▪ Construct Community water points</li> <li>▪ Construct toilets at the water pan</li> <li>▪ Fence the water trough</li> <li>▪ Sensitize the community on the reduction of water pollution</li> </ul>	Water Quality Availability of CWP, LWT, Fence, Toilets, Training	<ul style="list-style-type: none"> <li>▪ Water quality analysis report</li> <li>▪ Inspection Report</li> <li>▪ Training Report</li> </ul>	<ul style="list-style-type: none"> <li>▪ KCSAP</li> <li>▪ Community</li> <li>▪ County Government</li> </ul>	During and after construction	Part of project cost (KShs. 200,0.00 Sensitization need to be mainstreamed
Flooding due to overland flow and overflow from water pan leading to crop damage and related hazards	<ul style="list-style-type: none"> <li>▪ Install measuring points to monitor the water levels</li> <li>▪ Construct adequate spill way to drain excess water into existing water ways</li> </ul>	<ul style="list-style-type: none"> <li>▪ Water level measuring points installed</li> <li>▪ Size of spill way</li> </ul>	Supervision and inspection reports	<ul style="list-style-type: none"> <li>▪ KCSAP</li> <li>▪ County</li> </ul>	During construction	Part of project cost



Impact	Action Required/Mitigation Measure	Monitoring indicators	Means of verification	Responsibility	Time frame	Cost (KShs)
Drowning of children and snake bites	<ul style="list-style-type: none"> <li>▪ Have a perimeter fence around the water pan and restrict children from the site.</li> <li>▪ Equip the dispensaries with drugs to treat snake bites</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cases/incidences of drowning</li> <li>▪ Number of children drown</li> <li>▪ Area under Perimeter fence</li> <li>▪ Snake bite drugs in dispensaries</li> </ul>	Inspection Report	<ul style="list-style-type: none"> <li>▪ KCSAP</li> <li>▪ Water management committee</li> <li>▪ PH</li> </ul>	During Construction and operation phase	<ul style="list-style-type: none"> <li>▪ Part of project cost</li> <li>▪ Routine</li> </ul>
Increase in malaria cases resulting from increase in breeding grounds for mosquitoes	<ul style="list-style-type: none"> <li>▪ Use mosquito nets and clear unnecessary bushes and grass around homesteads</li> <li>▪ Equip the dispensaries with drugs to treat malaria</li> </ul>	<ul style="list-style-type: none"> <li>▪ Number of Cases of malaria</li> <li>▪ Number of Mosquito nets provided</li> <li>▪ Number of Malaria drugs in dispensaries</li> </ul>	Inspection Report	<ul style="list-style-type: none"> <li>▪ Water management committee</li> <li>▪ County</li> <li>▪ PH</li> </ul>	During operation phase	Mainstreamed
Water conflict from competing uses (domestic, livestock and irrigation) especially during the dry season	<ul style="list-style-type: none"> <li>▪ Form project management committee to regulate the use of water and pasture and to amicably resolve conflicts.</li> <li>▪ Develop more water projects (water pans and boreholes)</li> </ul>	Number of Cases of conflict; PMC conflict resolution meetings	<ul style="list-style-type: none"> <li>▪ Occurrence register</li> <li>▪ Minutes for conflict resolution meetings</li> </ul>	<ul style="list-style-type: none"> <li>▪ Water management committee</li> <li>▪ WRUA</li> <li>▪ WRA</li> <li>▪ County Government</li> <li>▪ National Government</li> </ul>	During operation Phase	<ul style="list-style-type: none"> <li>▪ Community and County contribution</li> <li>▪ Mainstreamed</li> <li>▪ Routine</li> </ul>
Human-Wildlife conflict, Livestock-wildlife conflict, Human-Human Conflict leading to insecurity and occasional loss of livestock and human life.	<ul style="list-style-type: none"> <li>▪ Ensure that water trough is filled with water overnight for wildlife</li> <li>▪ Develop more water projects (water pans and boreholes)</li> <li>▪ County administration to provide security and restrict influx of livestock from other areas.</li> <li>▪ Put in place early warning and response systems in place.</li> </ul>	Number of Cases of conflict; PMC conflict resolution meetings	<ul style="list-style-type: none"> <li>▪ Occurrence register</li> <li>▪ Minutes for conflict resolution meetings</li> </ul>	<ul style="list-style-type: none"> <li>▪ Water management committee</li> <li>▪ County Government</li> </ul>	Continuous	<ul style="list-style-type: none"> <li>▪ Routine</li> <li>▪ To be incorporated in annual budgets</li> </ul>

<b>Impact</b>	<b>Action Required/Mitigation Measure</b>	<b>Monitoring indicators</b>	<b>Means of verification</b>	<b>Responsibility</b>	<b>Time frame</b>	<b>Cost (KShs)</b>
Spread of livestock communicable diseases, livestock theft and poaching of wildlife at night	<ul style="list-style-type: none"> <li>▪ County department of veterinary services to vaccinate livestock</li> <li>▪ Promote community Policing</li> <li>▪ Increase security patrol</li> </ul>	<ul style="list-style-type: none"> <li>-Number and type of diseases incidences reported</li> <li>-Cases reported</li> </ul>	<ul style="list-style-type: none"> <li>▪ Vaccination reports</li> <li>▪ Existing and active community policing and presence of security patrols</li> </ul>	<ul style="list-style-type: none"> <li>▪ County</li> <li>▪ National Government</li> <li>▪ KWS</li> <li>▪ Kenya Police</li> <li>▪ Community</li> </ul>	Routine Continuous	<ul style="list-style-type: none"> <li>▪ Mainstreamed</li> <li>▪ Annual budget</li> </ul>
Boundary conflict among neighbouring farms and livestock corridors and intercommunity conflict among clans and villages leading to insecurity.	<ul style="list-style-type: none"> <li>▪ Establish water and pasture management committees</li> <li>▪ Promote intercommunity meetings</li> <li>▪ Mainstream peace building and conflict resolution</li> <li>▪ Promote community Policing</li> <li>▪ Increase security patrol</li> </ul>	Number of Cases of conflict; PMC conflict resolution meetings	<ul style="list-style-type: none"> <li>▪ Occurrence register</li> <li>▪ Minutes for conflict resolution meetings</li> </ul>	<ul style="list-style-type: none"> <li>▪ KCSAP</li> <li>▪ Community</li> <li>▪ County Government</li> <li>▪ National Government</li> <li>▪ Kenya Police</li> </ul>	Continuous	<ul style="list-style-type: none"> <li>▪ Mainstreamed</li> </ul>
Theft, vandalism or damage of water infrastructure.	<ul style="list-style-type: none"> <li>▪ Involve community at all levels of project implementation for acceptance and ownership</li> <li>▪ Provide water for livestock, domestic use and irrigation.</li> </ul>	Number of Cases of reported; PMC meetings to address cases	<ul style="list-style-type: none"> <li>▪ Occurrence register</li> <li>▪ Minutes for meetings to address cases</li> </ul>	<ul style="list-style-type: none"> <li>▪ KCSAP</li> <li>▪ Water management committee</li> <li>▪ County</li> </ul>	During operation phase	<ul style="list-style-type: none"> <li>▪ Part of project cost</li> </ul>

Impact	Action Required/Mitigation Measure	Monitoring indicators	Means of verification	Responsibility	Time frame	Cost (KShs)
Occupational Health and Safety risks	<ul style="list-style-type: none"> <li>• Sensitize the all workers on occupational health and safety</li> <li>• Provide adequate first-aid facilities in the project sites to handle medical emergencies during construction</li> <li>• Discourage unauthorized idlers at the site</li> <li>• Provide adequate PPE's to workers during construction</li> <li>• Comply with the National and International Labor laws</li> </ul>	No. of first aid facilities No. of condom dispensers No of Labels and warning signs No of workers using PPEs Contingency plan for accident response in place Emergency contacts at the site No of persons insured	Reports field visit	Pan management committee	Routine inspection	50,000
<b>SEA by project workers</b>	– Develop and implement a SEA Action Plan with an Accountability and Response Framework as part of the construction ESMP in accordance with the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018)	Number of reported cases of SEA SEA action plan	Reports field visits Observation	Pan Management Committee	Weekly audit	20,000

<b>Impact</b>	<b>Action Required/Mitigation Measure</b>	<b>Monitoring indicators</b>	<b>Means of verification</b>	<b>Responsibility</b>	<b>Time frame</b>	<b>Cost (KShs)</b>
<b>GBV/SH</b>	<ul style="list-style-type: none"> <li>- Develop a human resources policy against sexual harassment</li> <li>- Develop a Code of Conduct</li> <li>- Create awareness on the dangers associated with GBV/SH and the need to take precautions against them</li> <li>- Establish a GRM</li> </ul>	Number of reported cases of GBV/SH	Report observation	Pan Management Committee	Weekly audits to confirm compliance	20,000
<b>Child abuse and/or child labor</b>	<ul style="list-style-type: none"> <li>• Develop and implement a Children Protection Strategy</li> <li>• Ensure all staff and workers sign, contracts which clearly defines what is and is not acceptable behavior</li> <li>• Do not hire underage at the site as provided by Child Rights Act (Amendment Bill) 2014</li> </ul>	<ul style="list-style-type: none"> <li>• Number of cases of child abuse</li> <li>• Children Protection Strategy</li> </ul>	Reports Field visit	Pan Management Committee	Monthly audits	20,000
<b>Risk of spread of COVID-19</b>	<ul style="list-style-type: none"> <li>• Put in place measures to prevent and manage the spread of the COVID-19</li> <li>• Develop SOPs for managing the spread of COVID-19</li> <li>• Provide and enforce and use of appropriate PPE by project personnel</li> </ul>	Number of reported cases of COVID-19 from among construction staff and people interacting with the construction staff	Reports Field visit Weekly audits to confirm compliance COVID-19 containment measures	Project Management Committee	Continuous	40,000

Impact	Action Required/Mitigation Measure	Monitoring indicators	Means of verification	Responsibility	Time frame	Cost (KShs)
<b>Risk of increased HIV/AIDS and STIs</b>	<ul style="list-style-type: none"> <li>• Sensitize workers and community members on HIV/AIDS and STIs,</li> <li>• Ensure periodic HIV/AIDS and STIs, and other communicable diseases awareness workshops for project staff and workers</li> <li>• Install condom dispenser in appropriate places</li> </ul>	Rate at which dispensed condoms are used/picked	Reports Observation	Project management committee	Monthly sensitization meetings	20,000

### 6.3 Winding up phase

This phase is more hypothetical than real, basic rehabilitation measures are required to be undertaken once all operation activities have stopped.

**Table 4: ESM&MP for the Decommissioning and Closure Phase**

<b>Impact/activity</b>	<b>Action required/mitigation measures</b>	<b>Monitoring indicators</b>	<b>Means of verification</b>	<b>Responsibility</b>	<b>Time frame</b>	<b>Costs (KShs)</b>
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.	Area of water pan site restored and or under restoration	Site Inspection report and minutes	Proponent	1 Month	Community contribution (In kind)

## CHAPTER SEVEN

### 7.0 CONCLUSION AND RECOMMENDATION

#### 7.1. Conclusion

The water pan project will contribute to KCSAP objective of increasing Agricultural Productivity and building resilience to climate change risks in the targeted small holder farming and pastoral communities in Kisumu County particularly component one (1) that is up-scaling Climate-Smart Agricultural Practices.

From the foregoing discussion, the following conclusions were made:

1. Water is the community basic and priority need as indicated by the expected benefits given in chapter five of this report.
2. The water project is technically sound, socially acceptable, financially feasible and environmentally friendly.
3. The community is willing and able to contribute in kind to the implementation of the project as well as management. This is essential for project sustainability.
4. The anticipated negative impacts during project implementation, operation and decommissioning are mainly temporal, occasional and avoidable. Mitigation measures have been suggested in chapter 5 and 6 and will be used by the proponent during project cycle.
5. There is no significant threat to the implementation of this project however; all emergent environmental issues should be responded as they arise.
6. The proponent is willing and able to address all the mitigation measures to negative impacts as well as emergent environmental issues.

#### 7.2 Recommendation

1. Ensure adherence to the mitigation measures for potential negative impacts stated in the environmental management programme.
2. The implementation of the water project should be supervised by a qualified engineer to ensure that works are done according to specifications.
3. Water Resource Authority (WRA) to facilitate the establishment of Water Users Associations (WUAs) and Water Users Committees (WUCs) while KCSAP to facilitate the formation of water management committees and sub committees for management, conservation and regulation of water use and to resolve water and pasture conflicts.
4. The proponent should inspect and monitor the operations to check compliance and full implementation of ESMMP.
5. NEMA to conduct regular project inspection to ensure compliance in accordance EMCA (Amendment) 2015 and regulations as well as ESMMP, initial and annual Environment Audits.
6. The project proponent should ensure that annual environmental audit (EA) is done to check continued compliance.

**REFERENCES**

1. Survey and Design Reports, Project BOQ and guidelines provided by the client (KCSAP)
2. Environment Management and Coordination Act Legal Notice No. 31 dated 30<sup>TH</sup> April 2019
3. National Environment Management Authority (NEMA) Public Notice on Processing of Environmental Impact Assessment Reports dated 12<sup>th</sup> March 2020.
4. Kisumu County Integrated Development Plan (CIDPII) 2018-2022
5. Annual Development Plans (ADPs) for Kisumu County
6. Kisumu County Environment Policy, 2019
7. Project Proposals by Jowi Water Pan SHG and KCSAP



**ANNEX A1: MINUTES FOR PUBLIC CONSULTATION MEETING**

**MINUTES OF ESIA PUBLIC BARAZA FOR JOWI WATER PAN HELD AT SITE ON L.R. NO. KISUMU/ALUNGO/1656 IN KOBUDO VILLAGE, NORTH ALUNGO SUBLOCATION, SOUTH WEST SEME LOCATION, WEST SEME WARD, SEME SUB-COUNTY, KISUMU COUNTY ON 10<sup>TH</sup> JANUARY, 2021 AT 10:00AM**

**ATTENDANCE**

List of participants attached

**AGENDA**

1. Welcoming remarks by Jowi Water Pan CBO Secretary
2. Opening remarks by the area chief
3. Jowi Water Pan Project Brief by Vincent Odhiambo (KCSAP Representative)
4. Sensitization of the public on the objective of the ESIA and the process (ESIA team)
5. Public opinion/consultation/comments/suggestions on the project
6. Administration of questionnaires
7. Closing remarks by the area chief
8. AOB

**Min. 1/10/01/22: Preliminary**

The meeting was opened with a prayer by Bishop Antipa Owang' Odwe at 10:00am.

**Min.2/10/01/22: Welcoming Remarks by Local Leaders**

**1. Area Assistant Chief (North Alung'o Sub Location):** The area chief welcomed the participants and gave the floor to the water management committee for brief introductions.

**2. Area Chief (South West Seme Location)**

The area Chief Shadrack Oluoch Ochola requested the community to accept and support the project for sustainability.

**3. Village Administrator:** The village administrator Peter (South West Seme Village) Mr. Onga Owanga welcomed the participants and informed about the objective of the meeting that Environment and Social Impact Assessment (ESIA) for Jowi Water Pan funded by National Government through County Government of Kisumu and implemented by Kenya Climate Smart Agriculture Project (KCSAP).

**4. Ward Manager:** The Ward Manager Madam Judith Chili informed about the benefits of the water pan and inquired from the participants whether they fully support the project. The participants by show of hands supported (100%) since water is a priority need of the community.

Other leaders present included:

**5. Aggrey Ogusi:** Liaison officer representing the County Government

**6. Moris Omoso:** Assistant Chief Alwala Sub Location

## **7. Milicent Olocho: Social Services-South West Seme Ward**

### **8. Peace Committee (South West Seme Location)**

- i. Amos Nyanduga
- ii. Elijah Osewe
- iii. Peter Gumbe
- iv. Angeline Odhiambo
- v. Johana Achola
- vi. Christopher Ogowa
- vii. Eliud Obiny
- viii. Ishmael Muga

#### **Min.3/10/01/22: Jowi Water Pan Management Committee Brief**

The Secretary for Jowi Water Pan CBO and management committee Mr. William Owang briefed about the proposed Jowi water pan project. He informed that they wrote a proposal to several organization including KCSAP, County and others for excavation of a water pan to serve 3 sub-locations. He further informed about Jowi Water Pan CBO that will manage water project. The CBO has 450 members, 40 committee members and 15 project management committee members. He informed that the land is spacious for more rehabilitation and expansion of the water pan. He finally informed that the water pan will be used for domestic, livestock and micro-irrigation.

#### **Min.4/10/01/22: KCSAP Brief on Jowi Water Pan**

KCSAP representative Mr. Vincent Omondi gave a brief on Jowi water pan and informed that it is funded by World Bank and is aimed at increasing agricultural productivity, build resilience to climate change, reduce flooding and reduce GHG emissions. He informed on other projects within 6 ward project areas and the beneficiary categories at all levels. He further informed on the administration of KCSAP including NPC, CPCU and the project engineers. He informed about the water pan capacity of 32,250m<sup>3</sup> and the project components including water pan, fencing, water tower, livestock water trough (LWT), community water point (CWP), Toilets/Bathroom, 2No 10,000 litres plastic storage tanks, water pumping systems to elevated tanks and irrigation system.

#### **Min.5/10/01/22: Community sensitization on ESIA for the proposed Jowi Water Pan (By Consultant)**

The Consultant ESIA Lead Expert informed the participants about the importance conducting ESIA and that the focus on any development initiative is to improve the economic well-being of an area. In the same line these development should always consider the environmental well-being of the current population and the generation to come and thus a balance is attained between the two hence termed as sustainable development.

The participants were enlightened about the ESIA; its purpose/objectives; legal framework including legislation and policies governing environment; the rights and role of community towards environment protection and management. They were informed that in Kenya, it is a requirement that every project has to be environmentally friendly. Section 58 of Environmental Management and Coordination (Amendment) Act (EMCA), 2015 and Regulation 4 of Environmental Management and Coordination (Strategic Assessment, Integrated Impact

Assessment and Audit) Regulations, 2018, indicates that no proponent shall implement a project that is likely to have a negative environmental impact; or for which an environmental impact assessment is required under the Act or these Regulations; unless an environmental impact assessment has been concluded and approved in accordance with these Regulations.

They were further informed that EMCA (Amendment) 2015 requires involvement of community/ neighbours/ stakeholders during public participation in order to provide an opportunity to give their views with respect to the benefits; impacts both negative and positive and establish whether the project is economically viable, socially acceptable and environmentally friendly/sound. The participants were also informed that public participation objective is to avoid white elephant projects.

### **Min.6/10/01/22: Public engagement and opinion Session on the proposed Jowi Water Pan Project**

#### **1. John Okong'o**

He informed about the water pan benefits including availability of water domestic and livestock purposes. He appreciated the water project and did not anticipate any negative impact.

#### **2. Martin Otieno Okoth**

He informed that water is a priority need for the community. He further informed about the benefits including water for domestic, livestock and micro-irrigation.

#### **3. William Ogudo**

He was thankful for the water project and informed that once the project is completed there will be reduced water pollution and subsequent reduction of water borne diseases. He encouraged the residents conserve the water source and water ways particularly the tributaries to reduce pollution and protect the water pan.

#### **4. Prof. Olewe**

He informed that women spend significant time in search of water hence the water pan will save time for other activities. He identified the following negative impacts:

1. Land degradation,
2. Trespass on people's farms,
3. Security issues and vandalism of water infrastructure,
4. Conflict on micro-irrigation infrastructure passing on people's farms.

He requested and encouraged the water management committee to address the negative impacts as well as resolve conflicts amicably.

#### **5. Lorna Omolo**

She welcomed the project and talked about protection of waterways especially inlet tributaries.

#### **6. Rose Odera**

She welcomed the water project and informed that there many direct and indirect benefits including water for domestic, livestock and irrigation

#### **7. Erenia Ombiri**

She welcomed the project and informed that the project implementation process has taken long and there was the need to fast track.

#### **8. Michael Simute**

He informed of the need for water project management rules to regulate the access and use of water for various uses including domestic, livestock and irrigation.

#### **9. Tom Akomo**

He informed that water complaints/conflicts would be resolved by the water management committee governed by the laid down rules.

He informed that the land for the water pan is public and the community needs to own the project for sustainability. He requested that the water project be implemented in accordance to the Bill of Quantities and specifications provided in the drawings.

#### **10. Barrack Owiti**

He informed that the water pan will avail water for irrigation and that agriculture is the back bone of the economy. He stated that the water project will improve food security and provide employment. He identified livestock keepers and crop farmers' conflict that is livestock grazing on farms when accessing water.

#### **11. Geoffrey Odhiambo**

He informed that the expansion of the project would improve livelihood of the local community including increasing income, employment, food security and improved infrastructure. He requested KCSAP and the local administration to mitigate the negative impacts resolve emerging conflicts related to the proposed Jowi water pan project.

#### **12. Josphene Dinga**

He requested that the contractor involves locals during construction of Jowi Water Pan. He informed that there are several roads (3No) leading to the water pan and that the proposed water pan is accessible.

#### **13. Eliud Obiny**

He welcomed the water project and informed that the benefits are many. He requested that the project to be constructed and managed properly so that it does not fail. He discouraged mismanagement/vandalism and that such need to be dealt with firmly and security provided for safety of water infrastructure. He encouraged the protection of water ways/inlets to reduce water pollution. He thanked the area's young administrators for his good work.

#### **14. Angelina Odhiambo**

She thanked the KCSAP for the proposed water pan project warned that vandalism and blocking access roads and water ways will be dealt with firmly.

#### **15. Johana Ochola**

He encouraged community ownership of the water project for management and sustainability. He warned the community against mismanagement and vandalism. He informed that the project will benefit the whole location.

#### **16. Ishmael Muga Okech**

He encouraged the community to practice irrigation of vegetables, tomatoes, rice e.t.c

### **Min.7/10/01/22: Closing Remarks**

#### **1. Vincent Odhiambo-KCSAP Representative**

He noted the following:

- 1) Access roads: community to address the issue of access roads themselves
- 2) County to raise 20% of the project cost
- 3) Security of infrastructure of the water project: The management committee to provide security and maintenance
- 4) Scope/Process/Progress of the project: The project infrastructure is as informed earlier on project brief (Min.4/10/01/22). The project will be supervised by the project engineer. The project construction phase has already been advertised and will be awarded to start soon.
- 5) ESIA process: The report to be submitted to NEMA for licensing before commencing construction.

#### **2. Village Administrator (Peter Owanga)**

He informed that the community members have accepted and will support the project since it had many benefits

#### **3. Jonathan Adira (Area Assistant Chief: North Alung'o Sub Location)**

He thanked the participants and encouraged the Jowi Water Pan CBO to manage the water project properly. He informed that the local administrators (Chiefs) welcome the water project and appreciated the governor for development projects in the area. He assured that the challenges faced in Yau Kadongo water pan will not be experienced in Jowi Water Pan.

#### **4. Moris Omoso (Alwala Sub-location)**

He thanked the participants for attending the meeting and encouraged the community to report mismanagement, vandalism, water pollution and misuse. He further informed that water project will improve food security.

#### **5. Shadrack Ochola (Assistant Chief: South West Seme Location)**

He noted that many projects have failed due to community laxity and mismanagement. He informed that mismanagement and vandalism will be dealt with firmly. He informed that government has done its part and therefore the community needs to play its part. He encouraged the public to play a role in security by report cases or incidences. He finally informed the current water project committee to do a good job and avoid the scenario of Yau Kadongo water pan.

#### **6. Dickson Awalo (Assistant Chief: East Kodinga)**

He welcomed the project and thanked KCSAP; County and National Government and World Bank for the water project.

#### **7. Joshua Ngesa (Ward Admin)**

He was highly impressed by community participation on the water project and their support. He informed that before the project kicks off, the PMC will be formed and local community will be involved in the implementation of the project.

#### **8. Ward Manager (Judith Chili)**

She informed that the project will not only benefit North Alung'o sub-location but also the entire South West Seme Location and that the responsibility should be of the entire location as well.

### **9. Aggrey Ogusi (Liaison Officer)**

He informed that County government has implemented many projects and that Jowi Water Pan project is one of the projects the county is implementing with the support of the National Government and World Bank. He informed on the following:

- Agriculture has been practiced but often failed from poor drainage.
- There is a vast area which when well utilized can feed the bigger population.
- Lake Basin Authority Users also visited the area for some feasibility studies courtesy of the governor.
- The project will control water which always flows into the lake.
- The area is firmly for development and not settlements.
- The governor has a dream for the area with Mboha Valley in Seme and Nam Thoe in Kano as the major potential areas
- He encouraged the community to unite and protect the project.
- They should not only dwell on the lake (fishing) but look for alternative means of income like the project.
- The project has a blessing from the County Government through the governor.

### **10. Billy Odhiambo**

He encouraged the community to take the project seriously. He informed that having such projects is a blessing hence should be well managed. He finally informed that the project's ownership is in the hands of the community.

### **11. Vote of thanks (Prof. Kolewe)**





Thanked the KCSAP, ESIA team, office of the governor and its administration, the participants for attending the meeting, locational chiefs for taking time off their schedules, the committee for their commitment, and the office of the village administrator, and elders of the location for attending the meeting.

### **Min.7/10/01/22: A.O.B**

There being no other business to discuss the meeting was closed with a prayer by Bishop Antipa Owang' Odwe at 13:11hrs

**ANNEX A2: ATTENDANCE LIST FOR PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATION**

REPUBLIC OF KENYA  
COUNTY GOVERNMENT OF KISUMU

**Kenya Climate Smart Agriculture (KCSAP)  
LIST OF PARTICIPANTS/ATTENDANCE**

**ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR JOWI WATER PAN IN KISUMU COUNTY**

NAME OF PROJECT: JOWI WATER PAN

DATE: 10.01.2022



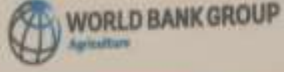

S/N	NAME	GENDER	ORGANIZATION	POSITION/DESIGN	SPECIAL GROUP (Youth, PWD etc)	ID No.	MOBILE	Email	SIGN
1.	Aggrey Ogoi	M	Kisumu Bank	Liaison officer	PWD	20520284	0721412747	aggreyogoi@gmail.com	<i>[Signature]</i>
2.	MURICE OMONDI	F	HATAD	ALCHIEF		11091658	0721741161	ngwichegwa@gmail.com	<i>[Signature]</i>
3.	Samson Omondi Mwa	M	MAGRO	SM ALCHIEF		11090029	0727070348	ngwichegwa@gmail.com	<i>[Signature]</i>
4.	PETER DWENGA	M	CGIK	VILLAGE HEADMAN		10923349	0718126444	pete.dwen@gmail.com	<i>[Signature]</i>
5.	GEORGE N. OMONDI	M				22467071	0721212841		<i>[Signature]</i>
6.	LUCAS ADUNDO	M	CGIK	Village head		2582061	070751911		<i>[Signature]</i>
7.	HENRY D. DEMPHI	M	Community	member		11070833	0725508381		<i>[Signature]</i>
8.	Andrew Awala	M					0793026468		
9.	DANIEL AWALA	M	NASOM	SM ALCHIEF		9596959	0720542396	danawala@gmail.com	<i>[Signature]</i>
10.	STANLEY O. OMONDI	M	NASOM	ALCHIEF		21539474	0711144123	stanleyomondi@gmail.com	<i>[Signature]</i>
11.	BENJAMIN ODUNGA	M	Resident	Residence		11664921	071250524	benjaminodunga@gmail.com	<i>[Signature]</i>
12.	PLISA OMONDI	F	Resident	"		6754196	0792277961		<i>[Signature]</i>
13.	Victor Yuto	M	Kisumu County	Intern		52618621	079793955	victoryuto2@gmail.com	<i>[Signature]</i>
14.									

*[Handwritten notes and signatures on the right side of the table]*

---

ESIA FOR JOWI WATER PAN-KCSAP KISUMU COUNTY Page 1

REPUBLIC OF KENYA  
COUNTY GOVERNMENT OF KISUMU



















**Kenya Climate Smart Agriculture (KCSAP)**  
**LIST OF PARTICIPANTS/ATTENDANCE**

**ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR JOWI WATER PAN IN KISUMU COUNTY**

NAME OF PROJECT: JOWI WATER PAN

DATE: 10-01-2022

S/NO	NAME	GENDER	ORGANIZATION	POSITION/DESIGN	SPECIAL GROUP (Youth, PWD etc)	ID No.	MOBILE	Email	SIGN
1.	Bentor A. Awaca	F		member	-	21146863	0715388055	-	
2.	Elizabeth A. Agwaka	F		member	-	5966548	0707093338	-	
3.	AKOAH AMANDA	F		member	<del>Pwd</del>				
4.	Spirasa Dnjonga	F		member	-	9596962	072762977		
5.	Evance Ombija	M		Member	-	29828556	011211246	-	
6.	Priscilla Mth	F		member	-	24760048	074355567		
7.	Florence achway	F		Member	-	2756404	9590117	-	
8.	Joha Ombija	M		member	-	24282371	0700089410	-	
9.	MARGARET OBARE	F		member	-	21892598	0721580603	-	
10.	ELISTHA OSEWE			Member	-	2701556	0795589491	-	
11.	Amos Ombalo	M		Member	-	2643880	0705224201	-	
12.	Joshua Njasa	M	CGK	ward Admin		13877887	0723884382	joshuanjasa@gmail.com	
13.	Dimitri Awaca	M	NADIM	SWA/CHIEF		9596969	0720542386	dimitri@awaca.com	
14.	JUDITH CHILLI	F		ward manager	N/P	11078620	0717953290	judithchilli@gmail.com	

SIA FOR JOWI WATER PAN-KCSAP KISUMU COUNTY

Page 1



REPUBLIC OF KENYA  
COUNTY GOVERNMENT OF KISUMU



WORLD BANK GROUP  
Agriculture



Kenya Climate Smart Agriculture (KCSAP)  
LIST OF PARTICIPANTS/ATTENDANCE

ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR JOWI WATER PAN IN KISUMU COUNTY

NAME OF PROJECT: JOWI WATER PAN

DATE: 10-01-2023

SNO	NAME	GENDER	ORGANIZATION	POSITION/DESIGN	SPECIAL GROUP (Youth, PWD etc)	ID No.	MOBILE	Email	SIGN
1.	SEMUNGU OTHENO MURIA	FEMALE	Seniors Association C/MCA	Sen Member		11090029	0922070348	semungho@jowipm.com	
2.	PETER ODELA DWENDA	MALE	C/MCA	VILLAGE ADMIN		10922249	0718136497	petedwenda@gmail.com	
3.	GEORGE OJUDE	MALE	CHAIRPERSON	CHAIRPERSON		9852950	0770427477		
4.	JOYANT OJUNGU MBERAI	M	MEMBER	P. Mungu		1358223	0712121604	joyantmberai@gmail.com	
5.	MARGES OCHIENG OTHENO	M	COMMITTEE REPRESENTATIVE	N-ALUNGO		4700587	0707437976		
6.	EVANCE ENUNDI	M	COMMITTEE MEMBER	S.W. SONG		29666193	0714396883	evanceenundi@gmail.com	
7.	LORNA OJIYO	F	MEMBER	N-ALUNGO		37261016	0797403921		
8.	PAUL OCHIENG KOLEWE	M	MEMBER	N-ALUNGO		37404385	0721794840	okolewe@gmail.com	
9.	ROSE ODEBA	F	MEMBER	N-ALUNGO					
10.	WILLIAM O. OJWANG'	M		N-ALUNGO		3950366	0722913928		
11.	JOHN OKONGO OMBEK	M	VILLAGE HEAD	N-ALUNGO		13811395	0720844802		
12.	ROSE ODEBA	F	MEMBER	N-ALUNGO			0797523119		
13.	HEDENIA O. OMBIRI	F	MEMBER	N-ALUNGO					
14.	MARTIN O. OKOTH	MALE	C/MCA	" "		8169194	0722725903		



Kenya Climate Smart Agriculture (KCSAP)  
LIST OF PARTICIPANTS/ATTENDANCE

ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR JOWI WATER PAN IN KISUMU COUNTY

NAME OF PROJECT: JOWI WATER PAN

DATE: 10.01.2022

S/NO	NAME	GENDER	ORGANIZATION	POSITION/DESIGN	SPECIAL GROUP (Youth, PWD etc)	ID No.	MOBILE	Email	SIGN
1.	MAURICE O. WAGWAT	M	V BLOCK			14642504	072634920	-	[Signature]
2.	C. NAONGA OGIWA	M	V. FLEET	CHIEF SEC	KAMUKU	4200099	0113261508	-	[Signature]
3.	MARION ANYANGO	F	MEMBER	MEMBER		25963978	0723786557	-	[Signature]
4.	SIMON JUMA-MIDEGA	M	MEMBER	MEMBER		36422358	0794109558	-	[Signature]
5.	ROS O. AKINYI	M	MEMBER			2	0114412562	-	[Signature]
6.	Michael Anyango	M	Oyinde Farmer	Member	N/A	9597990	071492404	[Signature]	[Signature]
7.	Joice Obony	F	Oyinde Farmer	Member	N/A			[Signature]	[Signature]
8.	ENDS OCHIENG BUKU		Oyinde Farmer	MEMBERS	N/A	13130323	0710150298	[Signature]	[Signature]
9.	Pipalis Ochieng Midega					81183059	0798225220	[Signature]	[Signature]
10.	JOSPHINE ATINGA	F	FARMER	member	N/A	4701930	0797315574	-	[Signature]
11.	EUNICE A. OPITO	F	MEMBER	"	"	23420094	0702078923	-	[Signature]
12.	Lorna Omello Ataku	F	Oyinde Farmer	Treasurer	N/A	28574247	0712752023	-	[Signature]
13.	MONICA ANYAMBO OUIRO	F	OYINDE MEMBER	Member	N/A	13601200	0721918990	-	[Signature]
14.	DANIEL OBIENO O M	M	FARMER	Committee	N/A	011620909	0722401169	-	[Signature]

REPUBLIC OF KENYA  
COUNTY GOVERNMENT OF KISUMU



WORLD BANK GROUP  
Agriculture



Kenya Climate Smart Agriculture (KCSAP)

LIST OF PARTICIPANTS/ATTENDANCE

ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR JOWI WATER PAN IN KISUMU COUNTY

NAME OF PROJECT: JOWI WATER PAN

DATE: 10.07.2022

SNO	NAME	GENDER	ORGANIZATION	POSITION/DESIGN	SPECIAL GROUP (Youth, PWD etc)	ID No.	MOBILE	Email	SIGN
1.	Tom Akomo Dwig	M	Farming	Member	N/A	13231953	072440250	-	NR
2.	Charles D. Bwalya	M	Farming	Member	N/A	20864632	072932249	-	CB
3.	Billy Auno Duro	F	Farming	Member	-	31564982	0742958117	-	BD
4.	George Ouma Akoth	M	Farming	LVE	N/A	0712420366	-	-	GO
5.	Paulina Arimbo	F	Farming	Member	N/A	4809028	0711190421	-	PA
6.	Ernest Minda	M	Farming	Member	N/A	2643345	0726179512	-	EM
7.	Jospheth Omondi	M	Farming	Member	N/A	074555785	074555785	-	JO
8.	Teresa Odalo	F	Farming	Member	N/A	13811457	072375562	-	TO
9.	Mary Otieno	F	Farming	Member	N/A	-	-	-	-
10.	Amarilia Obei	F	Farming	Member	N/A	1372090	-	-	-
11.	Monica Otieno	F	Farming	Member	N/A	4040579	0722306091	-	MO
12.	Milka Dndow	F	Farming	Member	N/A	2642927	071352223	-	MD
13.	Agnes O. Mwangi	F	Farming	Self	N/A	11411327	-	-	AM
14.	Indigenti Othman	F	NSDC	Chairman	-	27177076	071822700	indigenti.othman@gmail.com	IO

**ANNEX A3: SAMPLE QUESTIONNAIRES****QUESTIONNAIRE (NEIGHBOURS): JOWI WATER PAN; KCSAP-KISUMU COUNTY****INTRODUCTION**

The County Government Kisumu has received grant funds from International Development Association (IDA) through the Government of Kenya, Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MALF&C) for Construction of Jowi Water Pan in Kisumu County. The project will be implemented through Kenya Climate Smart Agriculture Project (KCSAP)-Kisumu County. KCSAP-Kisumu County intends to construct Jowi water pan for domestic, livestock, micro-irrigation and other related uses. We have been assigned the responsibility to carry out an **ENVIRONMENTAL IMPACT ASSESSMENT** for the development. We are pleased to seek your views (as beneficiary/neighbour/stakeholder) concerning the intended development. For this purpose, it would be appreciated if you would kindly fill in this brief questionnaire. The information is **STRICTLY** for the purpose of this study and shall remain confidential.

1. For how long have you resided or worked in this area? 62.....(years)
2. Do you know about the proposed Jowi water pan development?
3. In your own opinion; in what ways will the above Jowi water pan development benefit the community, county and nation in general?
  - i. WATER SUPPLY FOR VILLAGERS (DOMESTIC USE) <sup>EX.</sup>
  - ii. REDUCE WOMEN TIME TO FETCH WATER, ALLOWING THEM ACTIVITY OTHERS
  - iii. ALLOW FOR IRRIGATION POSSIBILITY
  - iv. WATERING FOR LIVESTOCK
  - v. ....
  - vi. ....
4. List the negative impacts that Jowi water pan is likely to pose to the neighbourhood and environment in general? <sup>(CHALLENGES)</sup>
  - i. SECURITY OF WATER PAN
  - ii. ACCESS TO THE WATER PAN
  - iii. IRRIGATION PIPES CROSSING PRIVATE FIELDS
  - iv. ....
  - v. ....
  - vi. ....
5. What do you think can be done to mitigate against the negative impacts listed in 4 above?
  - i. \* ALL THE CHALLENGES CAN BE SORTED THROUGH
  - ii. THROUGH COMMITTEE DISCUSSING WITH VILLAGERS
  - iii. ....
  - iv. \* FOR SECURITY THERE NEEDS TO BE ASST. CHIEF
  - v. HEADED COMMITTEE
  - vi. \* THERE NEEDS TO BE A FEE FOR USERS TO KEEP SECURITY

6 a) Do you anticipate any conflict or complains against the proposed Jowi water pan and its related activities with respect to:

- Land? Yes  No   
If yes, indicate.....
- Site/Location? Yes  No   
If yes, indicate.....
- Water? Yes  No   
If yes, indicate.....
- Public Safety? Yes  No   
If yes, indicate.....
- Public Health? Yes  No   
If yes, indicate.....
- Loss of livelihood? Yes  No   
If yes, indicate.....
- Others.....

b) If any in 6 (a) above what are the mechanism to put in place to resolve the conflicts/ complains amicably?

- i. ....
- ii. ....
- iii. ....
- iv. ....
- v. ....
- vi. ....

7. In which category do you fall? (tick where applicable: you can tick more than one box)

- Water beneficiary  Neighbouring resident  Project official  Project member   
 Project donor  Stakeholder  Community leader (Chief, WA, MCA, Opinion leader)   
 Other (specify).....

**PERSONAL INFORMATION**

Name of respondent.. OCHIENG' KOLEWE.....ID No. 37404385.....

Mobile. 0721 794840.....Signature. O.K. Kolewe.....

-----Thanks for your cooperation-----

**QUESTIONNAIRE (NEIGHBOURS): JOWI WATER PAN; KCSAP-KISUMU COUNTY**

**INTRODUCTION**

The County Government Kisumu has received grant funds from International Development Association (IDA) through the Government of Kenya, Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MALF&C) for Construction of Jowi Water Pan in Kisumu County. The project will be implemented through Kenya Climate Smart Agriculture Project (KCSAP)-Kisumu County. KCSAP-Kisumu County intends to construct Jowi water pan for domestic, livestock, micro-irrigation and other related uses. We have been assigned the responsibility to carry out an **ENVIRONMENTAL IMPACT ASSESSMENT** for the development. We are pleased to seek your views (as beneficiary/neighbour/stakeholder) concerning the intended development. For this purpose, it would be appreciated if you would kindly fill in this brief questionnaire. The information is **STRICTLY** for the purpose of this study and shall remain confidential.

1. For how long have you resided or worked in this area? 7.....(years)
2. Do you know about the proposed Jowi water pan development?
3. In your own opinion; in what ways will the above Jowi water pan development benefit the community, county and nation in general?
  - i. Through... irrigation, food production is enhanced.
  - ii. Community are capable of getting clean water
  - iii. Animals being reared get water for drinks
  - iv. ....
  - v. ....
  - vi. ....
4. List the negative impacts that Jowi water pan is likely to pose to the neighbourhood and environment in general?
  - i. Overflow of water from the pan.
  - ii. Weed germination in the pan.
  - iii. ....
  - iv. ....
  - v. ....
  - vi. ....
5. What do you think can be done to mitigate against the negative impacts listed in 4 above?
  - i. -it should be build in away that it can hold water in large volume
  - ii. -There should be a regular clearing of weeds from the pan.
  - iii. ....
  - iv. ....
  - v. ....
  - vi. ....

6 a) Do you anticipate any conflict or complains against the proposed Jowi water pan and its related activities with respect to:

• Land? Yes  No

If yes, indicate..... N/A

• Site/Location? Yes  No

If yes, indicate..... N/A

• Water? Yes  No

If yes, indicate..... N/A

• Public Safety? Yes  No

If yes, indicate..... N/A

• Public Health? Yes  No

If yes, indicate..... N/A

• Loss of livelihood? Yes  No

If yes, indicate..... There may be conflict of water Catchment areas between the animal & human by

Others.....

b) If any in 6 (a) above what are the mechanism to put in place to resolve the conflicts/ complains amicably?

- i. ....
- ii. .... N/A
- iii. ....
- iv. ....
- v. ....
- vi. ....

7. In which category do you fall? (tick where applicable: you can tick more than one box)

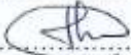
Water beneficiary  Neighbouring resident  Project official  Project member

Project donor  Stakeholder  Community leader (Chief, WA, MCA, Opinion leader)

Other (specify).....

PERSONAL INFORMATION

Name of respondent. Evance Omondi ID No. 29666193

Mobile. 0714396835 Signature. 

-----Thanks for your cooperation-----

December, 2021

**QUESTIONNAIRE (NEIGHBOURS): JOWI WATER PAN; KCSAP-KISUMU COUNTY****INTRODUCTION**

The County Government Kisumu has received grant funds from International Development Association (IDA) through the Government of Kenya, Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MALF&C) for Construction of Jowi Water Pan in Kisumu County. The project will be implemented through Kenya Climate Smart Agriculture Project (KCSAP)-Kisumu County. KCSAP-Kisumu County intends to construct Jowi water pan for domestic, livestock, micro-irrigation and other related uses. We have been assigned the responsibility to carry out an **ENVIRONMENTAL IMPACT ASSESSMENT** for the development. We are pleased to seek your views (as beneficiary/neighbour/stakeholder) concerning the intended development. For this purpose, it would be appreciated if you would kindly fill in this brief questionnaire. The information is **STRICTLY** for the purpose of this study and shall remain confidential.

1. For how long have you resided or worked in this area?....*27 yrs* (years)
2. Do you know about the proposed Jowi water pan development?
3. In your own opinion; in what ways will the above Jowi water pan development benefit the community, county and nation in general?
  - i. *Water for general use in the houses.*
  - ii. *Irrigation use to eradicate poor produce in farm*
  - iii. *Water for Livestocks will be provided.*
  - iv. *Women will use little time in fetching water*
  - v. *Livelihood of the community will be uplifted.*
  - vi. ....
4. List the negative impacts that Jowi water pan is likely to pose to the neighbourhood and environment in general?
  - i. *Livestock will not graze around the water pan*
  - ii. *Some people will lose portion of land.*
  - iii. ....
  - iv. ....
  - v. ....
  - vi. ....
5. What do you think can be done to mitigate against the negative impacts listed in 4 above?
  - i. *People/community to come together for the project*
  - ii. *Workshop/meetings should be held for the project*
  - iii. ....
  - iv. ....
  - v. ....
  - vi. ....



6 a) Do you anticipate any conflict or complains against the proposed Jowi water pan and its related activities with respect to:

- Land? Yes  No

If yes, indicate.....

- Site/Location? Yes  No

If yes, indicate.....

- Water? Yes  No

If yes, indicate.....

- Public Safety? Yes  No

If yes, indicate.....

- Public Health? Yes  No

If yes, indicate.....

- Loss of livelihood? Yes  No

If yes, indicate.....

Others.....

b) If any in 6 (a) above what are the mechanism to put in place to resolve the conflicts/ complains amicably?

- i. *Chief/administration office will resolve the complain*
- ii. ....
- iii. ....
- iv. ....
- v. ....
- vi. ....

7. In which category do you fall? (tick where applicable: you can tick more than one box)

- Water beneficiary  Neighbouring resident  Project official  Project member
- Project donor  Stakeholder  Community leader (Chief, WA, MCA, Opinion leader)
- Other (specify).....

**PERSONAL INFORMATION**

Name of respondent *George N. Omondi* ID No. *32467071*

Mobile *072122221* Signature *[Signature]*

-----Thanks for your cooperation-----

**ANNEX A4: SAMPLE KEY INFORMANT INTERVIEW (KII) FORM**

**KEY INFORMANT INTERVIEW FORM**

**INTRODUCTION**

Kenya Climate Smart Agriculture Project (KCSAP)-Kisumu County intends to rehabilitate and expand Jowi Water Pan for Domestic, Livestock and Micro-Irrigation. The project is located at GPS Coordinates -0.156206N; 34.497230E; 1143M a.m.s.l on L.R. No. Kisumu/Alungo/1656 in Kobudo Village; North Alung'o Sub Location; South West Seme Location; West Seme Ward; Seme Sub-County In Kisumu County. We have been assigned the responsibility to carry out an **ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT** for the development. We are pleased to seek your views as stakeholder and Key Informant (KI) concerning the intended development. For this purpose, it would be appreciated if you would kindly accept this brief interview. The information is **STRICTLY** for the purpose of this study and shall remain confidential.

1. For how long have you worked or stayed in this area?.....(years)
2. Do you know about the proposed Jowi water pan? Yes  No
3. What is the role of your department in the implementation of such project?  
.....  
.....
4. Do you have any issue (positive or negative) of concern (environment, social or economic) that in your own opinion need to be considered before, during and after implementation of this project?  
.....  
.....
5. In your own professional judgement, does the implementation of the project require permits/licenses from your department/authority/ministry before, during and after implementation?  
.....  
.....
6. Based on your opinion in 4 and 5 above, do support the implementation of this project? Yes  No
7. Briefly give your comments on why you support or oppose the implementation of this project  
.....  
.....
8. Give any other comments relevant to this project  
.....  
.....

-----Thanks for your cooperation-----

**KEY INFORMANTS LIST**

1. KCSAP
2. Project Engineer
3. Water Resources Authority (WRA)
4. County Director of Livestock (CDL)
5. County Director of Agriculture (CDA)
6. County Government (Liaison Officer; Ward Administrator; Ward Manager; Village Administrator).
7. National Government (Chiefs and Assistant Chiefs)
8. Department of Social Services
9. Local Professionals
10. Jowi Water Pan SHG

**ANNEX A5: LAND DOCUMENTS**

Form LRA-85 (r.84(3))

*ATTACHED COPY*  
REPUBLIC OF KENYA

THE LAND REGISTRATION ACT  
THE LAND REGISTRATION (GENERAL) REGULATIONS, 2017 PH-3

CERTIFICATE OF OFFICIAL SEARCH  
TITLE NO. 1/100/1/1656  
SEARCH NO. \_\_\_\_\_

On the 11<sup>th</sup> day of SEPT 2020 the following were the subsisting entries on the register of the above-mentioned title:

**Part A — Property Section (easements, etc.)** RESERVED FOR USE AS JOMU RIVER DAM.

Nature of title ARRENDMENT  
Approximate area (0.45) ZERO POINT NINE FIVE (HA)

**Part B — Proprietorship Section**  
Name and address of proprietor 1-27-7-2000-KISUMU COUNTY COUNCIL  
Inhibitions, cautions and restrictions \_\_\_\_\_

**Part C — Encumbrances Section (leases, charges, etc.)**  
\_\_\_\_\_

The following applications are pending:  
(a) \_\_\_\_\_  
(b) \_\_\_\_\_  
(c) \_\_\_\_\_  
(d) \_\_\_\_\_

The following certified copies are attached as requested:  
(a) \_\_\_\_\_  
(b) \_\_\_\_\_  
(c) \_\_\_\_\_  
(d) \_\_\_\_\_

Date 11<sup>th</sup> day SEPT 2020

Signed by the Registrar Seal \_\_\_\_\_  
Name: \_\_\_\_\_  
Signature: G. N. Nyamero \*25\*

**ASSISTANT CHIEF  
JOB H ALUNGO SUB-LOCATI**

GNK/LA/REG-400m-718

Form LRA-84

REPUBLIC OF KENYA

(r.86(1))



AD

## THE LAND REGISTRATION ACT

## THE LAND REGISTRATION (GENERAL) REGULATIONS, 2017

Date Received ..... Presentation Book No. .... Official Fees Paid (KSh.) .....

APPLICATION FOR OFFICIAL SEARCH TITLE No. Kim/ARUNGO/1656





<b>Date of Application</b>	
<b>Applicant</b>	Name: ..... <u>EMILT OGONDO</u> ID/Passport No.: ..... <u>1358997E</u> PIN No.: ..... Address: ..... <u>Box 977 Kisumu</u> Telephone No.: ..... <u>0711 904975</u> E-mail Address (if any) ..... NB: Application for searches can be made by interested parties or their Agents. For purposes of this document, an agent is any person or firm registered by a professional body.
<b>Purpose of Search</b>	<u>CONFIRMATION</u>
<b>Scope of Search</b>	(a) particulars of the subsisting entries in the register of the above-mentioned title; or (b) particulars noted on: the Property Section/the Proprietorship Section/Encumbrances Section of the Register*. *select as appropriate
<b>Copy of Documents Requested</b>	Please supply a certified copy of each of the following:- (a) ..... (b) ..... (c) ..... (d) ..... NB: There is a fee for each copy
<b>Signature of Applicant</b>	
Search Application No.	
Time of Receipt	
Booking Officer	
<b>Search Collected by</b>	Name: ..... <u>Emilt Ogondo</u> ID/Passport No.: ..... <u>1358997E</u> Signature: .....  Date: ..... <u>11/09/2020</u>

## Notes:

- (1) Application to be submitted in triplicate.
- (2) Applicant to attach copy of original title document, unless exempted by Registrar.
- (3) Duplicate to be stamped and released to the Applicant.
- (4) Triplicate to be retained by the Land registry for its records.
- (5) Original to be returned to the Applicant together with the Certificate of Search.

**ANNEX A6: WATER PAN LOCATION DETAILS**

REPUBLIC OF KENYA  
COUNTY GOVERNMENT OF KISUMU

**Kenya Climate Smart Agriculture (KCSAP)**

**LOCATION OF PROJECTS**

COUNTY KISUMU SUBCOUNTY SEME WARD WEST SEME LOCATION SOUTH WEST SEME

SUB LOCATION NORTH ALUNGO VILLAGE KOBUDO

PROJECT NAME JOWI WATER PAN GPS Coordinate: - D:156206 (N) 34.407230E

SN	Project Component	L.R. No.	Village	Sub location	Location (WARD)	Division	Land Ownership*	Land documents**	Contact persons			Remarks
									Name	Mobile	Position	
1.	WATER PAN	KISUMU/ ALUNGO/ 1656	KOBUDO	NORTH ALUNGO	SOUTH WEST SEME	WEST SEME	P.L	A.L.	WILLIAM OJWANGI	0782 913 929	SECRETARY	4 ACRES
2.												



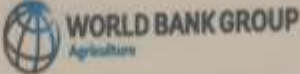

\*Land ownership is either Public Land (PL), Communal (CL) or Private Land (PRL)

\*\* Land Documents are categorized into: Title Deed (TD); Allotment Letter (AT); Lease (L)-specify years; Land Consent (LC); MOU; None(NN); Others (O)-Specify in remarks

Page 1

**ANNEX A7: WATER PAN SITE ACCESSIBILITY**

REPUBLIC OF KENYA  
COUNTY GOVERNMENT OF KISUMU

**Kenya Climate Smart Agriculture (KCSAP)-KISUMU COUNTY**

**PROJECT SITE ACCESSIBILITY**

COUNTY KISUMU SUBCOUNTY SEMIE WARD WEST SEMIE LOCATION SOUTH WEST SEMIE  
 SUB LOCATION NORTH ALUNGO VILLAGE KOBUDO  
 PROJECT NAME JOWI WATER PAN GPS Coordinate: -0.156206 (N) 24.497230 E

SN	Project Component/Name	SITE ACCESSIBILITY															Remarks
		Route/Road 1					Route/Road 2					Route/Road 3					
		Route +	Road type ++	Distance (Km)	Access Means +++	Time	Route +	Road type ++	Distance (Km)	Access Means +++	Time	Route +	Road type ++	Distance (Km)	Access Means +++	Time	
1.	JOWI WATER PAN	KISUMU TO KISUMU JUNCT	TR	11.6KM	MV	25MIN	ALUNGO JUNCT FROM KISUMU	TR	2.1KM	MV	3MIN	WALK ROAD FROM ALUNGO JUNCT	TR	2.0KM	MV	3MIN	SITE IS ACCESSIBLE

+ Route Description: From known point A to B e.g. Route/Road 1: Nairobi-Nakuru, Route/Road 2: Kisumu-Jowi Junct, Route/Road 3: Jowi Junct-Site.  
 ++ Road types is categorized into: Tarmac Road (TR); Murrum (MR); Earth Road (ER); Foot Path (FP)  
 +++ Access Means: Motor Vehicle (MV); Motor Cycle (MC); Foot/Walking (F/W)

ALUNGO JUNCT TO SITE 5KM (20MIN)

Page 1

**ANNEX A8: WATER PAN DRAWING**

**JOWI WATER PAN TOPO**



LEGEND	
	Beacon
	Contour
	Cut Off Drain
	Embankment
	Profile
	Per Boundary
	Inlet
	Road

CLIENT	KISUMU CLIMATE SMART AGRICULTURE PROJECT
PROJECT	JOWI WATER PAN REHABILITATION
SURVEYED & DRAWN BY	PETERS P.O, WAMBURAD & OBINGO. B
DATE	SEPT 2020
SCALE	1:

**ANNEX A9: JOWI-KORINDE WATER USERS CBO**

Revised in October, 2016  
NEW

CBO

MINISTRY OF EAST AFRICAN COMMUNITY (EAC), LABOUR AND SOCIAL PROTECTION  
STATE DEPARTMENT FOR SOCIAL PROTECTION  
DEPARTMENT OF SOCIAL DEVELOPMENT

APPLICATION FORM FOR REGISTRATION OF A COMMUNITY BASED ORGANIZATION (CBO)

COUNTY	CONSTITUENCY	SUB-COUNTY	WARD
KISUMU	SEME	SEME	WEST SEME

1. (a) **Basic Information of the Community Based Organization (CBO)**

Name of Community Based Organization JOWI-KORINDE WATER USERS C.B.O.

Type of CBO (Tick one)  New  Amalgamation  Merger

If Amalgamation or Merger list the forming groups

1. Registration No. N/A Group name .....

2. Registration No. .... Group name .....

*(If more than 2 groups attach a separate list)*

Area of Coverage (not more than one County) .....

Division KOMBEWA Location SOUTH WEST SEME

Sub Location NORTH ALUHIYO Year of Formation 2021

Postal Address P.O. BOX 107-40102 Physical Address KORINDE VILLAGE  
KOMBEWA RANGI SCHOOL

Email N/A Telephone N/A

Website (where applicable) N/A

(b) **Who mobilized your members to seek official registration?**

Self

- Officer from social development office
- Other ministry's staff
- CBO
- NGO
- Chief
- Others ..... Indicate the person/official

1



## 2. Official Meetings

Meeting Venue: Jowi-Kozuho WRECH P.M. Meeting Day(s): MONDAY AS STIPULATED INT. CONSTITUTION Time: 9:00AM - 11:00AM

## 3. Membership of the CBO

	Female	Male	Total
Number of members at the time of registration	18	26	44
Number of Persons With Disabilities (PWDs)			
Number of Youth (18-35 years)		2	2
Number of Older Persons (60+ years)	7	11	18
TOTAL	25	39	64

## 4. Management Committee

Date when elections were done .....

Supervised by ..... Title ..... Telephone .....

No	Position	Name of Person	F	M	ID/No.	Tel/Email	Signature
1.	Chairperson	GEORGE DWUA DWAHIA		✓	9832950	0790427497	
2.	Secretary	WALTER ORAYO DWAHE		✓	3950366	0722913929	
3.	Treasurer	CAROLINE AWUA ADWA	✓		21790840	0713433330	
4.	V/Chairperson	MARTIN UYENO DUJIN		✓			
5.	V/Secretary	PEREACK OCHENG HABLO		✓	7655261	0715212761	
6.	Member	JOHN OYONGO DWAOK		✓	13811395	0704444802	JOHN
7.	Member	MARY GORETY PACHENG	✓		20129692	0721443947	M.G.A.
8.	Other members information	MARTIN BUNDE ALLAN		✓	4701067	0724178502	

\*Attach a separate list of all members

### 6. CBO Project Objectives

- i. To promote modern farming methods within the locality
- ii. To increase the livelihood of the society also by excavating water
- iii. To network/co-ordinate with the government the relevant line ministries and organizations to establish avenues for development.

### 6. Activities of the CBO

a) Type of activity(ies) - tick as appropriate

- Business
- Community project
- Crop farming
- Cultural/traditional activities
- Environment Conservation
- Financial services
- Fishery
- Health care
- livestock rearing
- Poultry keeping
- Skills development
- Tourism
- Youth empowerment
- Merry-go-round
- Table banking

b) List the main activities

- i. COMMUNITY PROJECT
- ii. CROP FARMING / FISHERY / IRRIGATION
- iii. CONTROL OF OVER FLOODING

### 7. Future Plans/Activities (if any)

- i. PROMOTION OF EDUCATION STANDARDS WITHIN
- ii. INITIATE AVENUES FOR SOCIAL AND ECONOMIC ACTIVITIES
- iii. FORMATION OF MICRO FINANCE INSTITUTION (SACCO)

8. Assistance from the Government/Other Organization(s)

Assistance received so far .....

Type (Can Tick multiple)  Financial  Technical  Material

Source of Assistance .....

How does the CBO intend to fund its activities?

Members Contributions  Loans  Donations  Grants  Others WELL WISHERS

9. Applicants Signature

Position  Chairperson  Secretary  Treasurer

Chairperson

Name GEORGE DWUA DWUMBA Telephone 0790427497

Signature [Signature] Date 20. 25/8/2021

Secretary

Name WILLIAM OBIYO DWUMBA Telephone 0722913929

Signature [Signature] Date 25/8/2021

Treasurer

Name BARBARA ANWAR ANWA Telephone .....

Signature .....

**ANNEX A10: SAMPLE PHOTOS**



**Professor Ochieng K'olewe Addressing the public (Representing Professionals)**



**Local Administration (Chiefs and Assistant Chiefs)**



**County Administration (Representing County Government of Kisumu)**



**KCSAP Representative (Mr. Vincent Odhiambo) addressing the public**



**Area Chief (Mr. Shadrack O. Ocholah) addressing the public**



**Existing Jowi Water (Requires rehabilitation and Expansion)**



**Water Pan inlet/source #1 (Aora-Jowi seasonal stream)**



**Water Pan inlet/source #2 (overflow flood from Obede River and overland flow from Kombewa area)**



**Harvested Maize Crop Farm near the water pan (Rainfed)**



**Tomato Crop Farm near the water pan (Require Irrigation)**



**Kales Crop Farm near the water pan (Require Irrigation)**



**Women washing clothes around the water pan**



**Direct Water abstraction from Water Pan (Require CWP)**



**Dilapidated Water Point (Require CWP and LWT)**



## ANNEX A11: ESS Screening Checklist

## ANNEX 10: ENVIRONMENTAL AND SOCIAL SCREENING CHECK LIST

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

## Section A: Background information

Name of County	KISUMU
Name of CPCU/Monitoring Officer/Researcher	VINCENT R. DHAMBO
Sub-project location	SEMP
Name of CBO/Institution	JRWI WATER PAN MANAGEMENT COMMITTEE
Postal Address	N/A
Contact Person	WILLIAM
Cell phone	07 22913939
Sub-project name	JRWI WATER PAN
Estimated cost (KShs.)	18,310,975
Approximate size of land area available for the sub-project	2.5 acres
Objectives of the sub project	Avail water for irrigated farming & livestock production
	- Provide sanitary facility for the local community
Activities/enterprises undertaken	crop production
How was the sub-project chosen?	CIDP, Public participation
Expected sub project duration	3 months

## Section B: Environmental Issues

Will the sub-project:	Yes	No
Create a risk of increased soil erosion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Create a risk of increased deforestation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Create a risk of increasing any other soil degradation soil degradation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Affect soil salinity and alkalinity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Divert the water resource from its natural course/location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cause pollution of aquatic ecosystems by sedimentation and agro-chemicals, oil spillage, effluents, etc.?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Introduce exotic plants or animals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Involve drainage of wetlands or other permanently flooded areas?	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce various types of livestock production?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Affect any watershed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Focus on Biomass/Bio-fuel energy generation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

#### Section C: Socio-economic Issues

Will the sub-project:	Yes	No
Displace people from their current settlement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Interfere with the normal health and safety of the worker/employee?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce the employment opportunities for the surrounding communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce settlement (no further area allocated to settlements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reduce income for the local communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Increase insecurity due to introduction of the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Increase exposure of the community to HIV/AIDS?	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
Lead to gender disparity?	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>

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

#### Section D: Natural Habitats

Will the sub-project:		
Be located within or near environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Adversely affect environmentally sensitive areas or critical habitats – wetlands, woodlots, natural forests, rivers, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Affect the indigenous biodiversity (Flora and fauna)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cause any loss or degradation of any natural habitats, either directly (through project works) or indirectly?	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
Increase human-wildlife conflicts?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the sub-project:		
Involve the use of pesticides or other agricultural chemicals, or increase existing use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cause contamination of watercourses by chemicals and pesticides?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cause contamination of soil by agrochemicals and pesticides?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Experience effluent and/or emissions discharge?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Export produce? Involve annual inspections of the producers and unannounced inspections?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Require scheduled chemical applications?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Require chemical application even to areas distant away from the focus?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Require chemical application to be done by vulnerable group (pregnant mothers, chemically allergic persons, elderly, etc.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Use irrigation system in its implementation?	Yes	

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

### Section E: Pesticides and Agricultural Chemicals

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

#### 1) Pest Control practices

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

Yes <input checked="" type="checkbox"/> No If yes, name them:	Name of pesticide	Name of pest, disease, weed controlled	Number of times applied/ season	When did you apply (growth stage or month) Quantity purchased
Daxshban	Stem borer	On need basis	→	at Vegetative state
Tata Umemo	Stem borer	On need basis	→	at Vegetative state

If No, WHY?

b) If you use any of the above pesticide types, do you keep records of the:  
Application location Yes..... No

Date of application Yes..... No

Pesticide product trade name

Yes..... No

Operator name Yes..... No

If No, WHY? *Illiteracy*

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

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

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

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

(iv) Told by someone to apply (specify who) \_\_\_\_\_

(v) Other (specify) \_\_\_\_\_

d) Do you use a knapsack sprayer? Yes \_\_\_ No

If yes,

(i) Do you own it Yes \_\_\_ No \_\_\_

(ii) Do you rent it Yes \_\_\_ No \_\_\_

(iii) Do you borrow it Yes \_\_\_ No \_\_\_

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

Yes  No \_\_\_\_\_

f) If yes, list the negative effects:

(i) ... *Nausea* .....

(ii) ... *Chest complication* .....

(iii) .....

(iv) .....

(v) .....

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

Why? \_\_\_

a) If YES, what kind? \_\_\_

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

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

Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_

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

Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_

c) Do you mix pesticides with your hands?

Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_

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

- Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_
- e) After spraying, do you wait 12 hours before entering the field?  
 Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_
- f) Do you store pesticides in a secure, sound and well-ventilated location?  
 Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_
- g) Do you make a cocktail before applying the pesticides? (i.e., mix more than one chemical and apply them at once?)  
 Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_
- h) Where do you store your pesticides? In the house  
 Why do you store them there?  
Convenience
- i) What do you do with your pesticide containers after they are empty? \_\_\_\_\_  
Wash and Re-use
- j) Do you know of any beneficial insects (insects that eat harmful insects)?  
 Yes..... No
- k) If yes, name them:  
 i) \_\_\_\_\_ ii) \_\_\_\_\_ iii) \_\_\_\_\_

### 3. Pesticides and Health

- a) Do you find that pesticide application is affecting the health of: Persons regularly applying pesticides?  
 Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_
- Persons working in fields sprayed with pesticides  
 Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_
- Persons harvesting the produce  
 Sometimes  Always \_\_\_\_\_ Never \_\_\_\_\_

### 4. Options to Pesticides

- a) From your experience, are you aware of other methods for controlling insect's diseases and/or weeds besides pesticides?  
 Yes..... No .....
- b) If yes, describe these practices:  
 i) \_\_\_\_\_ ii) \_\_\_\_\_ iii) \_\_\_\_\_ iv) \_\_\_\_\_

Management practices such as timely Weeding

### 5. Information

- a) What information do you think you need for improving your crop production and marketing?  
TIMPs as developed by KCSAP

### 6. Training

- a) Have you ever received any training on any of the following topics related to crop production?
- b) Integrated Pest Management      Yes..... No
- c) No. of times/past      yr. ....
- d) b).Pesticide Usage      Yes..... No
- e) No. of times/past      yr. ....
- f) Pesticide Safety      Yes..... No
- g) No. of times/past      yr. ....
- h) Insect Identification      Yes..... No
- i) No. of times/past      yr. ....
- j) Disease Identification      Yes..... No
- k) No. of times/past      yr. ....
- l) Quality aspects of production      Yes..... No
- m) No. of times/past      yr.....

7) *Is there anything else that you want us to know about your crop production?*

-----  
*Value addition & Marketing of products*  
 -----  
 -----  
 -----

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

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

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

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

**Section G: Land Acquisition and Access to Resources**

Will the sub-project:	Yes	No
Require that land (public or private) be acquired (temporarily or permanently) for its development?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests)	<input checked="" 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' <input checked="" type="checkbox"/> There is at least one 'Yes'	<ul style="list-style-type: none"> <li>• If all the above answers are 'No', there is no need for further action;</li> <li>• If there is at least one 'Yes', please describe your recommended course of action (see below).</li> </ul>

#### (iii) Recommended Course of Action

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

CPCUs and County Director of Environment (CDE) will provide detailed guidance on mitigation measures as outlined in the ESMF; and

Specific advice is required from CDE and CPCUs regarding sub-project specific 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 KCSAP PIU for clearance for implementation by communities in the proposed subprojects.

*Recommend SPR*

#### 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: [type here]

Name: [type here]

Position / Community: [type here]



Date: [type here]

Field Appraisal Officer (CDE): [type here]

Signature: /  /

Date: [type here] 18<sup>th</sup> Mar 2021

**Note:**

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



**Annex A12: National Lands Commission Concurrence letter to undertake the Investment.****OFFICE OF THE NATIONAL LAND COMMISSION COUNTY COORDINATOR  
KISUMU COUNTY**

ARDHI HOUSE  
P.O. BOX 1874-40100  
**KISUMU.**

File Ref: NLC/KSM.CTY/11/1/VOL I (26)

Date: 2<sup>nd</sup> March, 2022.


County Project Coordinator  
Kenya Climate Smart Agriculture Project  
**KISUMU COUNTY.**

**RE: KALOKA AQUA PARK, JOWI WATER PAN AND KISUMU POULTRY HUTCHING AND  
INCUBATION CENTRE PROJECTS.**

Please refers to the above matter

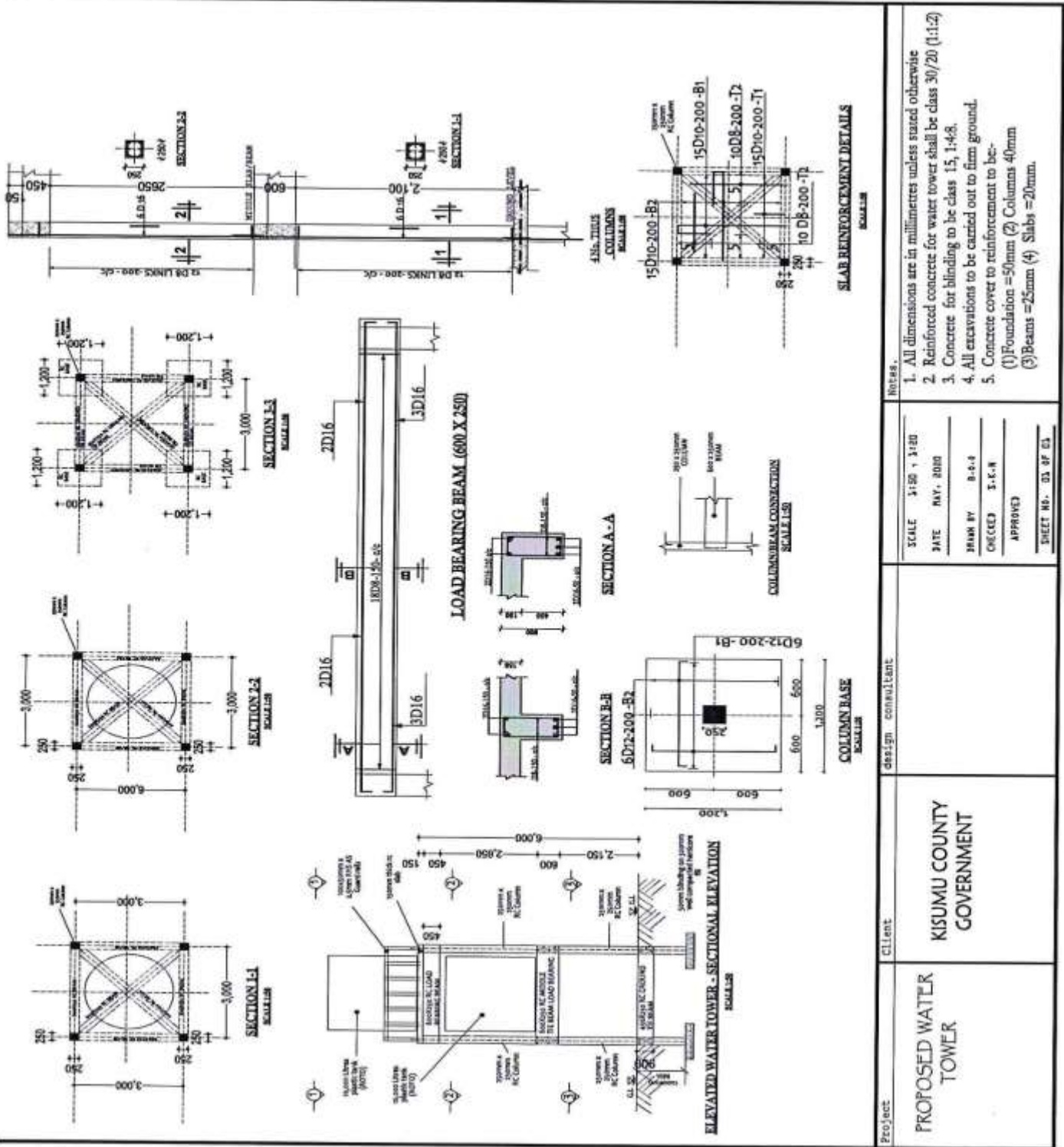
This is to inform you that the parcels of land on which Kaloka Aqua Park (Parcel Nos.Kisumu/Koker Kajulu/1921 and Kisumu/Koker Kajulu/2965), Jowi Water Pan (Kisumu/Alingo/1656), Kisumu Poultry Hutching and Incubation Centre (Kisumu/Rata/2419) projects are to be located are public land registered in the name of Kisumu County Council. Accordingly therefore, the issue of compensation will not arise whatsoever.

Proper Public participation was conducted and all the communities involved embraced the projects.

  
**OTIENO APPIDA.**  
**COUNTY COORDINATOR, KISUMU COUNTY**  
**NATIONAL LAND COMMISSION.**

Copy to. The Secretary /CEO  
National land Commission  
**NAIROBI.**

Annex A13: Design structures for Jowi Water pan



Project	Client	Proposed Water Tower
Scale	design consultant	KISUMU COUNTY GOVERNMENT
Date	SCALE 1:100, 1:200	MAY, 2010
Drawn by	DATE	MAY, 2010
Checked	DRAWN BY	B. S. S. S.
Approved	CHECKED	S. S. S. S.
SHEET NO.	APPROVED	S. S. S. S.
OF	SHEET NO.	D3 OF 03
Notes:	1. All dimensions are in millimetres unless stated otherwise	2. Reinforced concrete for water tower shall be class 30/20 (1:1:2)
	3. Concrete for blinding to be class 15, 1:4:8.	4. All excavations to be carried out to firm ground.
	5. Concrete cover to reinforcement to be-	(1) Foundation = 50mm (2) Columns 40mm
	(3) Beams = 25mm (4) Slabs = 20mm.	

**Annex A13: Bill of Quantities Summary for the project.**

<b>Bill No.</b>	<b>Item Description</b>	<b>Amount Kshs.</b>
1	Bill No 1: Preliminaries & General	1,100,000.00
2	Bill No 2: Bush Clearing	350,000.00
3	Bill No. 3 Earth Works Pan Concrete Works	18,161,550.00
4	Bill No. 4 Fencing Works	1,156,000.00
5	Bill No. 5 Concrete Tower Platform & Tanks	431,250.00
6	Bill No. 6 Auxiliary Structures (Community Water Point,Livestock Troughs,Pit Latrine)	1,035,278.00
7	Bill No. 7 Solar Pumping System	318,000.00
8	Bill No. 8 Net House	541,480.00
	<b>Sub Total</b>	<b>23,093,558.00</b>
	Contingency 3%	692,806,70
<b>Grand Total</b>		<b>23,786,364.70</b>