OOGR

OLGULULUI-OLOLARASHI GROUP RANCH

STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) REPORT

FOR OLGULULUI OLOLARRASHI GROUP RANCH LAND USE AND SUB-DIVISION SCHEME PLAN



Submitted to:

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

P.O. Box 67839 - 00200, Popo Road Off Mombasa Road,
NAIROBI, KENYA.

MAY 2024

CERTIFICATION

This Strategic Environmental Social Assessment (PLAN SESA) Report for Olgulului Ololarrashi Group Ranch (OOGR) Land use and Subdivision Scheme Plan (LUSP) has been prepared under the leadership of Dr. Bernard Kaaria Irigia, NEMA Lead Expert Reg. No. 0079 of Planning and Environmental Consultancy Services (PECS) Limited, NEMA Firm Reg. No. 7839.

The report has been prepared with reasonable skills, care and diligence in accordance with the provisions of Environmental Management and Co-ordination Act Cap 387 section 57 A, the National Strategic Environmental Guidelines of 2012, the Environmental Impact Assessment and Audit Regulations of 2003 and other national and international policy Guidelines for Strategic Environmental Assessment.

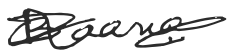
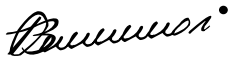
We certify that the particulars given in this report are correct to the best of our knowledge.

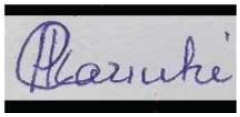
LEAD EXPERT: Dr. Bernard Kaaria Irigia (NEMA Registration Certificate No. 0079), Planning and Environmental Consultancy (PECS) Ltd, NEMA Firm Reg. No. 7839, P. O. Box 702 – 00517, Nairobi, Kenya.

Email: pecskenya@gmail.com | kaariairigia@gmail.com , **Tel:** 254-722-773-951

SESA TEAM:

Planning and Environmental Consultancy Services (PECS) Limited:

Expert	**Role**	**Qualification**	**Signature**
Dr. Bernard Kaaria Irigia	Lead Expert	PhD, MSc, **BSc, PG DIP**	
Mr. God'swill Baraka Sewe	GIS, Tourism and Wildlife Expert	Ongoing BSc. GIS, HND AI and Robotics, Dip. BIT, Cert. Project Management	
Nicholas Bunyige	GIS and Environmental Planning Management Specialist	MA, BA, PG DIP	
Dr. Dorcas Nzasu Kalele	Climate Change and adaptation Specialist	PhD, MSc, BSc	
Dr. Patrick Chege Kariuki	Land Use, Land Cover Specialist	PhD, MSc. BSc	

			
Ms Lisper Njeri	Advocate, Legal Issues	LLB, BA	
Apollo Kariuki	Protected area Planning and wildlife conservation	MSc, BSc. PG DIP	

Signature: .....  ..... **Date:** .....



PECS LTD STAMP: _____

PLAN OWNER:

OOGR TRUST P.O Box 388 -00209, Loitoktok, Kenya.

Email: N/A , **Cell:** +254 721 392 256 / 0728 975 304

CHAIRMAN:

DANIEL LETURESH

Signature:  **Date:** .....



OOGR TRUST STAMP _____

ACKNOWLEDGEMENT

This Strategic Environmental and Social Assessment (SESA) For Olgulului Ololarashi Land use and Subdivision Scheme Plan (OOGR LUSP) was prepared by OOGR stakeholders through a highly participatory planning process (Appendix 3 in Vol 2). The planning process was coordinated by a Core Planning Team Comprising:

AMBOSELI ECOSYSTEM TRUST	The Amboseli Ecosystem Trust coordinated the development of the SEA for OOGR LUSP.
THE COUNTY GOVERNMENT OF KAJIADO	The County Government of Kajiado participated in the process and contributed towards integration of the AEMP with the Kajiado County Spatial Plan
KENYA WILDLIFE SERVICE	Kenya Wildlife Service provided significant information that shaped up this SEA for OOGR LUSP report.
nema mazingira yetu | uhai wetu | wajibu wetu	National Environmental Management Authority (NEMA) provided guidance on the appropriate planning process for development of an ecosystem plan and its subsequent Strategic Environmental Assessment (SEA)
KENYA WATER TOWERS AGENCY Coordinated Environmental Protection K.W.T.A	The Kenya Water Towers Agency (KWTA) provided significant information that shaped up this SEA for OOGR LUSP report and participated in the tail end of the process and contributed immensely during the validation workshop
ifaw International Fund for Animal Welfare	International Fund for animal welfare (IFAW) provided wildlife migratory route maps and human wildlife conflict data.
ACC AFRICAN CONSERVATION CENTRE	African Conservation Center (ACC) and its affiliate African Conservation Programme (ACP) synthesized long-term ecological information on OOGR into this SEA for OOGR LUSP.

JUSTDIGGIT	Just Dig it participated in SESA validation meetings and updated on the ecosystem restoration programmes.
AMBOSELI CONSERVATION PROGRAM	Amboseli Conservation programme provided historical information of the entire Amboseli Ecosystem including OOGR.
BIG LIFE FOUNDATION	Big life Foundation co-funded the planning process and significant information that shaped up this SEA for OOGR LUSP report.
AMBOSELI TRUST FOR ELEPHANTS	Amboseli Trust for Elephants (ATE) provided information on elephant movement in the Amboseli Ecosystem and contributed funds to support the planning process.
WATER RESOURCES AUTHORITY	The Water Resources Authority (WRA) participated in providing significant information that shaped up this SEA for OOGR LUSP.
pecs Planning & Environmental Consultancy Services	Planning and Environmental Consultancy Services provided the technical assistance for plan development

ACRONYMS & ABBREVIATIONS

AEMP	Amboseli Ecosystem Management Plan
AET	Amboseli Ecosystem Trust
ATE	Amboseli trust for elephants
ANP	Amboseli National Park
BLF	Big Life Foundation
CCA	Critical Conservation Areas
ASALs	Arid and Semi-Arid Lands
GAE	Greater Amboseli Ecosystem
GDP	Gross Domestic Product
GHG	Green House Gas
GoK	Government of Kenya
EIA	Environmental Impact Assessment
EA	Environmental Audit
EMCA	Environmental Management and Coordination Act.
HWC	Human Wildlife Conflict
IFAW	International fund for animal welfare
KWS	Kenya Wildlife Service
LUSP	Land use and subdivision plan
MoALF	Ministry of Agriculture and Livestock Development
NBSAP	National Biodiversity strategy and action plan
NEMA	National Environmental Management Authority
NGOs	Non-Governmental Organizations
NCCAP	National Certification Council for Activity Professionals
NDMA	National Drought Management Authority
OOGR	Olgulului Ololarrashi Group Ranch
PPP	Policies, Plans and Programmes
SEA	Strategic Environmental Assessment
SESA	Strategic Environmental and Social Assessment
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCMA	Wildlife Conservation and management act
WRA	Water Resources Authority
WRUAs	Water Resources User Associations

NON-TECHNICAL SUMMARY

Background of Olgulului Ololarashi Group Ranch

Olgulului-Ololarrashi Group Ranch (OOGR) is located in Kajiado County and encompasses (90%) of Amboseli National Park, covering 1232 km2. The Olgulului Ololarrashi Group Ranch (OOGR) covers approximately one hundred and thirty-three thousand, three hundred and thirty-eight hectares (133,338) of land, and is one of the largest landowners in the greater Amboseli Ecosystem. It is registered as an entity with a certificate of registration and is managed by elected officials by its registered members. The ranch is located in Kajiado County, Loitokitok Sub County and adjacent to Amboseli National Park towards the Kenya Tanzania border. It engulfs the Amboseli National Park in the northern, western and southern directions. Proportionately, the group ranch is 3.5 times the size of Amboseli National Park (ANP).

The group ranch was incorporated in 1975 as part of the government sponsored land settlement scheme of 1968. In 2001, the group ranch had 3,418 members and this membership has gradually increased over the years with pastoralism being the primary economic livelihood not only within the OOGR but the entire Amboseli Ecosystem.

OOGR land is held under communal land tenure by 11, 485 (eleven thousand, four hundred and eighty-five thousand) registered members except for approximately 50 (fifty) parcels that are held under public and private land tenure system.

OOGR is now managed and governed by Olgulgulului Land Trust which was registered on 28th September 2023 and is made up of eight (8) registered Trustees.

Genesis of land subdivision

The genesis of OOGR land sub division scheme plan was first envisioned in the OOGR Conservation and Development Plan of 2011-2016. According to this plan OOGR members desired to have a future that will transform their socio-economic status to better standards by having a diversity of land uses that are compatible, carefully planned and regulated; Including having strong participatory institutions and governance structures founded on a comprehensive group ranch constitution. The main aim of land subdivision was to optimize and improve land use for the benefit of the community; manage human settlements; improve infrastructure; promote economic growth and compatible land use enterprises; promote agriculture and conserve the ecosystem for wildlife and pastoralism.

SESA Objective

From the genesis of the land subdivision discussed above, it is clear that the desire of the OOGR community is to improve their socio-economic status mainly through the five (5) stated programmes **conservation of ecosystem, pastoralism**, **management of human settlements**, promotion of **agriculture** and improvement

of **infrastructure**. It is the implementation of these programmes that will drive impacts, hence the need to undertake the SESA with a view to proposing measures to mitigate the negative impacts.

The SESA process is guided by the National Guidelines for SESA in Kenya, and Section (57a) of the Environmental Management and Coordination (Amendment) Act, 2015 that requires all Policies, Plans and Programmes (PPPs) for implementation to be subjected to Strategic Environmental and Social Assessment (SESA). The aim of SESA is to guide land subdivision, provide a binding framework which will enable the implementation and enforcement of an agreeable, all-inclusive and optimal mix of land uses in OOGR.

Study methodology

The study methodology involved literature review, preparation of data collection tools, field visits to OOGR, consultation with community and stakeholders, data collection, collation and analysis, analysis of project impacts and mitigation measures, development of a monitoring plan, and making recommendations.

Baseline information

Flora and Fauna:
Amboseli Ecosystem is so rich in flora and fauna that it has been named a UNESCO Biosphere Reserve. It has different ecological zones, which include natural dry mountain forest, mountains, savannah rangelands, wetlands and swamps. It is home to numerous Acacia species such as *Thornigli, Tortilis, Senegal* especially in the lower agricultural areas. The main animals include elephants, lions, wildebeest, cheetah, zebras, giraffes, impalas, baboons and hippos, not to mention over 400 different species of birds, 40 of which are birds of prey.

Climatic condition:
The rainfall amount in the later areas of Amboseli basin ranges from as low as 300mm in low lands and on the slopes of Mt. Kilimanjaro it goes as high as 1250mm. The rainfall variation causes flooding and gulley erosion towards the lower parts of Amboseli Ecosystem. The temperature ranges from 10°C-34°C. The coolest period is between July and August, while the hottest months are from November to April.

Population:
The current registered members of the OOGR are eleven thousand, four hundred and eighty-five persons (11,485). Given the average household size of six (6) the total population of the ranch is estimated to be sixty-eight thousand, nine hundred and ten (68,910). Assuming an adult to child ratio of 1:3 the school going population is estimated to be twenty-two thousand, nine hundred and seventy (22,970).

Land:
The proposed land uses in the subdivision scheme plan are pastoral areas which are divided into 8 (eight) blocks measuring 79,848.02 hectares, environmental conservation areas, which include Wildlife habitats; Bird's habitat, Livestock

grazing, Wildlife dispersal, Surface water sources, Wildlife movement corridors and rivers &Natural drainage channels, measuring 46,019.45 hectares, irrigation area 5,227.02 hectares, transportation networks 3,783.26 hectares, social and physical infrastructure measuring 1,678.04 hectares.

Cultural values:

OOGR is home to authentic Maasai culture as it has cultural manyattas where tourists can experience their values and way of life. Maasai culture is known for its consistency over time, traditional lifestyle, pastoralism which is integrated with conservation of wildlife resources in Amboseli Ecosystem.

Environmental Regulatory Framework and PPP Analysis

This SEA for OOGR LUSP was screened against the Environmental and Social obligations in relevant frameworks at local, county, National and international levels as Highlighted below:

Framework Level	**Relevant Frameworks**
Local	1. OOGR Management Plan 2020 – 2030 2. OOGR Land use and Sub-division plan 3. Amboseli Ecosystem Management Plan 2020 - 2030
County	4. Kajiado County Land sub-Division Guidelines 2018 5. Kajiado County Spatial Plan 2019 - 2029
National	6. National Constitution 7. National Environment Policy, 2014 8. National Landuse Policy, 2017 9. Integrated National Landuse Guidelines, 2011 10. National Wildlife Policy, 2020 11. WCMA 2013 12. National Climate Change Framework Policy, 2016 13. Kenya Vision 2030 14. Kenya National Spatial Plan 2015-2045 15. National Water Master Plan 2030 16. National Biodiversity Strategy and Action Plan (NBSAP 2021-2030) 17. National Climate Change Response Strategy (NCCRS) 2010
Regional & Global	18. EAC Protocol on Environment and Natural Resources 19. Convention on Migratory Species (CMS) 20. UNESCO's Programme on Man and the Biosphere (MAB)

Study findings

Plan impacts and mitigation measures

The proposed SEA for OOGR subdivision scheme has five programs covering 133, 338 hectares namely Pastoral Zone Scheme (58%); Environmental Conservation (34%); Irrigation (4%); Transport (3%); Social and Physical Infrastructure (1%).

No.	Programme	Positive impact:	Negative Impacts	Mitigation
1	Pastoralism:	Improved livelihoods from livestock farming	Increased livestock population beyond carrying capacity, overgrazing, human wildlife conflicts, transmission of diseases	Creation of grazing plans, zoning, no fencing land, no permanent bomas, no further land subdivision, developing enforcement guidelines
2	Settlement	Livelihood improvement and diversification of enterprise, improved access to social amenities and services	Uncontrolled development, mushrooming of settlements in non-designated areas, population increase, increase in social and wildlife crimes	Adhere to development plans, undertake land use clinics with department of physical planning,
3	Environment and Wildlife Conservation Zone	Enhanced wildlife conservation and management zones, improved tourism enterprises, hotels, campsites and game viewing areas Five conservancies in place Kitirwa, Kitendeni A and B, Ole Narika and Ilaingarunyoni Livelihoods improvement and benefit sharing	Conflict on land uses between grazing and conservancies, wildlife corridors pass through land subdivision areas, diseases transmission from wildlife to livestock, human wildlife conflicts, lack of strategic dry and wet season grazing areas, and mushrooming of campsites.	Align subdivision schemes with wildlife corridors, Set clear guidelines on grazing and conservation areas, enhance ranger training and distribution in designated areas
4	Transport infrastructure zone	Improved road access, enhance development, and land value, promote tourism product diversification	Development of roads in undesignated areas, off road driving, influx of new people and cultural deterioration of local values, Development of social amenities such as bars and associated negative social values	Adhere to zoning scheme plans, no bitumen for secondary roads, no off-road driving, no tertiary access roads

No.	Programme	Positive impact:	Negative Impacts	Mitigation
5	Irrigation Zone	Improved food security, employment creation, enhances alternative livelihoods	Deforestation to pave way for agriculture, unsustainable land use practices, gulley erosions,	Promote agroforestry, train farmers on sustainable land use practices, prohibit fencing of land, construction of permanent bomas or buildings, no change of users and further subdivision of land

Conclusion and Recommendations

The SEA for OOGR land use and subdivision scheme is a comprehensive plan that considers the land use practices and community lifestyle in the Amboseli Ecosystem. It aims to address social issues, promote diversification, and ensure the conservation of wildlife. The plan consists of five programs: **Pastoralism**, **Settlement, Wildlife and conservation**, **Irrigation,** and **Transport infrastructure,** which aim to address meet various community needs within the ecosystem.

After reviewing the subdivision scheme plan, consulting with stakeholders, conducting field visits, and analyzing the situation, several remarks and recommendations have been made:

1. **Relevance and Responsiveness:** The plan is considered relevant as it addresses the needs of the community and aligns with the requirements of pastoralism and wildlife conservation in the OOGR and Amboseli Ecosystem. It also considers the aspirations and future of the community.
2. **Sustainability and Connectivity:** To enhance sustainability, it is important to consider key elements such as maintaining connectivity within the Amboseli Ecosystem. Wildlife corridors should not be blocked to prevent the transfer of negative impacts to other areas.
3. **Grazing Plans and Sensitization:** There is a need to raise awareness and conduct sensitization on existing grazing plans. In cases where such plans do not exist, it is necessary to develop them to ensure responsible land use.

4. **Land Clinics:** It is recommended to organize land clinics to educate and engage community members in adhering to the conditions of the subdivision scheme plan. This will help prevent the unauthorized establishment of settlements, campsites, and hotels in non-designated areas.

5. **Zoning Guidelines and Enforcement:** Developing guidelines for zoning schemes, particularly regarding the establishment of infrastructure, will contribute to

maintaining aesthetics and preserving the tourism characteristics of the area. Adequate enforcement mechanisms should be put in place to ensure compliance.

6. Taking cognizance of the fact that this is an Ex-post SESA, it is recommended that the plan be gazetted as it is with this SESA report annexed for ease of reference during plan implementation and review.

The OOGR Management and their stakeholders should comply with the **Ten (10) Approval Conditions** on permission to subdivide issued by the Director of Physical Planning on 18th June, 2019 and attached in section3.3.2 (Notification) of this SESA report.

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1. INTRODUCTION

1.1 Background

The Olgulului Ololarrashi Group Ranch (OOGR) is a large communal land area that surrounds 90% of Amboseli National Park in Kenya. It spans 1,232 square kilometers (approximately 133,338 hectares) and is one of the largest landowners in the greater Amboseli Ecosystem. Established in 1975 as part of a government-sponsored land settlement scheme from 1968, OOGR originally had 3,418 members in 2001, with membership steadily increasing over time. The primary economic activity within OOGR and the broader Amboseli Ecosystem is pastoralism. Located in Kajiado County, Loitokitok Sub County, near the Kenya-Tanzania border, OOGR encompasses Amboseli National Park on its northern, western, and southern sides, making it 3.5 times the size of the park. The ranch is currently managed by the Olgulului Land Trust, which was registered in 2023.

OOGR land is held under communal land tenure by 11,485 (eleven thousand, four hundred and eighty-five thousand) registered members except for approximately 50 (fifty) parcels that are held under public and private land tenure system. The land is now managed and governed by Olgulului Land Trust which was registered on 28th September 2023 and is made up of eight (8) registered Trustees.

1.2 Strategic Environmental and Social Assessment (SESA)

The Strategic Social Environmental Assessment (SESA) serves as a preliminary process aimed at identifying and evaluating potential negative impacts on the environment and human health resulting from the implementation of any policy, plan, or program (PPP). Its primary objective is to integrate environmental considerations into PPPs, thereby enhancing their overall impact. The goal of SESA is to optimize policies, plans, or programs to minimize negative environmental effects, maximize positive outcomes, and effectively manage unavoidable negative impacts during implementation. In this context, the SESA process involves collecting, reviewing, and organizing pertinent social, economic, and environmental data related to the OOGR land sub-division scheme plan and the Amboseli Ecosystem.

The objectives of SESA are informed by the National Guidelines for SESA in Kenya and Section (57a) of the Environmental Management and Coordination (Amendment) Act, 2015, which mandate that all PPPs undergo Strategic Social Environmental Assessment.

SESA encompasses various analytical and participatory approaches aimed at integrating environmental considerations into PPPs and evaluating their interactions with economic and social factors. It involves obtaining and assessing environmental information before making decisions in the development process. Aligned with Agenda 21 principles, SESA takes a proactive stance in integrating environmental concerns into higher levels of decision-making, encompassing prediction and evaluation of social, economic, health, and environmental impacts. The underlying principles of SESA include promoting sustainable development and the use of

natural resources, enhancing biodiversity and environmental conservation, recognizing the interconnections between human settlements and cultural aspects, integrating socio-economic and environmental factors, engaging the public and stakeholders, addressing broader environmental and social issues beyond site-specific impacts, and identifying and comparing alternative scenarios.

The Strategic Environmental and Social Assessment (SESA) report for the Olgulului Ololarrashi Group Ranch (OOGR) Subdivision Scheme Plan is therefore designed to ensure sustainable implementation of the land use plan by aligning it with relevant policies and legal frameworks. Commissioned by OOGR and conducted by Planning and Environmental Consultancy Services (PECS) Limited, the SESA addresses potential environmental and social impacts of the land subdivision. It aims to prevent issues such as water depletion, pollution, overgrazing, land degradation, and increased human-wildlife conflicts, which could arise from incompatible land uses.

1.3 SESA Objectives

The SESA's main objectives are to establish a legally binding framework for:

- Identifying and promoting nature-based enterprises, compatible land uses, and sustainable income sources within the wildlife conservancy and dispersal areas of OOGR.
- Ensuring coherent land use management, sustainable livestock production, and equitable benefit sharing through binding grazing regulations and clear landowner obligations

The primary purpose of the SESA is to foresee and manage both positive and negative impacts of the land subdivision, supporting the gazettement of the plan under section 57A (1) of the Environmental Management and Coordination Act (EMCA) Cap 387. This legal backing will enforce land use restrictions to preserve the environment and benefit group ranch members.

The report aims to create model governance frameworks that can be replicated by other group ranches undergoing land subdivision, promoting sustainable practices and reducing human-wildlife conflicts.

Subsequently, the SEA for OOGR LUSP is expected to serve as an important governance tool for regulating landuse under the new private land tenure regime. Consequently, there was need to ensure proper integration of all the necessary instruments of environmental and social governance and control in the LUSP.

1.4 Scope of the Strategic Environmental Social Assessment

The scope of the Strategic Environmental Social Assessment (SESA) for the Olgulului Ololarrashi Group Ranch encompasses ensuring that the long-term implementation and enforcement of the Land Use and Sub-Division Scheme Plan adhere to prescribed thresholds outlined in various frameworks. These include the Kajiado County Land Sub-Division Guidelines 2018, the County Spatial Plan 2019-2029, the Amboseli Ecosystem Management Plan 2020-2030, the Olgulului Management Plan,

relevant East African Community (EAC) frameworks, and global Multilateral Environmental Agreements (MEAs). Additionally, the SESA provides a platform for all group ranch stakeholders to express their vision, expectations, and recommendations for the group ranch.

1.5 SESA Report Structure and format

Non-Technical Executive Summary: This section presents a summary of the SESA report. It will broadly cover the SESA background, study methodology, study findings, baseline environmental conditions of the plan area, environmental impacts, mitigation, environmental management plan, conclusions and recommendations.

Chapter 1: Introduction - This chapter gives general background information, location, justification of the Plan and SESA, objectives and the SESA study team.

Chapter 2: Approach and Methodology - This chapter describes the approach and detailed methodology used to achieve the study objectives**.**

Chapter 3: The SESA for the OOGR Land Use and Land Subdivision Plan - This chapter gives a Brief description of the Plan.

Chapter 4: Policy, Legal, Regulatory and Institutional Framework - This chapter provides an overview of the policies, legislation and institutional frameworks relevant to the SESA study and implementation of the plan

Chapter 5: Baseline Environmental and Social Conditions - This chapter describes the existing physical, biological and socio-economic environmental conditions of the plan context.

Chapter 6: Stakeholder and Public Consultations - This chapter details the stakeholders consulted, public consultations held and emerging issues.

Chapter 7: SESA Findings,Impact identification, prediction and Mitigation - This chapter presents an analysis of the potential environmental and socioeconomic impacts and possible mitigation measures.

Chapter 8: Impact Analysis of Alternative options - This chapter discusses alternatives identified during the planning stage and may include management strategies, types of interventions, technologies, land use options as well as plan project activities to the proposed land uses, interventions, enforcement mechanisms and standards for enforcement. The **NO Action** option is also discussed.

Chapter 9: Strategic Environmental Management and Monitoring Plan (SESMMP) - This chapter describes the management plan of the environmental and socioeconomic impacts. The chapter further describes the monitoring plan that includes costs and timelines.

Chapter 11 - Conclusion and Recommendations -This chapter provides the conclusion and recommendations of the SESA study.

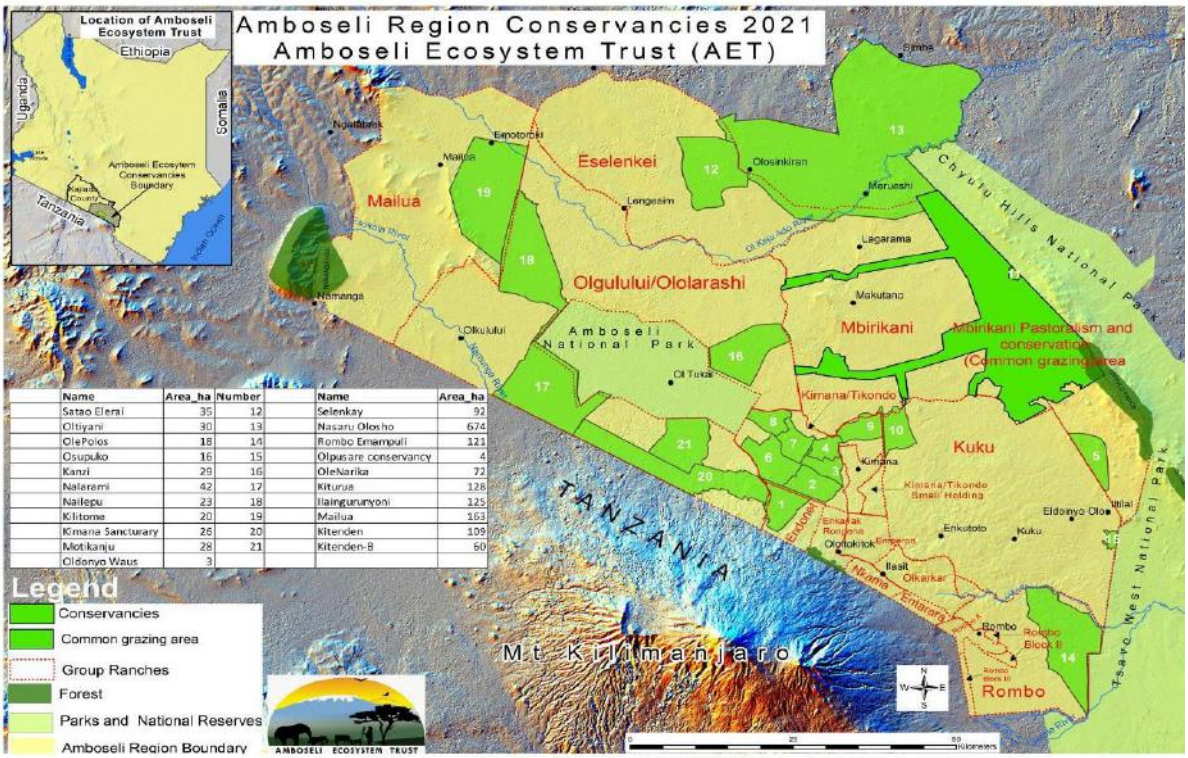
2. PLAN DESCRIPTION

2.1 Plan Location

The Olgulului-Ololarrashi Group Ranch (OOGR) is located in Kajiado County, Loitokitok Sub County, it lies adjacent to Amboseli National Park, bordering the Kenya-Tanzania border. OOGR surrounds Amboseli National Park on its northern, western, and southern sides, and is 3.5 times the size of the park, as depicted in Figure 1. Land within OOGR is held communally by 11,485 registered members, with the exception of around 50 parcels that are under public and private land tenure systems. The ranch is now managed and governed by the Olgulului Land Trust, which was registered on September 28, 2023, and comprises eight registered Trustees.

The group ranch measures approximately one hundred and thirty-three thousand, three hundred and thirty-eight hectares (133,338 Ha). It engulfs or surrounds the Amboseli National Park in the northern, western and southern directions. Proportionately, the group ranch is 3.5 times the size of Amboseli National Park (ANP). The ranch is bordered by the Republic of Tanzania to the south-west, Mailua Group ranch to the west, Eselenkei Group Ranch to the north, Mbirikani to the North East and Kimana to the east as shown in figure 3.

The Olgulului Ololarrashi Group Ranch (OOGR) surrounds 90% of Amboseli National Park and spans 1,232 square kilometers. Incorporated in 1975 as part of the government's 1968 land settlement scheme, the group ranch had 3,418 members in 2001, a number that has steadily grown over the years. Pastoralism remains the primary economic livelihood within OOGR and the broader Amboseli Ecosystem.



Name	Area_ha	Number
Satao Elerai	35	12
Oltiyani	30	13
OlePolos	18	14
Osupuko	16	15
Kanzi	28	16
Nalaremi	42	17
Nailepu	23	18
Klitome	20	19
Kimana Sanctuary	26	20
Motikanju	28	21
Oldonyo Waus	3	

Name	Area_ha
Selenkay	92
Nasaru Olosho	674
Rombo Emampuli	121
Olpusare conservancy	4
OleNarika	72
Kiturua	128
Ilaingurunyoni	125
Mailua	163
Kitenden	109
Kitenden-B	60

Figure 3: Amboseli Region Conservancies

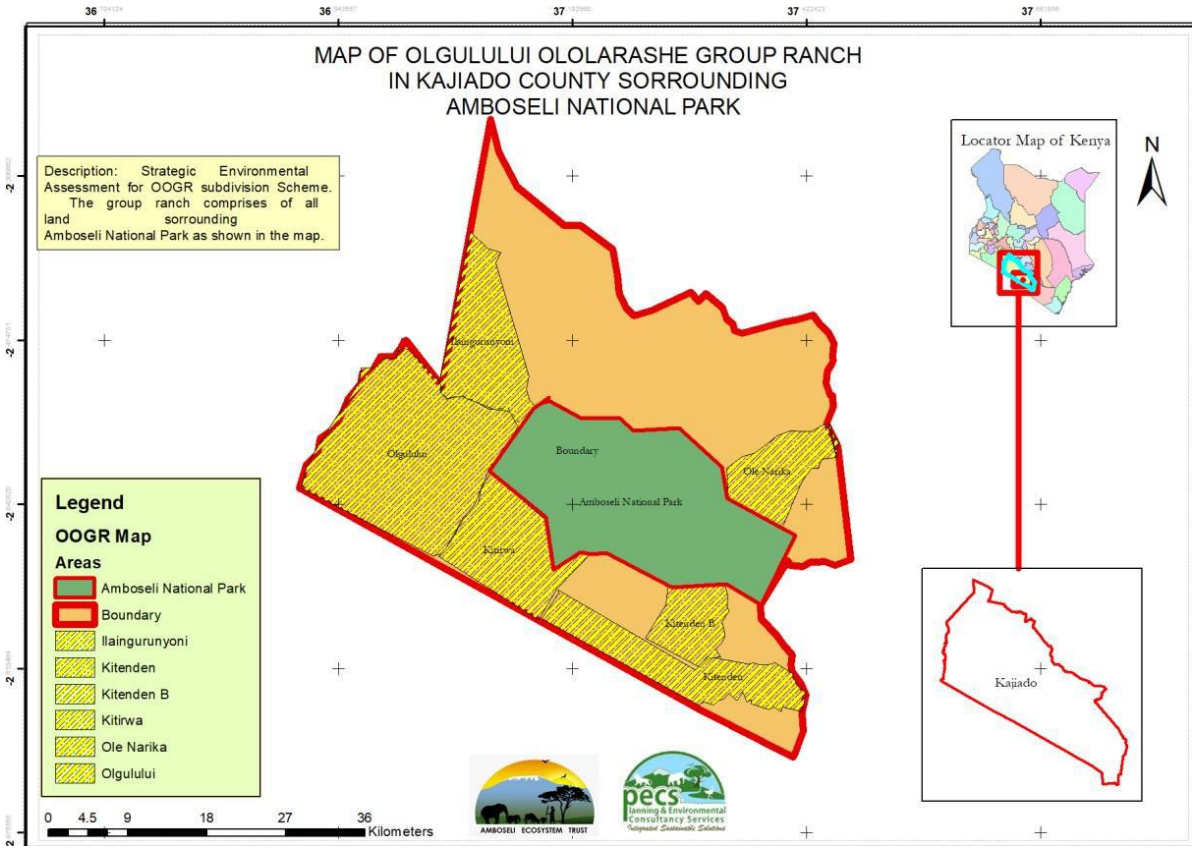


Figure 1: Location of Olgulului Ololarashi Group Ranch in Kajiado County in Amboseli

2.2 Genesis of the OOGR land subdivision scheme

Communal group ranch subdivision into individual plots in Amboseli Ecosystem is a threat to Amboseli Park wildlife conservation. The failure of the group ranch model of communal land ownership has led to concerted demand for individual land ownership, hence the glamour group ranch subdivision. Such demands have been increasing with time with the majority support for individual ownership coming from the cultivators, the youth and landless, who hope to secure a piece of land for private use, ownership security and cultivation. Despite widespread concerns that group ranch subdivision may fragment wildlife dispersal areas further, and interfere with their ranging, individual ownership has been adopted in all group ranches in Amboseli area. An emerging social consequence of subdivision is landlessness among the Maasai who sell newly acquired land to meet urgent and short–term financial needs.

The genesis of OOGR land sub division scheme plan was first envisioned in the OOGR Conservation and Development Plan of 2011-2016. According to this plan OOGR members desired to have a future that will transform their socio-economic status to better standards by having a diversity of land uses that are compatible, carefully planned and regulated; Including having strong participatory institutions and governance structures founded on a comprehensive group ranch constitution.

In order to promote strong partnership between OOGR and Amboseli National Park for mutual benefits arising from conservation and revenue generated. The members of OOGR formulated a four-step process of actualizing this vision by:

a) Defining the most appropriate mix of land uses to be practiced in the OOGR in order to optimize the sustainable economic returns to OOGR.
b) Providing a framework for delivering the optimal mix of land uses by dividing the OOGR into different zones where different types of land uses and activities are permitted.
c) Formulating land use and land management policies to guide the use of land towards permitted uses.
d) Providing an implementation framework that will realize the strategies and projects that were formulated.

2.3 OOGR and wildlife connectivity in Amboseli Ecosystem

The connectivity between OOGR, Amboseli National Park and other group ranches enables animals to move from one area to another during dry and wet seasons. According to Amboseli Trust for Elephant (ATE), there are around 68 Elephant families in the park which move freely in out throughout the season (see Figure 2), and some end up in Tanzania and there is need to make provision for this elephant corridors to enhance co-existence with wildlife. Wildlife connectivity corridors, according to International Fund for Animal Welfare, (IFAW) extends from Maasai Mara Game Reserve, to OOGR, Amboseli, Mbirikani, Chyulu and Tsavo National Park as shown in Figure 4 and 5. Hence any obstacle to these movement occasioned by land sub-division scheme plan, may trigger transfer of impacts to other areas in Amboseli Ecosystem. Similar sentiments were captured with Dr. David Weston from Africa Conservation Center that we need to take into consideration wildlife corridors and dispersal areas based on scientific research and facts. Hence this study explored environmental impacts of the proposed subdivision scheme plan, potential positive and negative impacts and propose mitigation measure, and areas of improvement for corrective measures.



Figure 2: Elephants in Amboseli near OOGR boarder with Amboseli National Park

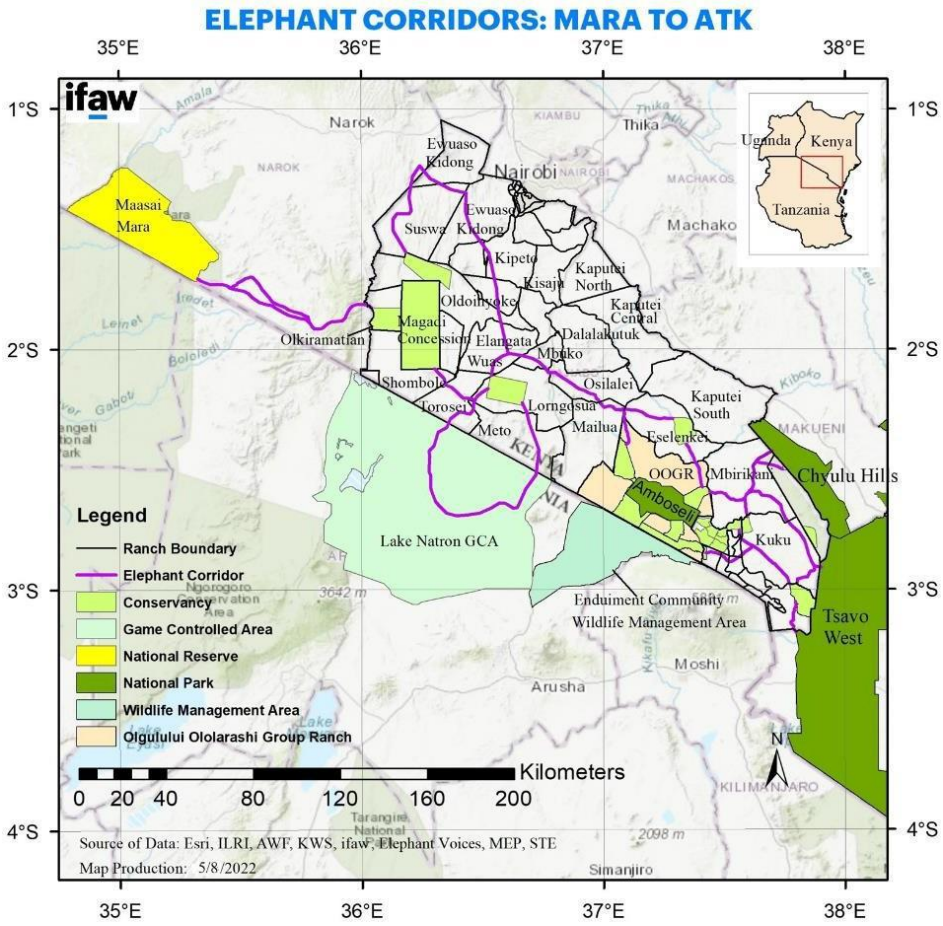


Figure 3: Elephant Connectivity Map showing linkages with Maasai Mara Game Reserve

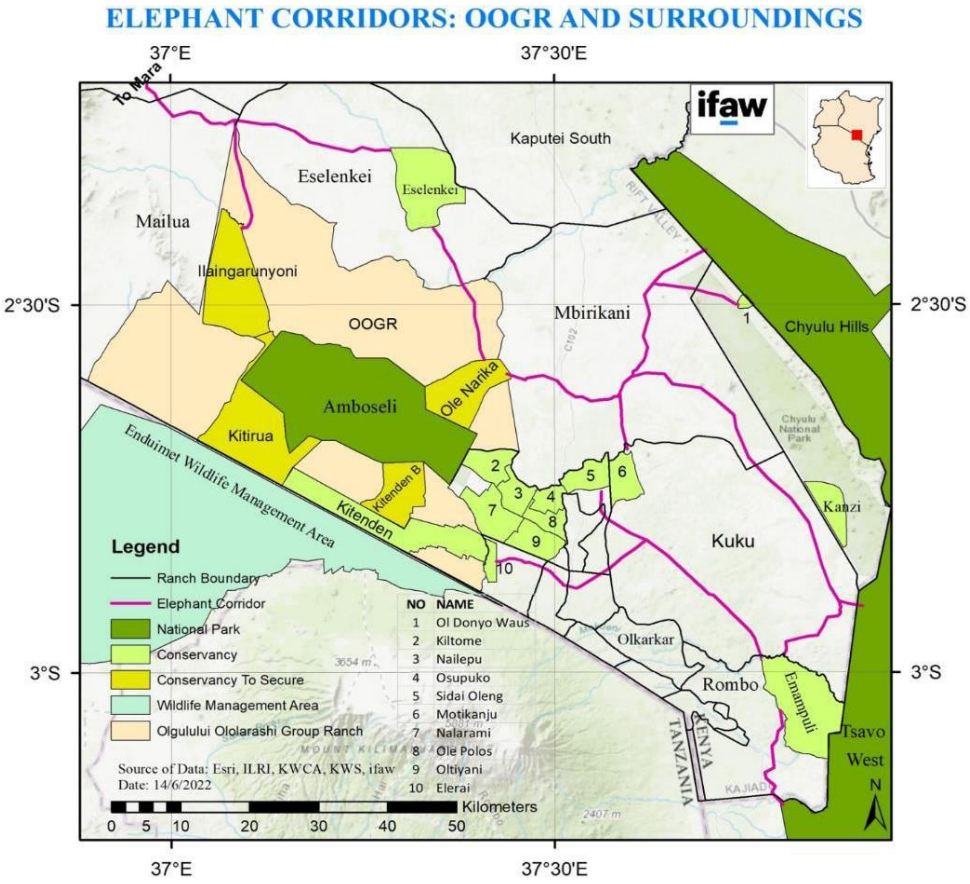


Figure 4: Elephant Corridors and connectivity map showing movement in and out of OOGR

Source: IFAW 2022

2.4 Goal of OOGR Land Sub-division Scheme Plan

Given the aforementioned steps and the desire of OOGR members to acquire individual titles to the land, it was deemed necessary to prepare subdivision scheme plans to guide this process as well as the registration of land rights to different types of land uses. The process of preparing the aforesaid scheme plans necessitated that the existing zoning scheme be re aligned to changes that have occurred since its preparation and the fact that the plans time frame has elapsed.

Therefore, the goal of the planning exercise was firstly to modify the zoning scheme that would act as the basis for revising land use and land management policies and guiding the preparation of subdivision schemes which indicate the individual parcels of land.

2.5 Terms of Reference (TORS)

a) Reviewing of the Land Use and Sub-Division Scheme Plan for Olgulului Ololarrashi Group Ranch and all other documents for the SESA such as Kajiado County Land Sub-division Guidelines 2018, Kajiado County Spatial Plan 2019-2029, Amboseli Ecosystem Management Plan 2020-2030, Olgulului Management Plan, among other relevant frameworks including MEAs. The aim was to identify the areas of interface and linkages between the Land Subdivision and Land use

Plan and other binding frameworks for effective governance and management of the group ranch.

b) Determining the scope of the SESA: This was undertaken through the standard participatory scoping approach as provided in the National Constitution, EMCA Cap 387 and National SESA Guidelines 2012, among other guidelines.
c) Gathering of baseline information and situation analysis whose aim was to provide a thorough understanding of the potential environmental and social risks (including unsustainable land use) which are likely to originate during the implementation of the Land Use and Sub-Division Scheme Plan for the Olgulului Ololarrashi Group Ranch. The SESA has also made recommendations for suitable mitigation for any potential risks and impacts.
d) Engage participatory approaches to effectively withe relevant stakeholders: The main aim was to ensure effective and sustained public participation during the SESA such as vulnerable and marginalized groups (e.g., women, youth, elderly). The SESA engagement process also ensured that cultural power relations and how they are exercised when in it comes to decision making were respected and adhered to. The use of local leadership to disseminate information was adhered to and community meetings were held, and all protocols observed.
e) Prediction and analysis of environmental and social impacts: The team undertook a comprehensive analysis of the potential short term, medium term and long-term impacts which are likely to emerge through the implementation and enforcement of the Olgulului Land Use and Sub-Division Scheme Plan based on the review of documents, baseline surveys and stakeholder consultations. This included prediction of scale, magnitude (low, medium, and high risks) and level of significance for the potential environmental (soil, water, biodiversity, climate change, etc.) and social impacts (poverty, human wildlife conflicts, gender inequality, household conflicts etc.).
f) Identification of suitable environmental and mitigation options. The team identified suitable alternative measures for addressing mitigating environmental and social impacts during the implementation of the Olgulului Land Use and Sub-Division Scheme Plan including the enforcement of agreed land use restrictions in order to identify suitable tradeoffs and best-fit options to avoid unacceptable and unsustainable environmental and social situations in the group ranch.
g) Identification of measures to enhance opportunities and mitigate adverse impacts: The team focused on the realization of the positive opportunities of the plan during its implementation including the enforcement of agreed land use restrictions especially in line with the Sustainable Development Goals (SDGs) and recommended suitable strategies for minimizing any negative risks. The aim of the SESA was to develop "win-win" situations where multiple, mutually reinforcing gains could strengthen the economic base, provide equitable conditions for all, and protect and enhance the state of environment within the Olgulului Ololarrashi Group Ranch as well as the Greater Amboseli Ecosystem (GAE) and Kajiado County.
h) Identification and gazettement of nature-based enterprises, compatible land uses and sustainable income options within the wildlife conservancy and dispersal areas in Olgulului Ololarrashi Group Ranch.
i) Developing a binding framework for coherent land use management including sustainable livestock production, sustainable grazing strategy including binding

grazing regulations, approved grazing management committee and clear obligations for landowners in order to ensure sustainable land use, equitable benefit sharing and reduced human wildlife conflicts in the wildlife conservancy and dispersal areas.

j) Draft report on the findings of the SESA: This involved the preparation, compilation, and presentation of a Draft SESA Report for review and validation. It included a succinct, Non-Technical Summary, the main report, and recommendations for corrective measures.

k) Final SESA report for submission to NEMA and making recommendation to decision makers:

l) Upon review of the draft report from NEMA, the team will prepare and present the Final SESA Report incorporating comments from all stakeholders for submission to NEMA. Thereafter, the team will follow-up with the NEMA Head Office in Nairobi to escalate approval, and gazettement of the Olgulului Land Use and Sub-Division Scheme Plan including the enforcement of agreed land use restrictions.

2.5.1. Specific Tasks

This included but was not limited to the following;

a) Undertaking a review of all documents relevant to the SESA Land Use and Subdivision Scheme Plan for Olgulului Ololarrashi Group Ranch (OOGR), including legal frameworks; Land Use and Sub-Division Scheme Plan for Olgulului Ololarrashi Group Ranch; Kajiado County Land Sub-division Guidelines 2018; Kajiado County Spatial Plan 2019-2029; Amboseli Ecosystem Management Plan 2020; Olgulului Management Plan and other relevant frameworks including Multilateral Environmental Agreements (MEAs) for sustainable management of the OOGR.

b) Undertaking a Stakeholder Consultation to determine the scope of the Strategic Environmental Assessment (SESA) and ensure an all-inclusive process including the vulnerable and marginalized groups (e.g., women, youth, elderly) throughout the SESA process from screening, scoping and reporting stages to ensure that nobody is left behind.

c) Collecting and collating baseline information to analyze data as well as situation analysis to understand potential environmental and social risks (including unsustainable land use) which were likely to originate during the implementation of the Land Use and Sub-Division Scheme Plan for the Olgulului Ololarrashi Group Ranch.

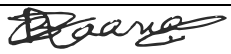
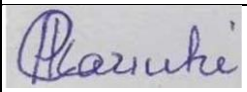
d) Ensuring the SESA engagement process provides a clear understanding of the power relations between different stakeholders, and how they interact with each other and the environment in order to achieve agreeable options for the smooth implementation and enforcement of the Land Subdivision and Land use Plan.

e) Assessing, predicting, and analyzing environmental and social impacts: The consultant undertook a comprehensive analysis of the potential environmental and social impacts (short term, medium term and long-term), which were likely to emerge through the implementation and enforcement of the Olgulului Land Use and Sub-Division Scheme Plan.

f) Identified suitable alternative measures for addressing mitigating environmental and social impacts during the implementation of the Olgulului Land Use and Sub-Division Scheme Plan including the enforcement of agreed land use restrictions in order to identify suitable tradeoffs and best-fit options to avoid unacceptable and unsustainable environmental and social situations in the group ranch. The consultant is also relied heavily on the application of the standard impact management hierarchy for the identification of the most appropriate options.
g) Focused on the realization of the positive opportunities of the plan during the implementation of the Olgulului Land Use and Sub-Division Scheme Plan including the enforcement of agreed land use restrictions especially in line with the Sustainable Development Goals (SDGs).
h) Developed a "win- win" Strategic Environmental and Social Management and Monitoring Plan (SESMMP) that is enforceable to protect and enhance the state of environment within the Olgulului Ololarrashi Group Ranch as well as the Greater Amboseli Ecosystem (GAE) and Kajiado County. The SESMMP contains a framework for coherent and sustainable land use management, sustainable livestock production, and sustainable grazing strategy.
i) Developed a binding grazing regulation, specifying the roles of the (approved) grazing management committee, outlining clear obligations for landowners, guidelines for (in order to ensure sustainable land use,) equitable benefit sharing and specifying measures to reduce human wildlife conflicts in the wildlife conservancy and dispersal areas.
j) Identified nature-based enterprises, compatible land uses and sustainable income options within the wildlife conservancy and dispersal areas in Olgulului Ololarrashi Group Ranch and facilitate their gazettement.
k) Prepared a succinct, Non-Technical Summary for ease of understanding by all stakeholders and in particular local communities, who should be well informed about the environmental implications of the OOGR Land use/ Subdivision Plan to enable them submit informed SESA comments during the validation stage of the final document
l) Prepared the final SESA Report containing suitable mitigation measures for any potential risks and impacts, mitigation measures for adverse impacts, enhancement measures for positive impacts, recommendations based on comments from all stakeholders, and finally present to AET and OOGR for endorsement before filling with NEMA for review and approval.
m) Prepared the SESA Report and proposed suitable mitigation measures for any potential risks and impacts identified during the study, identify measures to enhance opportunities and mitigate adverse impacts and make recommendations.
n) Follow-up the approval of SESA Report with the NEMA Head Office in Nairobi.
o) Follow up the gazettement of the Olgulului Land Use and Sub-Division Scheme Plan including the enforcement of agreed land use restrictions with the Kajiado County Government.

2.5.2. SESA Study Team

This SESA report for the OOGR land subdivision scheme plan has been prepared by the PECS Limited, a consultancy firm registered under EIA/EA Regulations 2003 with expertise from various disciplines including ecologists, GIS experts, Planners, Tourism Experts, Policy analysts and Environmentalists under the guidance of a NEMA Lead Expert and Team Leader Dr. Bernard Kaaria. The team members to be involved include the following:

Expert	**Role**	**Qualification**	**Signature**
Dr. Bernard Kaaria Irigia	Lead Expert	PhD, MSc, BSc, PG DIP	
Mr. God'swill Baraka Sewe	GIS, Tourism and Wildlife Expert	Ongoing BSc. GIS, HND AI and Robotics, Dip. BIT, Cert. Project Management	
Nicholas Bunyige	GIS and Environmental Planning Management Specialist	MA, BA, PG DIP	
Dr. Dorcas Nzasu Kalele	Climate Change and adaptation Specialist	PhD, MSc, BSc	
Dr. Patrick Chege Kariuki	Land Use, Land Cover Specialist	PhD, MSc. BSc	
Ms Lisper Njeri	Advocate, Legal Issues	LLB, BA	
Apollo Kariuki	Protected area Planning and wildlife conservation	MSc, BSc. PG DIP	

2.6 Purpose of OOGR Land Sub-division Scheme plan

It is envisioned that the land use and the land subdivision scheme plan would be used for the following purposes;

I. Basis for zoning the land for different activities.
II. Basis for Development, management and control.
III. Basis for provision of infrastructure and services.
IV. Basis for protection and conservation of the environment.
V. Basis for surveying the land and issuance of title deeds and registration of land rights.

2.7 Justification for OOGR Land Use and Subdivision Scheme Plan

The baseline information for this SESA is contained in the Olgulului-Ololarrashi Group Ranch Land Use and Subdivision Plan (attached for reference). The planning and surveying process were professionally undertaken by Gatome and Associates, Consulting Surveyors and Planners in 2006 through a very participatory process by all stakeholders including the land owners, lead agencies representing the national government and non-governmental actors.

Initially the intention was to subdivide the land to facilitate issuance of titles to individual group ranch members and settlement on their respective parcels. The pressure to subdivide the land was occasioned by the desire to have individual land rights registered as guaranteed in the Constitution. Looking at the neighboring group ranches namely Kimana and Mailwa and other cases in the county of Kajiado, the pressure on the leadership to subdivide the group ranch has taken unprecedented dimension in the last four years. The initial instruction to the consultant was to subdivide the land equally into eight thousand six hundred (8,600) parcels for OOGR members appearing in the register then. However, in 2011 after wide consultations and engagement with the conservationists and other stakeholders, it was agreed that the subdivision model be reviewed in order to take into account the concerns relating to the protection of the Amboseli National Park in particular and the wider Amboseli Ecosystem in general. It is in appreciation of these concerns that the consultant was instructed to incorporate conservation planning principles into the subdivision exercise.

The OOGR members and conservation partners prepared the Olgulului-Ololarrashi Conservation and Development Plan 2011-2016 that structured the group ranch into conservation and tourism development, pastoral development, wildlife and cultivation zones. Though this plan provided guidance for land development in OOGR, it did not meet the desires of the members of the ranch to acquire individual titles and land rights. It however, formed the basis for preparation of Land Use and Subdivision Scheme plan for OOGR. The Plan Scheme was finalized and submitted to the county government for approval, and it is after the approval that the subdivision process started.

The need for the plan was driven by the desire of OOGR members to utilize local resources and opportunities sustainably to improve livelihoods of their members and

to address the existing threats and anticipated key issues that constrain the actualization of its objectives for sustainable development. Some of the local resources, opportunities and threats as well as existing and anticipated key issues as envisaged in the subdivision scheme plan are as outlined in the table 2.1.

Table 2-1: Local Resources Opportunities and Threats

No.	**Local Resources and Opportunities**	**Existing and anticipated key issues**
1.	Amboseli National Park is an iconic tourist destination and wildlife habitat	Sharing of benefits accruing from the park
2	Presence of wildlife including the big five	Enhanced tourism experience and repeat clients
3	Scenic beauty of the whole ecosystem including Mt. Kilimanjaro, Lake Amboseli and Chyulu Hills	
4	Culture including Maasai traditional practices such as pastoralism, artifacts, immaterial culture, traditional homes and bomas. Dressing, cuisine and bead works.	Compatible livelihood lifestyle with wildlife management and tourism enterprises
	Threats	
1	Rapidly increasing population	Demand for land rights
		Shrinking livelihood options
		Unregulated development including haphazard location of human settlement
2	Increase in livestock population	Demand for grazing land
3	Unregulated land use planning	Human wildlife conflicts

3. SESA APPROACH AND METHODOLOGY

3.1 Overview

The general approach for the study included consultation with the client to review the Terms of Reference, and the understanding of the scope of work. The study team held consultations at AET offices in Amboseli with the Chairman of the Board, OOGR Committee and the CEO and his team. The motivation for the SESA was associated with the decision by the OOGR landowners to subdivide the group ranch land following the land reform from communal land tenure to private land tenure. Three broad steps were followed in the SESA study of the proposed OOGR Subdivision Scheme Plan. They included screening, scoping and the detailed SESA study.

3.1.1. Screening

Screening was undertaken to determine whether the proposed OOGR subdivision scheme plan required a Strategic Environmental Assessment. After consultations with the client and NEMA, it was recommended that the subdivision scheme Plan undergoes a SESA. In response, NEMA guided the study team to prepare a plan Brief and submit to NEMA for review. The brief acted as the screening document which was approved and the NEMA screening response is attached under Appendix 1 in Vol 2 of this report. The consultant was guided to proceed and prepare a scoping report with the terms of reference and potential issues of concern.

3.1.2. Scoping

Following the determination that a SESA was necessary for the Plan; the scoping study was done to identify the key issues to be studied during the detailed SESA study. This was done through literature review and wide stakeholder and public consultation in order to identify and describe the key environmental impacts of the proposed plan as envisaged by the proponents, key stakeholders and the public. A scoping report was submitted to NEMA and approved as attached under Appendix 2 of vol 2.

3.1.3. Detailed SESA Study

The detailed SESA study involved baseline data collection from various sources including the OOGR land sub-division and land use scheme plan; review of relevant policies, legislation and institutional framework; analysis of reasonable alternatives; identification, analysis and prediction of environmental and social impacts; development of appropriate mitigation measures and impact management strategies. Other steps involved formulation of Strategic Environmental and Social Management Plan (SESMP); and Environmental Management and Monitoring Plan (EMMP).

3.2 Site Reconnaissance

The SESA process commenced in August 2022, with various activities and consultative meetings conducted throughout the year. Initial meetings with the client and other stakeholders took place between October 10th and 17th, 2022. These

sessions involved visiting the client's offices in Amboseli for reconnaissance and consulting with community members, conservancy heads, the Kenya Wildlife Service, Elephant Trust, International Fund for Animal Welfare (IFAW), and Big Five, among others. The consulting team also devised data collection tools for Key Informant Interviews (KII) and Focused Group Discussions (FGDs), which were conducted on-site. During the field visit, the team observed ground features and gathered relevant facts for the SESA preparation process, including terrain type, slope, vegetation, sensitive ecological features, land uses, neighboring activities, land quality status, and identifiable environmental and socio-economic challenges. Additionally, the SESA team toured all conservancies within OOGR to gain insights into their operations and characteristics.

3.3 Field Visits

Field visits for data collection in OOGR took place from October 10th to 15th. The data gathered encompassed Key Informant Interviews (KII), observations, and familiarization with the project area. The study team commenced site visits, starting with AET offices, then proceeding to OOGR conservancies in Kitirwa and Kitendeni, Amboseli National Park, grazing banks, centers, and irrigation sites in Namelok and Ilmisigeiyo. Data collection methods included the use of questionnaires, matrices for impact analysis, and observations, all geo-referenced using GPS technology.

3.4 Baseline data collection

The aim was to provide a thorough understanding of the potential environmental and social risks (including unsustainable landuse) which are likely to emerge during implementation of the LUSP. The SEA was then expected to recommend suitable mitigation for any potential risks and impacts,

3.4.1 Baseline Situation Assessment

A Four-day intensive baseline assessment field mission was undertaken in OOGR. The aim of this activity was to get a clear understanding of the LUSP landuse zones and their current status as a basis for subsequent environmental scenario building. The situation analysis was carried out in order to understand the likely environmental and social impacts during the implementation of the OOGR LUSP.

3.5 Stakeholder Consultations

3.5.1. Consultation with the client

The SESA screening and scoping process started with a consultative meeting with the Client OOGR Management and AET. This involved getting a clear background of the project, the main objectives of the SESA and its integration with the OOGR land sub-division scheme plan, developing a comprehensive Consultation and Public Participation plan (CPP), and establishing scoping boundaries for environmental,

socio-economic and institutional concerns that needed to be addressed in the planning and SESA process.

3.5.2. Key Informant Interviews

Key informants were undertaken with County Government of Kajiado, office of the Governor, Department of Physical Planning, KWS, ACC, Big Five, IFAW, Amboseli Ecosystem Trust, Elephant Trust, Ministry of Interior (local chiefs) and local leaders.

3.5.3. Consultation with community leaders

The study team held meetings with community leaders from OOGR who represent various sectors such as grazers, women group, and those involved in grass bulking project. The team also held consultation with Kitirwa Conservancy which trains rangers for protecting conservancies in OOGR.

3.5.4. Public Consultations

Consultation and Public Participation commenced with a meeting held with the OOGR Management and AET on 14th October, 2022 at their offices in Amboseli. Thereafter, the study team was given a go ahead to visit other stakeholders. Key among the stakeholders visited, were the Kenya Wildlife Service, IFAW, Africa Elephant Trust, Big Five, County Government of Kajiado Office of the Governor and the Department of Physical Planning as shown in Plates 4.1-4.4. A list of stakeholders consulted is attached in Appendix under Vol 2.



Plate 5.1: Meeting at AET with OOGR Committee



Plate 5.2: Meeting with Meshenani Curio Vendors



Plate 5.3: Meeting with Meshenani Women Grass bank group



Plate 5.4: Meshenani Grass Bank





3.6 Literature review

This involved reviewing Policy, Legislative and Institutional Frameworks. Some of the documents reviewed included:

- Sustainable Development Goals of 2015 (SDGs),
- Kenya's Vision 2030,
- Wildlife Policy 2020,
- National Land Policy,
- the Strategy for Revitalization of Agriculture,
- the Water Policy,
- Energy Policy and the draft Environmental Policy.

The legal and regulatory documents included

- Kenya Constitution of 2010,
- the Environmental Management and Coordination (Amendment) Act of 2015,
- National Guidelines for Strategic Environmental Assessment of 2012,
- Wildlife Policy 2020
- Wildlife and Conservation management Act 2016
- the Water Act of 2016
- Physical and Land Use Planning Act, 2019
- Trustees Act Cap 164 (amended 2021)

The study team also reviewed past SESA studies to aid in the deeper understanding of the process and possible type of outcomes.

3.6.1. Review of the SEA for OOGR Land Use and Subdivision Plan

A desk review of the OOGR land subdivision scheme plan and other relevant legal instruments were reviewed and key among them were:

- Legal options Report
- Amboseli Management Plan
- OOGR Conservation Development Plan
- Strategic Assessment of Amboseli Management Plan
- State of Conservancies Report 2020
- Wildlife Dispersal Areas Report, Vision 2030
- Environmental Management and Coordination Act, 1999

- Environmental Management and Coordination (Wetlands, riverbanks, lake shores and seashore management) Regulations, 2009
- Physical Planning and Land Use Act 2019
- Water Act, Cap 372 of 2002
- Forest Act No. 7, of 2005
- The Forest (Charcoal) Rules, 2009, Legal Notice No. 186
- Wildlife (Conservation and Management) Act Cap 376 of 1976, 1989 & Bill, 2013
- Agriculture Act
- Tourism Act, No. 28 of 2012
- Public Health Act, Cap 242
- Crop Production and Livestock Act, Cap 321 of 1926
- Energy Act No 12 of 2006
- Community Based Tourism Framework (2009)
- Trustees (Perpetual Succession) Act (Cap.164 of the Laws of Kenya) (Act) (amended 2021)
- Kenya Vision 2030
- National Environment Action Plan (2009-2013)
- National Biodiversity Strategy and Action Plan (2000)
- National Master Plan for the Conservation and Sustainable Management of Water Catchment Areas in Kenya (2012),
- National Conservation and Management Strategy for Elephants in Kenya (2012-2021) (KWS, 2012)
- National Conservation and Management Strategy for the Black Rhino and Management Guidelines for the White Rhino in Kenya (2007-2011) (KWS, 2007)
- National Conservation and Management Strategy for Lions and Spotted Hyenas (KWS, 2010)
- Nairobi Metro 2030
- Agricultural sector Development Strategy 2010-2020
- National Climate Change Response Strategy (2009)
- Ministry of tourism and wildlife state department for tourism draft strategic plan for 2023-2027
- Local area management plans (e.g., GR and Conservancy Management Plans)

3.7 Brainstorming Sessions

Brainstorming sessions on all emerging issues were held throughout the study period to identify, analyze and synthesize the key issues of land use, environmental and socio-economic concerns that need to be addressed in the Plan SESA. The issues agreed on were directly incorporated in the plan. Continuous consultation with the Client, AET, NEMA and office of Governor in Kajiado County was held throughout the study.

4. POLICY, LEGAL, REGULATORY AND INSTITUTIONAL FRAMEWORK

4.1 Overview

There are numerous national and international policy, legal, regulatory and institutional frameworks that guide the requirements and preparation of a SESA. International policies include those ratified by the country concerning environmental issues. The national level provides the legal, regulatory and institutional frameworks for EIA and SESA studies.

The Government of Kenya has put in place a wide range of policies, legal frameworks, master plans and programmes to address issues of environmental protection and conservation. The frameworks are derived from statutes in the Constitution of Kenya (2010) as well as obligations in relevant international conventions which the state has ratified. Other environmental governance instruments include regulations, guidelines and standards all of which are implemented and enforced by different institutions and lead agencies. The role of the SESA is therefore to ensure integration of relevant environmental obligations, existing policies, plans and programs in new development policies, plans and programs such as the OOGR Land use and Sub division plan. The aim of this is to alleviate, prevent or minimize the risk of environmental degradation. The role of the EIAs for the same purpose is usually implemented later on in order to screen the environmental integrity of projects which originate from development policies, plans and programmes mainly by cross-checking their compliance with specific environmental obligations as prescribed in legal frameworks.

The OOGR Land use and sub division plan was screened against the environmental and social obligations in relevant frameworks at local, county, national and international levels which are provided in Table 4.1.

The PPP analysis involved a comprehensive review of relevant policies and legislation to identify all the environmental and social obligations and confirm their integration in the OOGR Land use and Subdivision plan.

The findings of the PPP analysis are arranged in the matrix below in local, National, Regional and International Categories.

4.2 Local Regulatory Frameworks

Table 4-1:Local Regulatory Framework

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
Amboseli Ecosystem Management Plan (AEMP) 2020-2030 (AET 2020)	**Plan Foundations (Issue 8): Land subdivision and land use planning** - Need to consider land use models that will ensure that a viable minimum area is maintained to support viable wildlife populations as well as traditional pastoralism after the group ranches are subdivided	The SEA for OOGR Land use Sub division plan (LUSP) has identified and demarcated the following zones as areas to be held and used in common in order to continue supporting wildlife as well as traditional pastoralism: - a) Pastoral areas - 79,848.02 Ha b) Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage - 46,019.45 Ha c) Irrigation Area - 5227.02 Ha d) Transport infrastructure - 3,783.26 Ha e) Social and Physical Infrastructure - 1,678.04 Ha
	Section 3-2: AE zoning scheme - The AEMP has classified the OOGR as an Exclusive Use and Low-Use Zone with the following land use prescriptions: - **Exclusive Use Zone** **Recreational activity prescriptions:** Game drives, guided nature walks, walking safaris, camel and horseback safaris, balloon safaris, bird shooting, bird watching, bush breakfast, sundowners, and dinners. **Permitted recreational facilities:** Camping sites, lodges, eco-lodges, bandas, campsites, interpretation signs, wildlife viewing roads, walking trails (associated with a tourist attraction), administration buildings and compounds, bird hides	The prescribed recreational activities and facilities in the AEMP have been adopted in the SEA for OOGR Land use Subdivision plan

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	<u>Low Use Zone</u> **Recreational activity prescriptions:** Game drives, walking safaris, camel and horseback safaris, balloon safaris, bird watching, visit to cultural centers, bush breakfast, sundowners, and dinners **Permitted recreational facilities:** Accommodation facilities targeting the international market will be limited to special campsites along designated walking, camel or horseback safari routes, while accommodation facilities for the domestic market will be limited to student hostels	
	Land use zones The SEA for OOGR Land use land Subdivision plan (LUSP) has adopted the following land use zones as prescribed in the AEMP: - i. **human settlements**, ii. **Livestock grazing areas**, iii. **Agriculture zone**, iv. **wildlife-based tourism zone**, and, v. **social infrastructure areas**, The AEMP prescriptions for permitted activities and land use restrictions for the above land use zones are highlighted below. **<u>1. Pastoralism zone:</u>** **Permitted activities:** Livestock grazing, construction of traditional 'manyatta's, livestock 'bomas', livestock watering points, cattle dips and fodder storage facilities **Restrictions:** Construction of permanent 'bomas' or buildings, fencing, further land subdivision, change of user, change of ownership, road construction	The SEA for OOGR LUSP has adopted the permitted activities and land use restrictions for the pastoralism zone as prescribed in the AEMP (Table 7.1-1) **Additional activities in OOGR LUSP:-** a) Licensed harvesting of natural products (e.g. medicinal plants, firewood) for household use only **Unclear issues in SEA for OOGR LUSP:-** a) Licensing modalities for the harvesting of natural products in the pastoralism zone

Framework	**Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan**	**Compliance Status**
	2. Conservation & tourism zone: **Permitted activities:** wildlife conservation, wildlife viewing and associated infrastructure, controlled construction of visitor accommodation facilities, research, controlled filming and photography, controlled construction of cultural 'manyattas', controlled livestock grazing, laying of underground infrastructure, construction of water pans, drawing water from rivers **Restrictions:** Location of visitor accommodation facilities, bed capacity of visitor accommodation facilities, human settlement or buildings in any form without authority, number of traditional livestock in the 'manyattas', fencing, planting of exotic tree species, change of user and further subdivision	The SEA for OOGR LUSP has adopted the permitted activities and land use restrictions for the Environmental conservation and tourism zone (appearing as communal grazing, conservation area, buffer zones, wildlife corridors) as prescribed in the AEMP (Table 7.1-1) **Additional activities in the SEA for OOGR LUSP: -** a) Ecological research b) Construction of community ranger camps c) Approved abstraction of water from rivers **Additional restrictions in the SEA for OOGR LUSP: -** i. Crop farming ii. Harvesting of natural products iii. Road construction iv. Construction of dams and weirs v. Introduction of visual intrusive infrastructure (e.g. power lines) **Unclear issues in the SEA for OOGR LUSP:-** a) Approval of research activities b) Water abstraction approvals
	3. **Cultivation zone:** **Permitted activities**: Cultivation of high value crops (e.g. tomatoes, onions, capsicum, coriander, herbs etc.), cultivation	The SEA for OOGR LUSP has adopted the permitted activities and land use restrictions for the cultivation zone (appearing as irrigation

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	of subsistence crops, farming and bulking of fodder, perimeter fencing of the cultivation blocks **Restrictions:** Change of user, further subdivision, change of ownership	zone) as prescribed in the AEMP (refer to the SEA for OOGR LUSP Table 7.1-1) **Additional activities in the SEA for OOGR LUSP: -** a) Laying of irrigation infrastructure b) Fencing to reduce human-wildlife conflict **Additional restrictions in the SEA for OOGR LUSP: -** I. Construction of permanent 'bomas' or buildings ii. Road construction iii. Tree cutting
	4. Settlement Zone **Permitted activities:** Commercial and residential buildings, social amenities (educational, health, community halls, play grounds, administration, churches, shops, hotels, open air markets etc.), permanent buildings by GR members, burial sites, semi-detached bungalows and flats encouraged, road construction, street lighting, greening the residential areas and road reserves is encouraged, nucleated settlements to be protected by a wildlife fence, urban agriculture; kitchen gardening, small scale poultry industry ***Note:*** *Prior to undertaking any of the above activities, development approval shall have to be granted by the competent planning authority. Development applications seeking for approval or development permission shall be sought from the competent*	The SEA for OOGR LUSP has adopted the permitted activities and land use restrictions for the cultivation zone (appearing as irrigation zone) as prescribed in the AEMP (Table 7.1-1) **Additional activities in the SEA for OOGR LUSP:-** 1. Installation of social infrastructure utilities including electricity, water supply, sewage and waste management structures 2. Green belts **Additional restrictions in the SEA for OOGR LUSP: -** I. Dumping of waste outside designated areas

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	planning authority in a manner prescribed by the law **Restrictions:** Further subdivision and change of user, row housing, burial will be undertaken only in the designated areas	
	Community livelihoods & socio-economic programme Action 4-1: Establishing nucleated human settlements to minimize the fragmentation of sensitive environments	This has been integrated in the SEA for OOGR LUSP as shown in Table 7.1-1
	Natural Resource Management Programme - A key action under this programme is the securing of wildlife corridors including the Amboseli National Park – Olgullui North-Mbirikani corridor	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)

4.3 County Regulatory Framework

Table 4-2: County Regulatory frameworks

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
Amboseli National Park Management plan 2020-2030	ISSUE 6: HABITAT LOSS AND DEGRADATION - Need to consider land use models that will ensure that a viable minimum area is maintained to support viable wildlife populations as well as traditional pastoralism after the group ranches are subdivided	The SEA for OOGR Land use Sub division plan has identified and demarcated the following zones as areas to be held and used in common in order to continue supporting wildlife as well as traditional pastoralism:- f) Pastoral areas - 79,848.02 Ha g) Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage - 46,019.45 Ha h) Irrigation Area - 5227.02 Ha

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
		i) Transport infrastructure - 3,783.26 Ha Social and Physical Infrastructure - 1,678.04 Ha
Kajiado County Land Sub-Division Guidelines 2018 (CGK 2018)	Permissible landuses for OOGR area: - Pastoralism and Conservation and mixed urban land use (economic node) as shown in Vol 2, Appendix 10: Kajiado County Land Sub division Guidelines 2018	The SEA for OOGR LSUP is aligned with the guidelines. However, the guidelines advocate for retention of the group ranches in their traditional state
Kajiado County Spatial Plan 2019-2029 (CGK 2019)	Recommended land use for Kajiado South Sub-County (Kajiado South) is livestock, tourism and conservation as shown in Vol 2, Appendix 11: Kajiado County Spatial plan 2019-2029	This has been integrated in the SEA for OOGR LUSP as part of the pastoralism, communal grazing, conservation area, buffer zones, wildlife corridors (Table7.1-1)
	Strategy for Wildlife Conservation and Tourism Promotion - Identification and zoning of corridors for wildlife to remove the encroachment - Establishing wildlife conservancies along corridors to maintain the habitat	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)
	Strategy for Conservation of Environmentally sensitive areas - Protection and conservation of Ambo1seli National Park, wildlife corridors and wildlife dispersal areas - Zoning and protecting wetlands, riparian areas and river banks	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)

4.4 The Subdivision Process

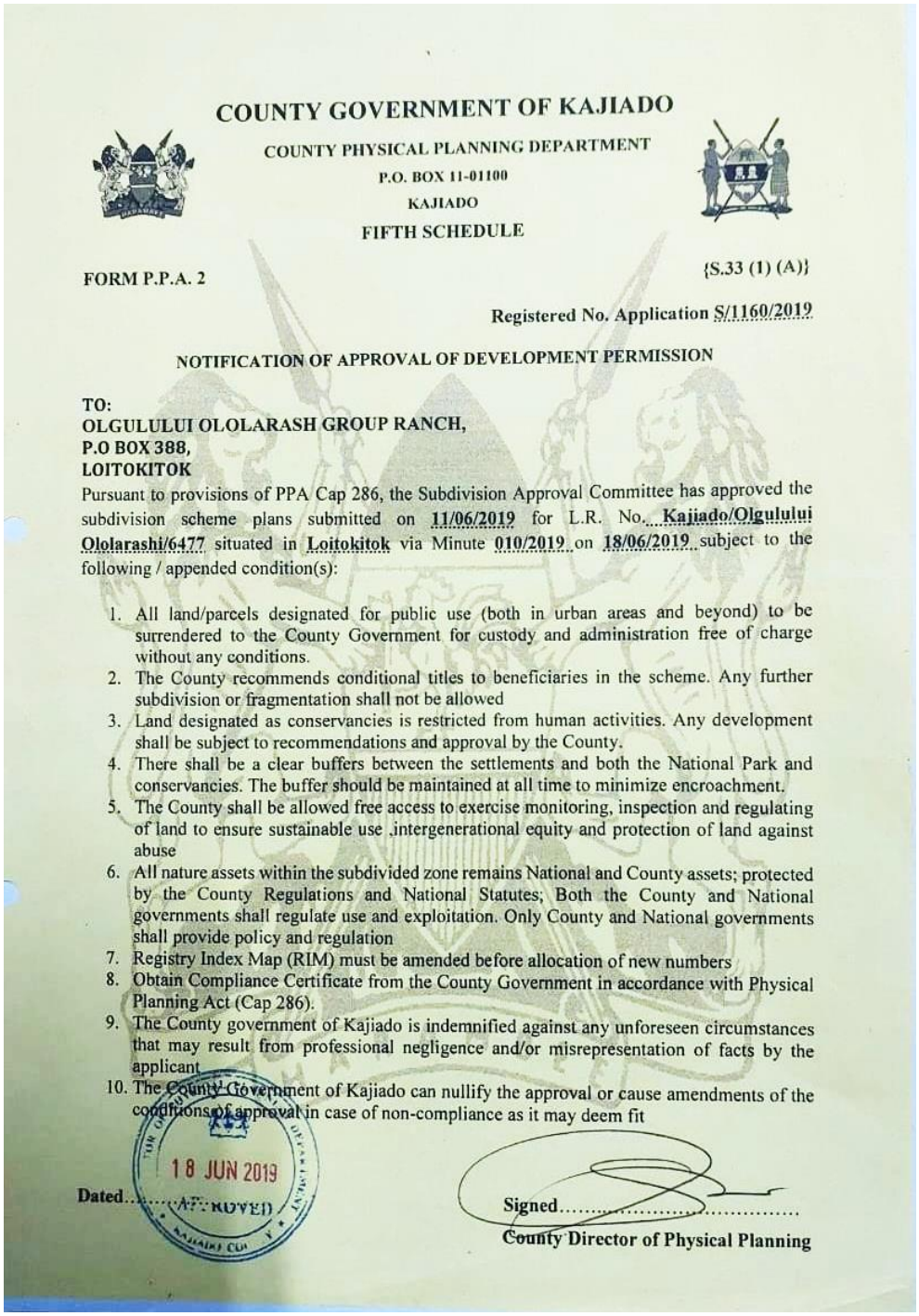
4.4.1. Application

Application for subdivision dated 19th May 2010 was approved by the Land Control Board (Form 2A). The entire size of 133,338 Ha be divided into portions of 12,140.8 Ha and the balance be subdivided equally and transferred to members of the Group Ranch for permanent ownership. For transparency and accountability, the letter was signed by the District Commissioner on behalf of the land control board

The request for subdivision was approved by the Director, Kajiado County physical planning vide letter of consent (form 2A attached).

4.4.2. Notification

A Notification of Approval of Development Permission (Form P.P.A.2) dated 18th June ,2019 was issued and it contains 10 approval conditions as shown in Figure 6 and will form the bulk of the mitigation measures to guide and minimize negative land use impacts.



COUNTY GOVERNMENT OF KAJIADO

COUNTY PHYSICAL PLANNING DEPARTMENT
P.O. BOX 11-01100
KAJIADO
FIFTH SCHEDULE

FORM P.P.A. 2 {S.33 (1) (A)}

Registered No. Application S/1160/2019

NOTIFICATION OF APPROVAL OF DEVELOPMENT PERMISSION

TO:
OLGULULUI OLOLARASH GROUP RANCH,
P.O BOX 388,
LOITOKITOK

Pursuant to provisions of PPA Cap 286, the Subdivision Approval Committee has approved the subdivision scheme plans submitted on **11/06/2019** for L.R. No. **Kajiado/Olgulului Ololarashi/6477** situated in **Loitokitok** via Minute **010/2019** on **18/06/2019** subject to the following / appended condition(s):

1. All land/parcels designated for public use (both in urban areas and beyond) to be surrendered to the County Government for custody and administration free of charge without any conditions.
2. The County recommends conditional titles to beneficiaries in the scheme. Any further subdivision or fragmentation shall not be allowed
3. Land designated as conservancies is restricted from human activities. Any development shall be subject to recommendations and approval by the County.
4. There shall be a clear buffers between the settlements and both the National Park and conservancies. The buffer should be maintained at all time to minimize encroachment.
5. The County shall be allowed free access to exercise monitoring, inspection and regulating of land to ensure sustainable use ,intergenerational equity and protection of land against abuse
6. All nature assets within the subdivided zone remains National and County assets; protected by the County Regulations and National Statutes; Both the County and National governments shall regulate use and exploitation. Only County and National governments shall provide policy and regulation
7. Registry Index Map (RIM) must be amended before allocation of new numbers
8. Obtain Compliance Certificate from the County Government in accordance with Physical Planning Act (Cap 286).
9. The County government of Kajiado is indemnified against any unforeseen circumstances that may result from professional negligence and/or misrepresentation of facts by the applicant
10. The County Government of Kajiado can nullify the approval or cause amendments of the conditions of approval in case of non-compliance as it may deem fit

18 JUN 2019

Dated.....

Signed.....
County Director of Physical Planning

Figure 5: Conditions for Approval for OOGR Sub-division Scheme Plan (Form P.P.A 2)

Ministry of Lands and Physical Planning, Kajiado County letter ref Kajiado/LD/33 dated 19/11/2020 on subdivision of Loitokitok/Olgulului/Ololarrashi/6477 states that the survey has been issued with the new numbers and approved as follows: Loitokitok/Olgulului/Ololarrashi/6852-9592 (field sketch attached).

4.4.3. Certificate of Compliance

Certificate of Compliance (Form P.P.A.5) no 02502 issued to OOGR for subdivision of Kajiado/Olgulului/Ololarrashi/6477 situated in Loitokitok Municipality within Kajiado County for approved plan with special Conditions stipulated in the

notification of approval (Form P.P.A.2); in compliance with the Physical Planning Act (CAP 286 of 1996) and the county Land and Zoning standards/ Guidelines with respect to registered application (form P.P.A.1) dated 18/6/2019

The OOGR Land Use and Land Subdivision Plan is expected to contribute significantly in securing the land for environmental and wildlife conservation for the benefit of the people of Olgulului and enhance their livelihood through pastoralism and other economic activities, and achieve sustainability of land use and tenure for the present and future generations.

4.5 National Regulatory Framework

Table 4-3: National Regulatory Frameworks

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
Constitution of Kenya (GoK 2010)	**Article 69(a)** - Conservation of the environment and natural resources	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)
National Environment Policy, 2014 (GoK 2014)	**Section 4.10.2(1)** - Protecting, conserving and improving habitats, corridors and wildlife dispersal areas	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)
Environment Management and Coordination Act (EMCA) Cap 387 (GoK 2015a)	**Section 57A** – Strategic environmental assessment - All Plans for implementation shall be subject to strategic environmental assessment	The SEA for OOGR LUSP was undertaken in fulfilment of this requirement
National Landuse Policy, 2017 (GoK 2017)	**Section 138** - Ensuring that land uses conform to the relevant land use plans.	The SEA for OOGR LUSP is compliant with the following landuse plans:- 1. Amboseli Ecosystem Management Plan (AEMP) 2020-2030 2. Kajiado County Spatial Plan 2019-2029 3. Kajiado County Land Sub-Division Guidelines
Integrated National Landuse	**3.1**: Protection of rivers and wetlands	This has been integrated in the SEA for OOGR LUSP as part of the

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
Guidelines, 2011 (NEMA 2011)	- Provide buffer zones of between 2m-30m width measured from the highest water mark for rivers and streams	communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)
	3.6 Conservation of biological diversity - Protection of wildlife migratory corridors and dispersal areas	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)
	3.9 Preservation of pastoral lands - Develop incentives and/or disincentives to discourage subdivision of group ranches - Promote harmonious coexistence of livestock and wildlife (e.g. avoid fencing off wildlife corridors and buffer zones)	The SEA for OOGR LUSP has identified and demarcated the following zones as areas to be held and used in common in order to continue supporting wildlife as well as traditional pastoralism:- a) Pastoral areas - 79,848.02 Ha b) Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage - 46,019.45 Ha The total coverage of this is 125,876.47 Ha which is equivalent to 82% of OOGR area
National Wildlife Policy, 2020 (GoK 2020)	**4.2 Management of National Parks, Reserves and Sanctuaries** - Developing incentives for landowners that host wildlife in dispersal and connectivity areas	The SEA for OOGR LUSP highlights the following incentives:- a) Annual lease payments for landowners in the conservation area and wildlife corridors through the Big life Foundation b) The conservation area and wildlife corridors will generate carbon credits through the Chyulu Hills REDD+ Project has a clear "revenue allocation

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
		model" agreed between the other REDD+ partners who comprise Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), Maasai Wilderness Conservation Trust (MWCT), David Sheldrick Wildlife trust (DSWT), Big Life Foundation (BLF) and Maasai Group ranches
	4.3 Wildlife Conservation and Management on Private and Community Lands - Promoting wildlife conservation as a land-use option	The SEA for OOGR LUSP highlights the following incentives: - a) Annual lease payments for landowners in the conservation area and wildlife corridors through the Big life Foundation b) The conservation area and wildlife corridors will generate carbon credits through the Chyulu Hills REDD+ Project has a clear "revenue allocation model" agreed between the other REDD+ partners who comprise Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), Maasai Wilderness Conservation Trust (MWCT), David Sheldrick Wildlife trust (DSWT), Big Life Foundation (BLF) and Maasai Group ranches
	Providing incentives to support individuals, communities and other stakeholders to invest in wildlife conservation and management	The SEA for OOGR LUSP highlights the following incentives: - a) Annual lease payments for landowners in the conservation area and wildlife corridors through the Big life Foundation b) The conservation area and wildlife corridors will generate carbon credits through the Chyulu Hills REDD+ Project has a

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
		clear "revenue allocation model" agreed between the other REDD+ partners who comprise Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), Maasai Wilderness Conservation Trust (MWCT), David Sheldrick Wildlife trust (DSWT), Big Life Foundation (BLF) and Maasai Group ranches
	Integration of wildlife corridors and dispersal areas	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)
Wildlife conservation and Management Act (WCMA) 2013 (GoK 2013a)	**15. Protection areas** (1) Where the Minister, after consultation with the competent authority, is satisfied that it is necessary, for ensuring the security of the animal or vegetable life in a National Park or in a National Reserve or in a local sanctuary or for preserving the habitat and ecology thereof, to prohibit, restrict or regulate any particular acts in any area adjacent to the Park, National Reserve or local sanctuary he may, by notice in the Gazette, declare the area to be a protection area and may, by the same or a subsequent notice, specify the acts which are prohibited or restricted or regulated and the extent or manner of the restriction or regulation. *[Act No. 16 of 1989, s. 13.]*	The SEA for OOGR LUSP has identified and demarcated the following zones as areas to be held and used in common in order to continue supporting wildlife as well as traditional pastoralism:- a) Pastoral areas - 79,848.02 Ha b) Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage - 46,019.45 Ha The total coverage of this is 125,876.47 Ha which is equivalent to 82% of OOGR area
National Climate Change Framework Policy, 2016 (GoK 2016a)	**S9.2.1: Promoting Public-Private Partnerships (PPPs) in climate finance** - Adequate and predictable financial resources are a crucial component for achieving	The conservation area and wildlife corridors will generate carbon credits through the Chyulu Hills REDD+ Project has a clear "revenue allocation

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	Kenya's ambitious climate change response objectives. Given the extent of projected climate change adaptation and mitigation needs in Kenya, it is important to ensure that all sources of finances can be mobilized – international, domestic, public and private – including through Public-Private Partnerships (PPPs). Kenya therefore requires a suitable framework to attract and efficiently utilize climate finance.	model" agreed between the other REDD+ partners who comprise Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), Maasai Wilderness Conservation Trust (MWCT), David Sheldrick Wildlife trust (DSWT), Big Life Foundation (BLF) and Maasai Group ranches
Kenya Vision 2030 (GoK 2008)	**Reclaim wildlife corridors and migratory routes** - The establishment and maintenance of wildlife corridors and dispersal areas and biodiversity hot spots are significant to ensure continuity of viable ecosystems and capacity building for natural resource management. Securing the dispersal areas and wildlife corridors requires continuous efforts to encourage creation of conservancies. In critical cases, the government will intervene and provide funds to support easement programmes, lease land from the communities, and acquire prime wildlife dispersal areas.	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table7.1-1)
National Wildlife Strategy 2030 (GoK 2018)	**Goal 1: MAINTAIN AND IMPROVE HABITAT AND ECOSYSTEM INTEGRITY** **-** Maintain and improve habitat and ecosystem integrity to reduce biodiversity loss, protect ecosystem function, enhance connectivity, and increase resilience	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table 7.1-1)
	Goal 4: ACCESS, INCENTIVES, AND SUSTAINABLE USE - Increase the awareness and appreciation of wildlife by all Kenyans and motivate them to support and take action that enhances their participation in conservation.	The SEA for OOGR LUSP highlights the following incentives:- a) Annual lease payments for landowners in the conservation area and wildlife corridors through the Big life Foundation

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
		b) The conservation area and wildlife corridors will generate carbon credits through the Chyulu Hills REDD+ Project has a clear "revenue allocation model" agreed between the other REDD+ partners who comprise Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), Maasai Wilderness Conservation Trust (MWCT), David Sheldrick Wildlife trust (DSWT), Big Life Foundation (BLF) and Maasai Group ranches.
Kenya National Spatial Plan 2015-2045 (GoK 2016)	**2.8.4 Protection of Environmental Conservation Areas** - Protection of rangeland areas which host most of the country's game reserves, parks, conservancies and sanctuaries as home to more than 90% of the wild game	The SEA for OOGR LUSP has identified and demarcated the following zones as areas to be held and used in common in order to continue supporting wildlife as well as traditional pastoralism:- a) Pastoral areas - 79,848.02 Ha b) Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage - 46,019.45 Ha The total coverage of this is 125,876.47 Ha which is equivalent to 82% of OOGR area
National Water Master Plan 2030 (GoK 2013b)	**s6.2- Water allocation policy priorities** 1st Priority - Water reserve (apportionment) for ecological functions and basic human needs	This is an unclear issue:- The SEA for OOGR LUSP does not indicate how the mushrooming of borehole drilling will be controlled and regulated

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
National Biodiversity Strategy and Action Plan, (NBSAP) 2019-2030 (GoK 2021)	**Goal 4: Promote and enhance fair and equitable sharing of benefits** - Promote and enhance fair and equitable sharing of benefits accruing from utilization of biodiversity and ecosystem services	The SEA for OOGR LUSP highlights the following incentives:- a) Annual lease payments for landowners in the conservation area and wildlife corridors through the Big life Foundation b) The conservation area and wildlife corridors will generate carbon credits through the Chyulu Hills REDD+ Project has a clear "revenue allocation model" agreed between the other REDD+ partners who comprise Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), Maasai Wilderness Conservation Trust (MWCT), David Sheldrick Wildlife trust (DSWT), Big Life Foundation (BLF) and Maasai Group ranches.
National Environment Action plan 2009 (GoK 2009)	This Plan recognizes the environmental challenges facing industries, among others as; generation and management of solid, liquid and hazardous waste; gaseous emissions; adoption of cleaner production technologies and compliance with EIA/EA; waste and water regulations; importation of obsolete technologies; unregulated importation of toxic and hazardous chemicals; air and noise pollution; inappropriate technology in energy production; and poor planning in respect to industrial and residential areas. The National Action Plan proposes, among others, the following interventions: enhance use of cleaner production systems, finalize and implement regulations on toxic and	This SEA for OOGR LUSP clearly shows how the above propositions are tackled by the Management Plan according to the provisions for implementation of EMCA 1999 and the associated environmental regulations. Chapter eight of this report details all the possible impacts of the implementation of the management plan especially the tourist facilities and activities and shows how the negative impacts will be mitigated.

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	hazardous chemicals and finalize and implement regulations on noise pollution.	
The National Forest Policy, 2014 (GoK 2014)	**3.1 Overall goal of the Policy** The overall goal of this Policy is sustainable development, management, utilization and conservation of forest resources and equitable sharing of accrued benefits for the present and future generations of the people of Kenya.	The SEA for OOGR LUSP highlights the following incentives:- a) Annual lease payments for landowners in the conservation area and wildlife corridors through the Big life Foundation b) The conservation area and wildlife corridors will generate carbon credits through the Chyulu Hills REDD+ Project has a clear "revenue allocation model" agreed between the other REDD+ partners who comprise Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), Maasai Wilderness Conservation Trust (MWCT), David Sheldrick Wildlife trust (DSWT), Big Life Foundation (BLF) and Maasai Group ranches.
Environmental (Impact Assessment and Audit) Regulations, 2003 (GoK 2003)	The Environmental (Impact Assessment and Audit) Regulations, state in Regulation 3 that "the Regulations shall apply to all policies, plans, programmes, projects and activities specified in Part IV, Part V and the Second Schedule of the Act"(ER-EIA, 2003). Section 42 and 43 address Strategic Environment Social Assessments; section 42(1) requires lead agencies in consultation with NEMA to subject all policy, plans and programmes for implementation to a Strategic Environment Assessments while regulation 42 (3) commits the government and all lead agencies to incorporate principles of SESA in the	This SEA for OOGR LUSP has achieved this by addressing section 42 and 43 of the Environmental (Impact assessment and Audit) regulation 2003

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	development of sector or national policy.	
Waste Management Regulations, 2006 (Legal Notice 121) (GoK 2006)	**Part II regulation 4 (1)** provides that no person shall dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated receptacle; **regulation 4 (2)** further states that a waste generator shall collect, segregate and dispose such waste in the manner provided for under these regulations and finally; and **regulation 5 (1)** provides for cleaner production methods. It states that a waste generator shall minimize the waste generated by adopting the following cleaner production methods: i. Improvement of production process through; conserving raw materials and energy; Eliminating the use of toxic raw materials; and Reducing toxic emissions and wastes; ii. Monitoring the product cycle from beginning to end by: Identifying and eliminating potential negative impacts of the product; enabling the recovery and re-use of the product where possible; and incorporating environmental concerns in the design and disposal of a product.	This SEA for OOGR LUSP has incorporated the Environmental and Social Management Plan and Environmental Monitoring Plan to ensure that the waste management regulations are complied.
Wetlands, Riverbanks, Lake Shore and Sea Shore Management Regulations, 2009 -Legal Notice No. 19 (GoK 2009)	Management of wetlands is guided by the following principles: - Resources on the river banks, lake shores and the sea shore shall be utilized in a sustainable manner; - Environmental impact assessment as required under the Act shall be mandatory for all major activities on river	This SEA for OOGR LUSP has incorporated this through the integration with the AEMP that proposes various water management and conservation issues among them protection of wetlands and rivers, protection of critical water springs from degradation and promotion of rainwater

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	banks, lake shores and the seashore; and - Special measures, including prevention of soil erosion, siltation and water pollution will be enforced. **Section 9 clause 2(c)** provides that a strategic environmental social assessment be conducted for specific wetlands management plans. On use of wetlands, **section 11 (1 and 2)** details the activities permitted and environmentally sound to ensure sustainable management of the wetlands.	harvesting technology and support of establishment of Water Resource Users Associations (WRUAs) to enhance management of water sources.
County Government Act, No 17 of 2012 (GoK 2012)	The County Government Act aims at giving effect to Chapter 11 (Devolution) of the constitution and provides for the county government powers, functions and responsibilities in the delivery of services and for connected purposes. The act emphasizes the need for a consultative and participatory approach where the principles of planning and development facilitation in a county serve as a basis for engagement between the county government and the citizenry, other stakeholders and interest groups (Article 102 (i)).	The SEA for OOGR LUSP Planning process involved a participatory process whose hallmarks are public participation and stakeholder consultations to ensure that all their environmental and social concerns are incorporated. Therefore, individuals and institutions directly or indirectly affected by implementation of the AEMP are entitled to express their interests and have them respectively taken into consideration in the decision-making process. Additionally, County Governments must be involved in matters of public land, water, health and infrastructure development in their respective areas of jurisdiction to avoid conflicts with county development plans.
Controlled Substances Regulations,	According to these regulations, producers and/or importers of controlled substances are required to include a material safety data sheet. Persons are	The SEA for OOGR LUSP and specifically the Environmental and Social Management and Monitoring Plans have

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
2007 (Legal Notice No.73)	prohibited from storing, distributing, transporting or otherwise handling a controlled substance unless the controlled substance is accompanied by a material safety data sheet. Manufacturers, exporters or importers of controlled substances must be licensed by NEMA. Further, any person wishing to dispose of a controlled substance must be authorized by NEMA. The licensee should ensure that the controlled substance is disposed of in an environmentally sound manner. These regulations also apply to any person transporting such controlled substances through Kenya. Such a person is required to obtain a Prior Informed Consent (PIC) permit from NEMA. Persons handling controlled substances are required to apply for a permit from NEMA. Any licensee who imports or produces any controlled substances is required to ensure that all persons who receive or buy such substances sign a declaration form. Where an imported controlled substance does not meet set specifications, NEMA shall require the licensee to return the controlled substance to the country of origin at his/her cost or pay to NEMA the cost of disposing of the controlled substance.	incorporated the handling of controlled substances to ensure safety of all the actors reduced harm and/or injury is caused to the people working in the sector and to the environment.
Trustee (Perpetual Succession) Act Cap 264 (Amended December 2021)	The act defines a trust is a legal relationship created by the settlor to place his/her property under the control of a trustee who then has an equitable obligation to hold that property for the benefit of a beneficiary. The existence of a trust is not determined by the life of a settlor, therefore a beneficiary can continue to enjoy the benefits of the trust property even when the settlor dies. This is what is known as perpetual succession. All trusts are now deemed to be irrevocable upon the death of the	The act is relevant and is implemented to this study because Olgulgului Land Trust was registered on 28th September 2023 to oversee management and governance of OOGR Sub-division Scheme Plan. It constitutes of eight registered Trustees who will look who will be charged with overseeing common land, land disposal and transfer and

Framework	Environmental & Social Obligations for the SEA for OOGR Land use and Subdivision plan	Compliance Status
	settlor unless the trust deed contains an express power of revocation or the settlor exercises an express power of revocation during his/her lifetime. When a trust is irrevocable, it cannot be amended or modified except by consent of all beneficiaries or by a court order. The Act makes provision for the formation of various types of Trusts i.e. Charitable, family and in this case a Land Trust. The registration under the Act accords a Trust as a separate legal status and is able to own property in its own name, enter into contracts and do any other thing in its own name. The Trust would upon registration under the Act have a separate and distinct legal identity. **Section 3 (1)** of the Act provides, inter-alia, that the trustees who have been appointed by anybody or association established for any religious, educational, literary, scientific, social, athletic or charitable purpose or who have constituted themselves for any such purpose may apply in under the Act, for incorporation a corporate body. **Section 4** of the Act provides that upon issuance of the certificate of incorporation (under the Act), it shall confer and vest in the body corporate (now incorporated as a result of issuance of certificate) all movable and immovable property and any interest therein belonging to or held by any person or persons for the benefit of the trust concerned	acquisition of the same in order to ensure sustainable and compatible land uses.

4.6 Regional and International framework

Table 4-4: Regional and International Frameworks

Framework	Environmental & Social Obligations for the SEA For OOGR Land use and Subdivision plan	Compliance Status
COUNTRY CLIMATE AND DEVELOPMENT REPORT (CDDR) 2023 **(WB 2023)**	Robust plans, inter institutional coordination, data, and capacity for climate-compatible urbanization Mainstreaming national climate change goals in the land use planning agenda as potential to reinforce a deliberate focus on climate-compatible growth in OOGR.	By ensuring compliance with the policy and legal framework discussed, this will lead to a low carbon development of OOGR
EAC Protocol on Environment and Natural Resources (EAC, 1999)	**Article 12 - Management of wildlife resources** - Promoting community-based wildlife conservation and management	The SEA for OOGR LUSP has identified and demarcated the following zones as areas to be held and used in common in order to continue supporting wildlife as well as traditional pastoralism:- a) Pastoral areas - 79,848.02 Ha b) Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage - 46,019.45 Ha The total coverage of this is 125,876.47 Ha which is equivalent to 82% of OOGR area It is expected that some of the landowners may aggregate their land parcels for creation of wildlife conservancies and sanctuaries
UNESCO's programme on Man and the	The core area of the reserve is the protected Amboseli National Park while the buffer zone	The SEA for OOGR LUSP has identified and demarcated the following

Framework	Environmental & Social Obligations for the SEA For OOGR Land use and Subdivision plan	Compliance Status
Biosphere (MAB)	comprises the surrounding areas including Olgulului-Lorarashi, Eselengei, Mbirikani, Kimana, Kuku, and Rombo	zones as areas to be held and used in common in order to continue supporting wildlife as well as traditional pastoralism:- a) Pastoral areas - 79,848.02 Ha b) Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage - 46,019.45 Ha The total coverage of this is 125,876.47 Ha which is equivalent to 82% of OOGR area It is expected that some of the landowners may aggregate their land parcels for creation of wildlife conservancies and sanctuaries
Convention on Migratory Species (CMS)	**Article 2.1** - Conserving migratory species and protecting their habitats	This has been integrated in the SEA for OOGR LUSP as part of the communal grazing, conservation area, buffer zones, wildlife corridors (Table7.1-1)
United Nations Framework Convention on Climate Change	The primary purpose of the framework is to establish methods to minimize global warming and in particular emission of greenhouse gases. The framework was adopted on 9th May 1992 and came into force on 21st March 1994. Kenya ratified the framework on 30th August 1994 thereby committing to join the international community in combating the problem of climate change. The National Environmental Management Authority is the agency acting	The execution of these obligations implies that the implementation process of the AEMP should adopt environmentally friendly processes that sustain the ecosystem and reduce emission of greenhouse gases. Improvement and restoration of the ecosystem through afforestation will automatically reduce GHG emissions in the general area since

Framework	Environmental & Social Obligations for the SEA For OOGR Land use and Subdivision plan	Compliance Status
	as the national focal point for this protocol. The objective of the framework is; "Stabilization of the greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". A summary of steps envisaged to implement the Convention to achieve the objectives include: - Preparation and implementation of abatement plans on climate change. - Integration of climate change consideration into the development of environmental, social and economic policies. - Promoting the sustainable management of sinks and GHG reservoirs. - Promoting research and cooperation in information exchange. - Development of education, training and public awareness raising programs. - Promoting and developing research and systematic observation. These activities are related to seeking and processing of information, building long-term scenarios, identification and evaluation of abatement options and strategies, climate change vulnerability evaluation of the most likely scenarios, policy design for the implementation of abatement and/or adaptation activities, evaluating the social and economic impacts of activities that are to be implemented and integrating them into the global and sector objectives, evaluating the viability of the scenarios foreseen.	vegetation acts like as carbon sequestration mechanism. However, measures must be put in place to minimize emissions through appropriate technologies like gaseous emissions neutralization and ample green cover.

Framework	Environmental & Social Obligations for the SEA For OOGR Land use and Subdivision plan	Compliance Status
Convention on Biological Diversity	This convention was prepared to ensure the conservation and sustainable use of biodiversity. Kenya signed the convention on 5th June 1992 and ratified the same on 26th July 1992. NEMA is the national focal point to this Convention. The provisions of this convention have been integrated in many laws of Kenya such as Wetlands, Riverbanks, Lake Shore and Sea Shore Management Regulations, 2009 (Legal Notice No. 19).	The AEMP proposes restoration of swamps, river systems and other ecological systems which will ensure direct positive implications on the natural plant biodiversity. These measures coupled with the recommendations of SEA for OOGR LUSP will greatly improve biodiversity conservation.
Ramsar Convention on Wetlands	The Ramsar Convention on Wetlands is primarily concerned with the conservation and management of Wetlands. Parties to the convention are required to promote prudent use of wetlands within their territories and to take measures for the conservation of the same. One way to conserve the wetlands (as proposed under this convention) is establishing nature reserves whether they are included in the Ramsar list or not. The wetlands include swamps, marshes, bogs, soaks, shallow lakes, ox-bow lakes, river meanders and flood plains, as well as riverbanks, lakeshores where wetland plants grow. They also include marine and inter-tidal wetlands such as deltas, estuaries, mudflats, mangroves, salt marshes, sea grass beds, shallow coral reefs and creeks.	The main aim of the management plan is restoration and improvement of existing wetlands and river systems within the ecological system which is in line with the objectives of this convention. This SEA for OOGR LUSP proposes additional measures to improve, manage and conserve wetlands and other water bodies.
Convention on the Elimination of all Forms of Discrimination against Women	The Convention places explicit obligations on states to protect women and girls from sexual exploitation and abuse. The ecological system is located in a pastoralist area where cultural practices do not favor women rights. Additionally, tourism and related activities may infringe on human rights of women in the community.	This SESA proposes measures to observe and adopt the guidelines of this convention during its implementation. The realization of a non-discriminatory environment can be realized through preventive and mitigation measures by the SESA on

Framework	Environmental & Social Obligations for the SEA For OOGR Land use and Subdivision plan	Compliance Status
		matters of social concerns.

4.7 Linkage with other reports

4.7.1. Wildlife Migratory Corridors and Dispersal Areas 2017

The report takes note of the study which was undertaken by the Department for Resources Survey and Remote Sensing in 2017 as part of Vision 2030. The report details wildlife migratory corridors and connectivity within the Amboseli Ecosystem particularly for elephants as they migrate from Tanzania into Kenya and vice versa, Maasai Mara Game Reserve and Amboseli and within conservancies.

Local consensus during stakeholder consultations showed that the review of the agreed landuse restrictions of the SEA for OOGR LUSP should be undertaken 10 years from the gazettement date of the SEA for OOGR LUSP. This was considered as adequate duration to monitor the effectiveness and sustainability of the restrictions.

4.8 Gazettment and Enforcement of Landuse Restrictions

The OOGR landowners through the SEA for OOGR LUSP process deliberated and unanimously agreed that the landuse restrictions should be captured in the gazettement of the SEA for OOGR LUSP under Section 57A of EMCA Cap 387 and will take precedence of the SEA for OOGR LUSP version already approved by the County government of Kajiadi (CGK). Thereafter, the gazetted landuse restrictions will be enforced as part of the AEMP 2020- 2030 which is already gazetted.

4.9 Links Between SEA For OOGR LUSP, Amboseli Ecosystem SEA 2023 and AEMP 2020-2030

4.10.1. Link with the implementation of AEMP 2020-2030

The SEA for OOGR LUSP will reinforce the implementation of the AEMP 2020-2030 by integrating the necessary landuse restrictions which will address the negative environmental and social impacts of the inevitable land subdivision in the Amboseli ecosystem. The integration will be undertaken through the gazettement of the SEA for OOGR LUSP and annexation of its recommendation in the Umbrella SEA FOR Amboseli Ecosystem by the AET. The figure below shows the linkages between SEA for OOGR LUSP and other management frameworks in the Amboseli region.

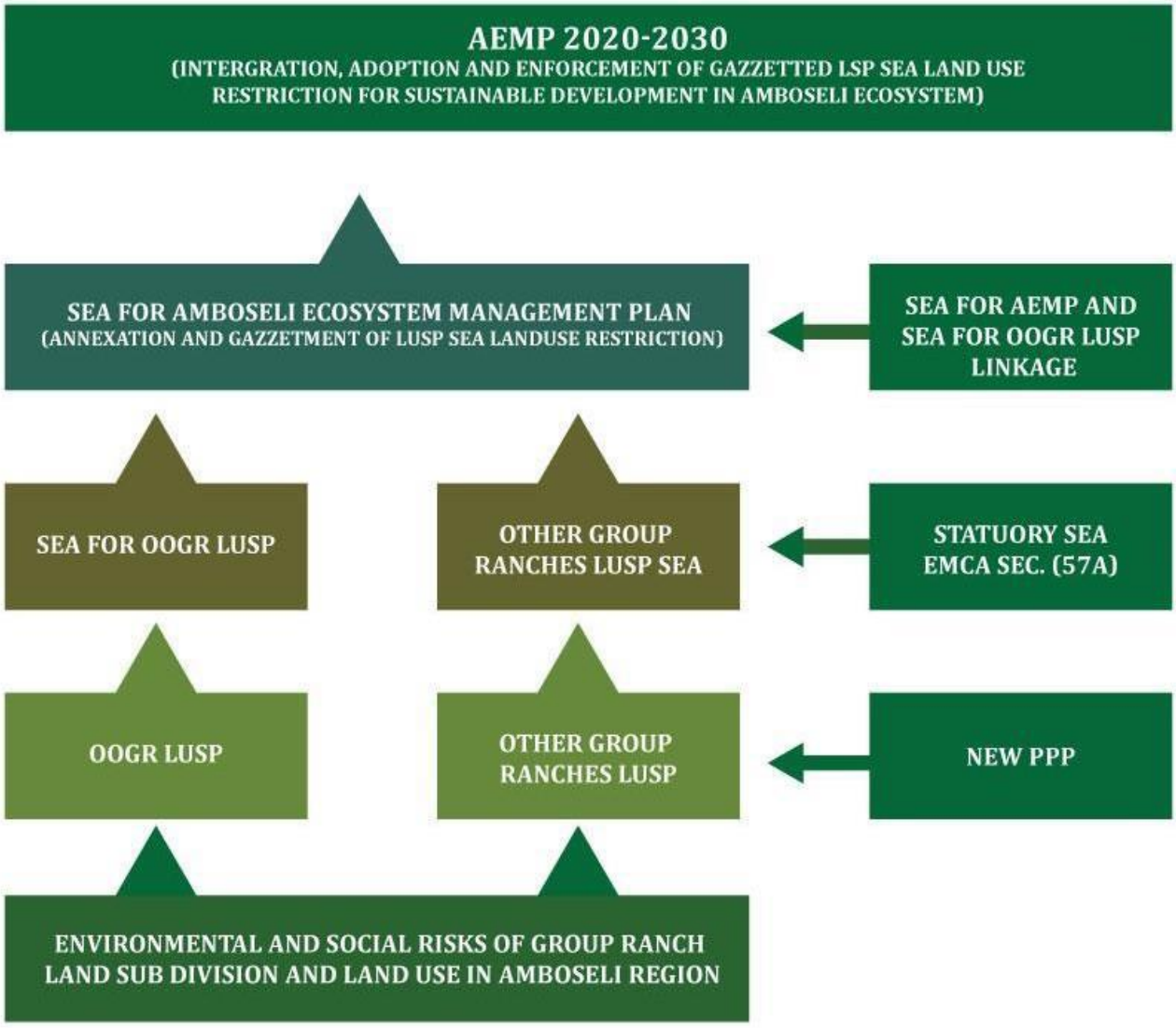


Figure 17 Linkages between SEA for OOGR LUSP and other management frameworks in the Amboseli region

4.10 Roles and Responsibilities

The successful implementation of the SEA for OOGR LUSP will require the involvement of various instructions at local, county and national levels. Figure 8.1 shows the institutional framework for the implementation of the SEA for OOGR LUSP. The roles of various players are highlighted below.

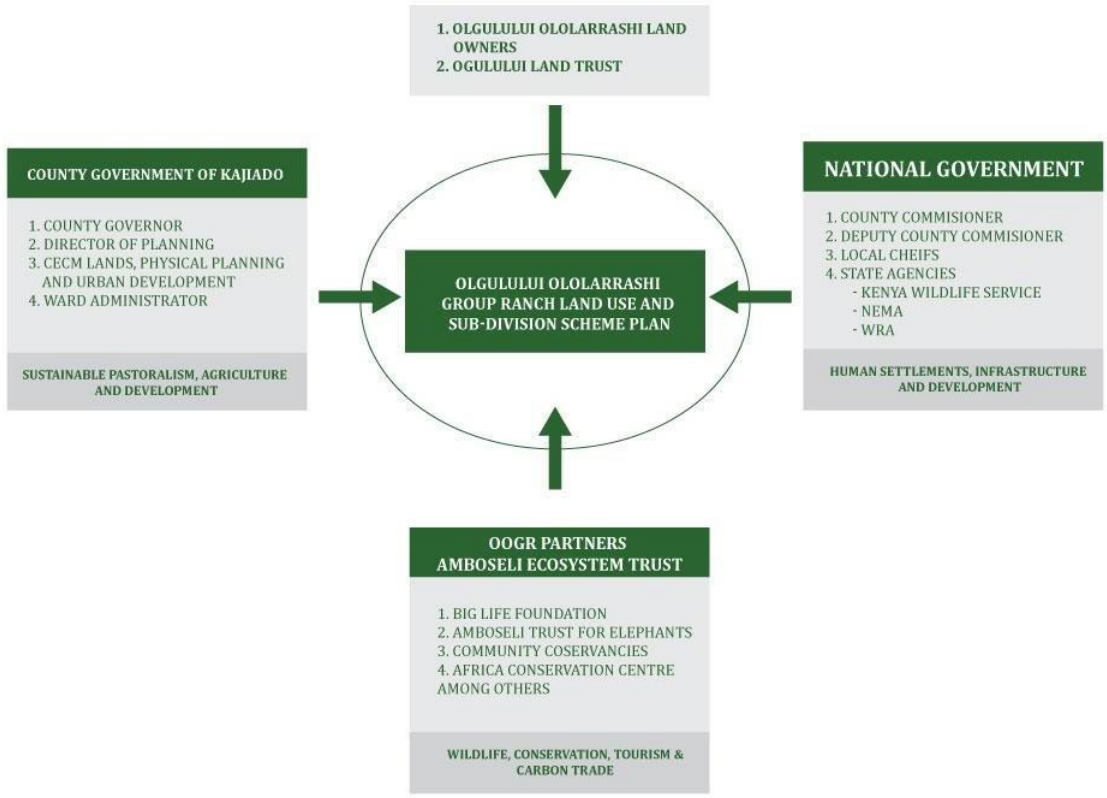


Figure 16 Institutional framework for the implementation of the SEA FOR OOGR LUSP

4.11.1. County Government of Kajiado

1. CGK, Director Land Use Planning

Responsible for upstream oversighting to ensure proper implementation of the SEA for OOGR LUSP.

2. CGK CECM, Lands, Physical Planning and Urban Development

Responsible for upstream oversighting to ensure proper implementation of the SEA for OOGR LUSP.

4.11.2. Olgulului Land Owners

1. Olgulului Land Trust

The trust was established primarily for purposes of collective governance of the common land in the pastoralism, wildlife, conservation and tourism development zones on behalf of the private landowners. It will be responsible for the overall governance of the common land owned collectively by all the members in equal undivided shares, which shares shall be the basis of allocation of benefits from investments on the land. The trust will have the direct responsibility of the implementation of the LUSP and oversee the collective interests of OOGR landowners after the group ranch subdivision and the dissolution of the OOGR management. The trust will manage the common land in all the zones which will be held in the trust on behalf of and in the interest of the beneficiary landowners. The trust shall have a pre-emptive right of purchase over any shares of the common land that a member may choose to sell. Its affairs will be managed by a board of trustees, which shall,

among other things, regulate use of the land, ensure equitable sharing of benefits accruing from conservation, provide oversight of residents' associations and committees, and coordinate all activities in the common land. The duties and powers of the trustee and the relationship between the trustee and the landowners will be spelt out in a constitution.

4.11.3. OOGR Partners

The role of the partners will be to support OOGR landowners in the management and conservation of the common land especially in the pastoralism, wildlife, conservation and tourism development zone. The partners will be coordinated by the Amboseli Ecosystem Trust (AET) within their common mission of securing intact and healthy landscapes that support local livelihoods and conservation in the region.

4.11.4. National Government

The local administration and judiciary will support the OOGR landowners in the implementation of the LUSP, especially by supporting the enforcement of the land use obligations in the gazette LUSP. This will include settling land use related disputes in accordance with the LUSP prescriptions.

Other state agencies such as NEMA, WRA and KWS will support the enforcement and offer technical and financial assistance for the successful implementation of the LUSP.

5. BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

5.1. Climatic conditions of the OOGR area

The rainfall pattern in the OOGR area is bi-modal and in sync with the rest of Kajiado County. The short rains fall between October and December while the long rains fall between March and May. There is a general rainfall gradient that increases with altitude however; the bimodal rainfall pattern is not uniform across the County. The long (March to May) rains are more pronounced in the western part of the County while the short (October to December) rains are heavier in the eastern part where OOGR is located.

The rainfall amount in the later areas of Amboseli basin ranges from as low as 300mm unlike the Ngong hills and the slopes of Mt. Kilimanjaro which receive rains of as high as 1250mm.

The temperature of the area varies in relation to altitude and season. The highest temperatures recorded are 34°C while the lowest temperatures experienced is about 10°C in the south eastern slopes of Mt. Kilimanjaro which borders the group ranch. The coolest period is between July and August, while the hottest months are from November to April.
Due to the climatic conditions of the area the OOGR annual rain fed cannot support agriculture sustainably. However, the area can support livestock keeping and pastoralism albeit with constraints associated with unreliable rainfall and long period of droughts.

5.2. Population in the Group Ranch

5.2.1. Current population estimates

The current registered members of the OOGR are eleven thousand, four hundred and eighty-five persons (11,485). Given the average household size of six (6) the total population of the ranch is estimated to be sixty-eight thousand, nine hundred and ten (68,910). Assuming an adult to child ratio of 1:3 the school going population is estimated to be twenty-two thousand, nine hundred and seventy (22,970).

5.2.2. Land parcels, schools and health facilities requirements

The land requirement for pastoralism activities is 11, 485 Ha, Conservancies 11, 485 Ha, and Settlement 7,000 Ha. The envisage total land requirement is 29,970 Ha as shown in table 2 to 3 below;

Table 5-1: Number of parcels required

No.	Land use characteristic	Hectares	Remarks
1	Pastoralism	11,485	The pastoral parcels confer to the owner grazing rights and not settlement rights.

2	Conservancies	11,485	The conservancy parcels confer to the owner the rights of apportionment of benefits accruing from conservation and tourism activities.
3	Settlement	7000	The settlement parcels confer to the owner the rights of occupation and construction to the land in accordance with development control regulations outlined in the plan.
	Total	**29,970**	

Table 5-2: Number of schools and health facilities required

No.	**Facility**	**Number(s) required**	**Existing**	**Additional**
1	Assorted Education facilities	19	5	14
2	Level 1 Hospital	1	0	0
3	Health centers and dispensaries	9	4	5

5.2.3. Other population needs

The plan envisages that the population of OOGR will need land and way leaves for the following: infrastructural facilities; adequate and portable water, energy and electricity, spaces and places for recreation, solid and liquid wastes disposal facilities. Improvement of living conditions should include provision of adequate accessibility within and between the settlement and to the external world. The population should be facilitated to provide shelter for themselves as well as their being afforded opportunities for working, employment and income generation.

5.1. Land use

5.3.1. Current land use

The land in the OOGR as per the subdivision scheme is as follows; Grazing 42%, Wildlife habitat 17%, Kitirwa conservancy 10%, Manyatta and local centers 7%, Swamp and Wetlands 4%, Classified and unclassified roads 3%, seasonal rivers 2%, birds' sanctuary or habitat 1% and airstrip 0.01% as shown in Figure 7 and 8.

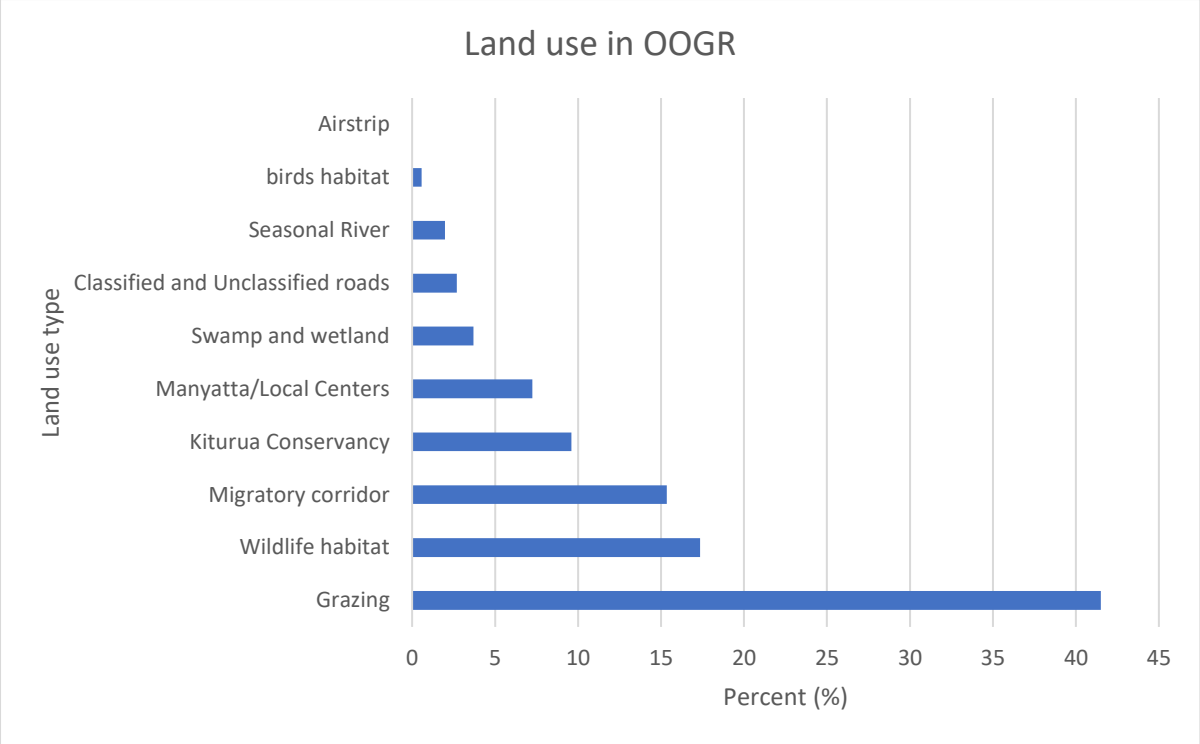
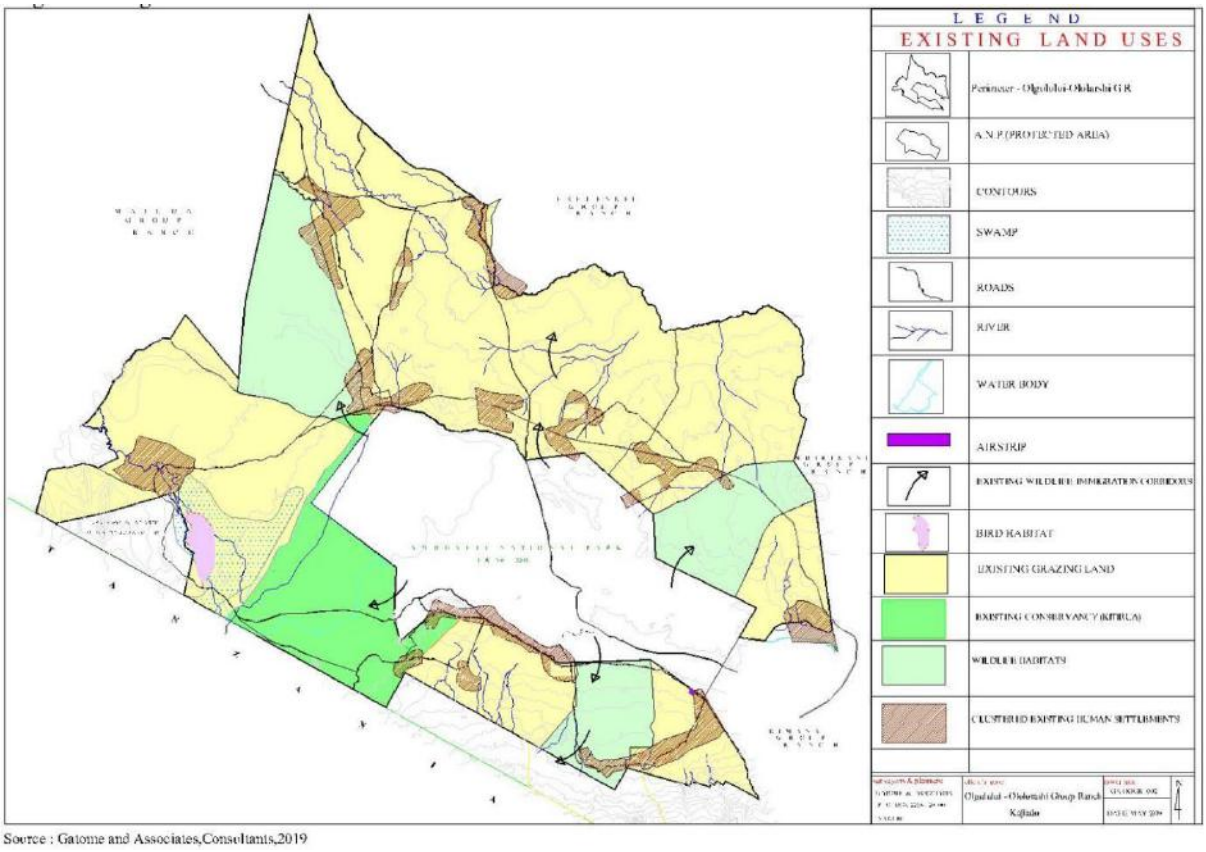


Figure 6: Land Use in OOGR by Percentage

Sources: Gatome and Associates, Consultants, 2019.



Source : Gatome and Associates,Consultants,2019

Figure 7: Land Use Map of OOGR

5.3.2. Physical analysis

Physical analysis was undertaken in order to establish the topographic characteristic of the land and to establish suitability of the land from physiographic perspective. Broadly, this analysis resulted into the division of the land into hilly areas, gently sloping areas, flood plains, river beds and riparian areas and land with rocky outcrops. The analysis reveals generally that most of the land is developable without constraints except for low lying areas which may be prone to flooding and the river beds and riparian areas which may not be available for development due to sources of water. The results of the physical analysis are indicated in table 5.3 and figure 9.

Table 5-3: Physical analysis

No	**Physical characteristics**	**Area in Hectares**	**Percent (%)**
1	Gently sloping areas	102,883.47	73
2	Hilly areas	25,003.87	18
3	Flood plains	5227.85	4
4	Rocky outcrop	4898.22	3
5	Riverbeds and riparian	2778.60	2

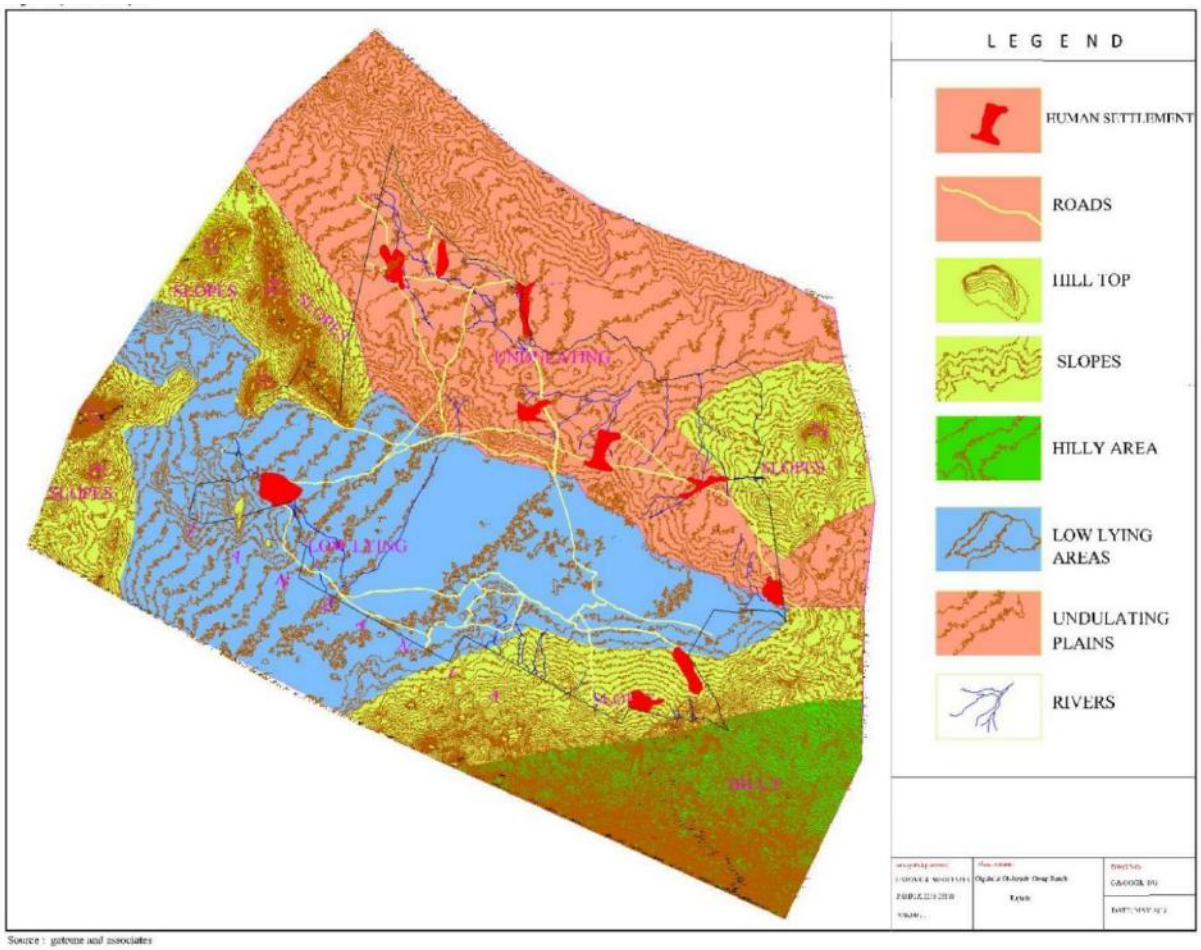


Figure 8: Physiological Map of OOGR

5.2.4. Land Suitability

The land suitability assessment undertaken incorporated physical analysis, land cover classification, the climatic condition of the area (Agro-ecological zone) and the existing land use in order to determine how the use of the land may be optimized and improved. This assessment resulted into mapping of land suitability in the form of activities that may be undertaken in the whole of OOGR as indicated in figure 10, and this was critical in informing OOGR land sub-division scheme. The activities identified included pastoralism and livestock grazing, wildlife dispersal areas, tourism and establishment of tented camps, existing settlements and extension settlement areas.

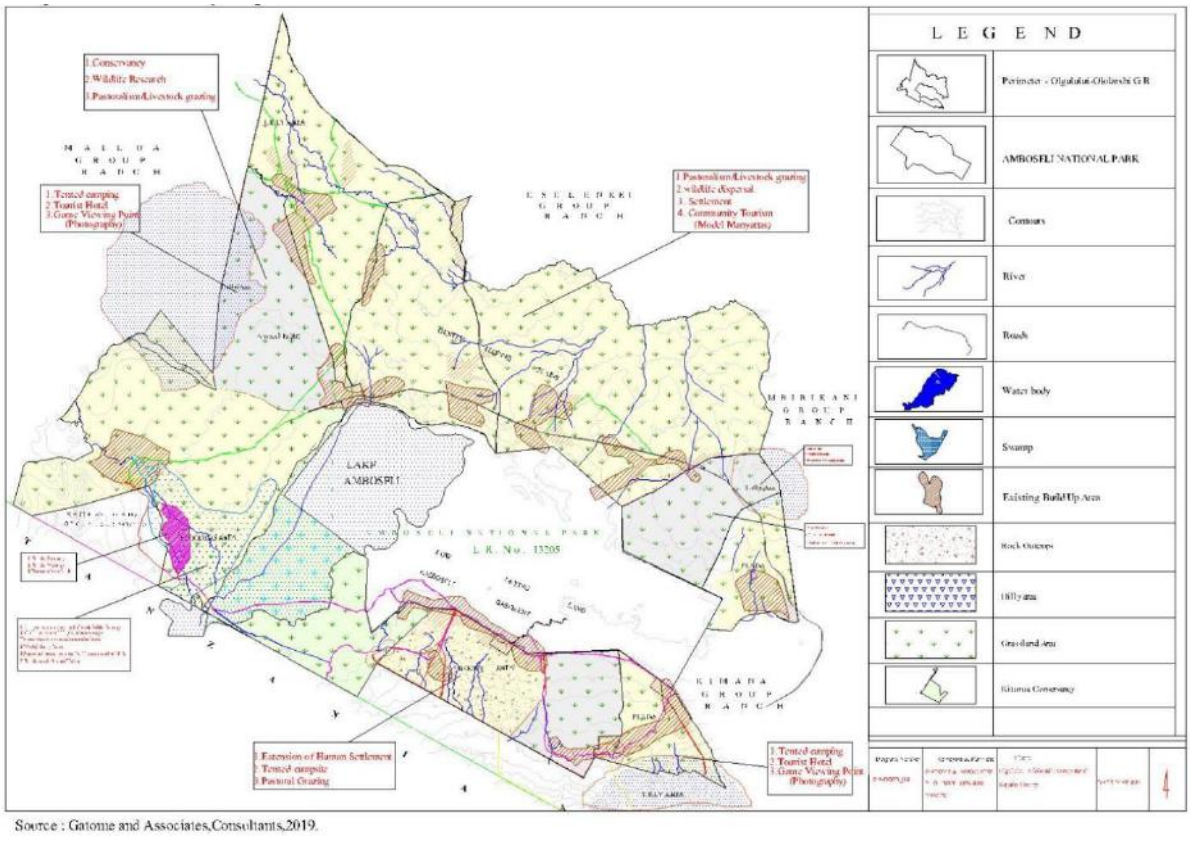


Figure 9: Land Suitability Map

5.3.3. Land Tenure

Most of the land in OOGR is community land, however up to 50 parcels have been converted for various public uses ranging from bore holes, primary schools, trading centers, health centers, cattle dips, water points, tanks and booster. A few parcels have been converted to private ownership. The list of land held under public and private tenure is as indicated in table 5.4.

Table 5-4: List of land parcels under public and private tenure

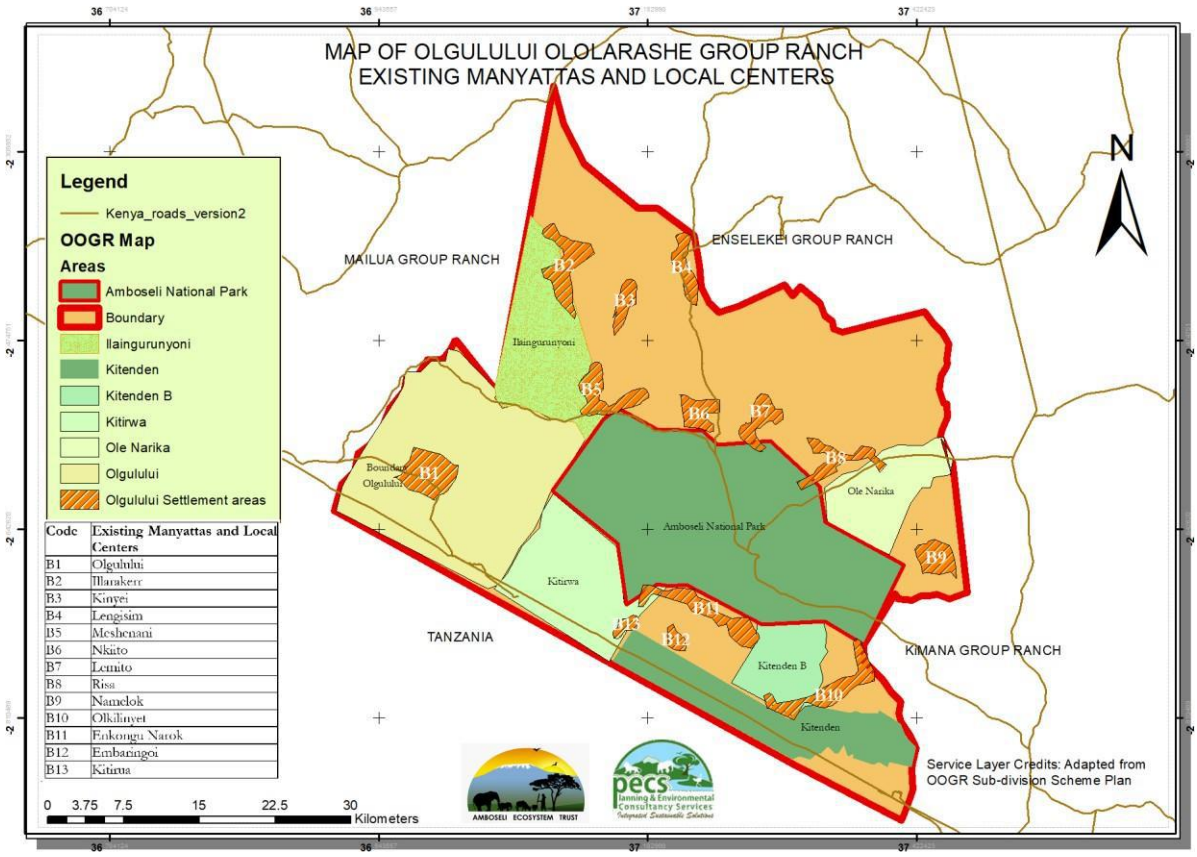
Land Parcel No.	User	Land Parcel No.		Land Parcel No.	User
2	Naiperra	23	Lalager Health Center	41	Nkiito

Land Parcel No.	User	Land Parcel No.		Land Parcel No.	User
3	Ilmariba Primary School	24	Lalager Borehole	42	Nkiito water point
4	Ilmariba trading center	25	Lalager cattle dip	43	Kinyei cattle dip
5	Ilmariba Health center	26	Emutoroki borehole	44	Nkiito cattle dip
6	Ilmariba cattle dip	27	Emutoroki cattledip	46	Meshenani cattle dip
7	Ilmariba borehole dip	28	Lenku Ole Mpaa (private)	47	potato water point
8	Baringoi Cattle dip	29	Lenku Ole Mpaa (private)	48	Patoto cattle dip
9	Baringoi borehole	30	Kitendeni cattle dip	49	Meshenani pressure break tank
10	Olgulului Health Center	33	lengism cattle dip	50	Lemiito booster
11	Olgulului Primary School	34	Lengism nursery school		
12	Olgulului trading center	35	Lengism trading center		
13	Olgulului cattle dip	36	Lengism health center		
14	Olgulului borehole	37	Lengism boarding school		
19	Olgulului county borehole	38	Naiperra cattle dip		
20	Lalager Primary school	39	Risa water point		
21	Lalager trading center	40	Risa cattle dip		

5.2.5. Human settlement

The pattern of human settlement in OOGR is clustered/ nucleated. The members of OOGR reside in the following settlements and centers; Meshenani, Risa, Enkong Narok, Namelok, Ilkilunyet, Olgulului, IlMarba, Embaringoi,Lengisim, Nkiito, Lemito, Kitirua and Illarekerr as shown in Figure 11, Nos B1- B13. The location of the settlement has been influenced by a number of factors; transportation corridors, existing water sources, the nearness to Amboseli National Park, availability of services and the nature of the land. The human settlement performs a number of functions namely residential, commercial, administration, rural service center and education.

The advantages of this form of settlement include ease of provision of services, security including from wildlife and freeing of land for grazing and conservation activities. The location of human settlements is indicated in human settlement mapping figure 11.



Code	Existing Manyattas and Local Centers
B1	Olgulului
B2	Illarakerr
B3	Kinyei
B4	Lengisim
B5	Meshenani
B6	Nkiito
B7	Lemito
B8	Risa
B9	Namelok
B10	Olkilinyet
B11	Enkongu Narok
B12	Embaringoi
B13	Kitirua

Figure 10: Human Settlement areas

6. STAKEHOLDER AND PUBLIC ENGAGEMENT

6.1 Overview

The key tool for the identification of existing impacts was through discussions with the proponents and stakeholders and observations from site visits. Brainstorming among the study team members after careful review of the proposed activities also aided in the identification of impacts. Impacts were identified by characterizing the impact causes and effects and their consequences on the physical, biological and the human environment.

Analysis and evaluation of adverse impacts was deemed necessary to determine whether they are significant enough to warrant mitigation. To achieve this, the study team reviewed relevant literature (comparison with laws, regulations and standards, consistency of project objectives with government policy); and brainstorming sessions among the study team guided by the collected data. Consultations and disclosures with key stakeholders were also held. The analysis of impacts was based on a criterion that took into account the following parameters:

- Magnitude- refers to the absolute or relative change in the size or value of an environmental feature
- Direction- will the impact generate a beneficial or negative change?
- Extent- will the impact affect a small, medium or large area?
- Duration- the period over which an impact will be felt. Is it short-term or long-term?
- Reversibility- the permanence of the impact. Is the impact reversible particularly for negative ones?
- Likelihood of occurrence- the possibility of the impact occurring as predicted.

6.2. Stakeholder Identification and Analysis

Stakeholders were identified on the basis of whether they will affect the implementation of the Land use and Sub division plan or they will be affected by it. Identification of stakeholders was informed by a desk study, recommendations made by the project proponent and expert judgment of the SEA team.

Table 6. Summary of the stakeholders consulted during the SEA process

Table 5: List of Consulted Stakeholders during the SEA process

Stakeholder category	***Stakeholder identity***	***Justification***
Local community	OOGR Trust	This is the cross-sectoral institutional structure which was created by the OOGR LUSP to coordinate and provide leadership for the implementation of the plan.

Stakeholder category	***Stakeholder identity***	***Justification***
	Conservancy Landowners Committee	The conservancies located within OOGR are critical in sustaining the wildlife dispersal and migratory corridors which are seriously threatened by the ongoing land sub division, sale of land, farming activities and expansion of human settlements and associated infrastructure development
	Water Resource Users Associations	These are associations of local communities located in a number of areas within OOGR especially along rivers and around critical springs and wetlands. They provide an avenue for collaborative water resources management at grass root level and easy partnership with WRMA
	Amboseli Cultural Villages	The villages are operated by local communities around the Amboseli National Park and provide a window for tourism revenue trickle down to the local people in the ecosystem OOGR included.
	Amboseli Curio Traders	The curio shops are operated by local communities around the Amboseli National Park and provide a window for tourism revenue trickle down to the local people in the ecosystem
	African Conservation Centre and Amboseli Conservation programme (ACP)	This is a regional conservation NGO which is working in the area. Started in 1967, the Amboseli Conservation Programme (ACP) aims to explain the factors that govern the structure, dynamics, and changes of the ecosystem and the interactions between wildlife and people. ACP is also dedicated to the conservation of Amboseli ecosystem and its biodiversity endowments. The programme was directly involved in the planning, establishment, and development of Amboseli National Park. It has played a continuing role in the conservation of the park and OOGR which acts as its dispersal area. over the years since. It is championed by Dr. David Western
	Big Life Foundation	Big Life was founded in Sept. 2010 by photographer Nick Brandt and conservationist Richard Bonham as a non-profit organization dedicated to the preservation of Africa's wildlife and ecosystems. It has now expanded to employ 315 rangers, with 31 outposts and 15 vehicles protecting 2 million acres of wilderness in the Amboseli-Tsavo ecosystem of East Africa. It is the only organization in East Africa with

Stakeholder category	***Stakeholder identity***	***Justification***
		coordinated cross-border anti-poaching operations especially in the Amboseli region
	IFAW	The IFAW Amboseli Elephant project was launched in 2010 to protect elephants in Kenya called the Amboseli Elephant Project. The Amboseli Elephant Project focuses on three elements critical to the survival of the Amboseli ecosystem and the elephants that depend on it for survival: • Helping the Kenya Wildlife Service (KWS) better protect the core area of Amboseli National Park • Assisting the world-famous Amboseli Elephant Research Project with ground-breaking scientific research on elephants Partnering with a OOGR to help secure land vital to migrating elephants and local Maasai people

Stakeholder category	***Stakeholder identity***	***Justification***
National Government Officers	Local Administration	The government officers are playing the role of implementing government policies, plans and programmes in the Amboseli ecosystem including the enforcement of various legal frameworks on environment and natural resources. Government institutions and especially the Lead Agencies and NEMA have the overall mandate of enforcement to ensure compliance with the recommendations of the AEMP 2020-2030, and its SESA and OOGR LUSP.
	Senior Warden, KWS Amboseli National Park and Team	
	KWS Regional Warden, Director General, NEMA and NEMA County Director	
	Sub-Regional Manager, WRMA	
	Livestock Development	
	Agriculture	
	Education	
	Health	
Olkejuado County Government Officers	County Governor	The county government is in charge of all governance issues within the ecosystem and is expected to support the implementation of the Amboseli Ecosystem Management Plan
	Deputy County Governor	

The issues identified through public and key stakeholders' consultations broadly touched on environmental and socio-economic issues in the proposed AEMP. These were considered in order to provide a high level of protection of the environment and to contribute to the integration of environmental considerations in the implementation of the AEMP. The concerns and suggestions from stakeholders were broadly categorized as stakeholder workshop, Key informant interviews and household survey.

7. SESA FINDINGS, IMPACT IDENTIFICATION AND MITIGATION

7.1. Land Use and Land Subdivision Plan

In order to accomplish the task properly, two (2) broad level of planning have been undertaken namely; the revision of the Conservation and development plan for OOGR which covered a period of five years from 2011-2016 and the preparation of subdivision scheme plans for areas designated in the revised plan as pastoral grazing areas, conservancies, nucleated human settlements areas and the buffer zone.

The preparation of the subdivision scheme plans was undertaken mainly for the purposes of guiding the issuance of title deeds to OOGR members as well as the user rights commensurate with the land use designation. The life span of the Conservation and development plan has been extended to ten years from 2019-2029 to provide ample time for its implementation. The plan shall be reviewed after five (5) years and revised accordingly upon expiry of its life span. The lifespan of the subdivision scheme plans has been set at five years (5) from 2019 to 2024 which is enough time for their implementation.

4.10.1 Land Use

The proposed land uses in the revised scheme plan are pastoral areas which are divided into 8 (eight) blocks measuring 79,848.02 hectares, environmental conservation areas, which include Wildlife habitats; Bird's habitat, Livestock grazing, Wildlife dispersal, Surface water sources, Wildlife movement corridors and rivers &Natural drainage channels, measuring 46,019.45 hectares, irrigation area 5,227.02 hectares, transportation networks 3,783.26 hectares, social and physical infrastructure measuring 1,678.04 hectares as shown in Table 7.1.

Table 7-1: Zoning Scheme land proposed land allocation by hectares

No.	Zoning Scheme	Hectares	Percent (%) of Total land
1	Pastoral areas	79,848.02	58
2	Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage	46,019.45	34
3	Irrigation Area	5227.02	4
4	Transport infrastructure	3,783.26	3
5	Social and Physical Infrastructure	1,678.04	1
	Total	136,555.79	100

4.10.2 Land Subdivision

The subdivision decision was as a result of the need by the owners to acquire individual title deeds for socio economic gains and for fear of the provisions of the Community Land Act of 2016 as interpreted by the County Government Land officials. According to the stakeholders who are strong supporters of wildlife

conservation on their lands, they perceived that failure to subdivide would lead to their land being transferred to the government for public utility. The subdivision for Kimana Community Group Ranch was also a driver towards their decision to subdivide. The however resolved to subdivide but ensure sustainable utilization of the land. After resolving on subdividing and promoting sustainable development as a theme, they agreed on three **broad programs** namely **livelihoods, settlements and conservation programs,** on their Land Title No: Kajiado/ Olgulului-Ololarrashi/647.

This has led into dividing the land into three zones namely, Conservation and Tourism Pastoralism and Wildlife and Cultivation development zones. In the OOGR there are four community Wildlife Conservancies, namely, Kitirwa, Kitendeni, Ole-Narika and Ilaingarunyoni.

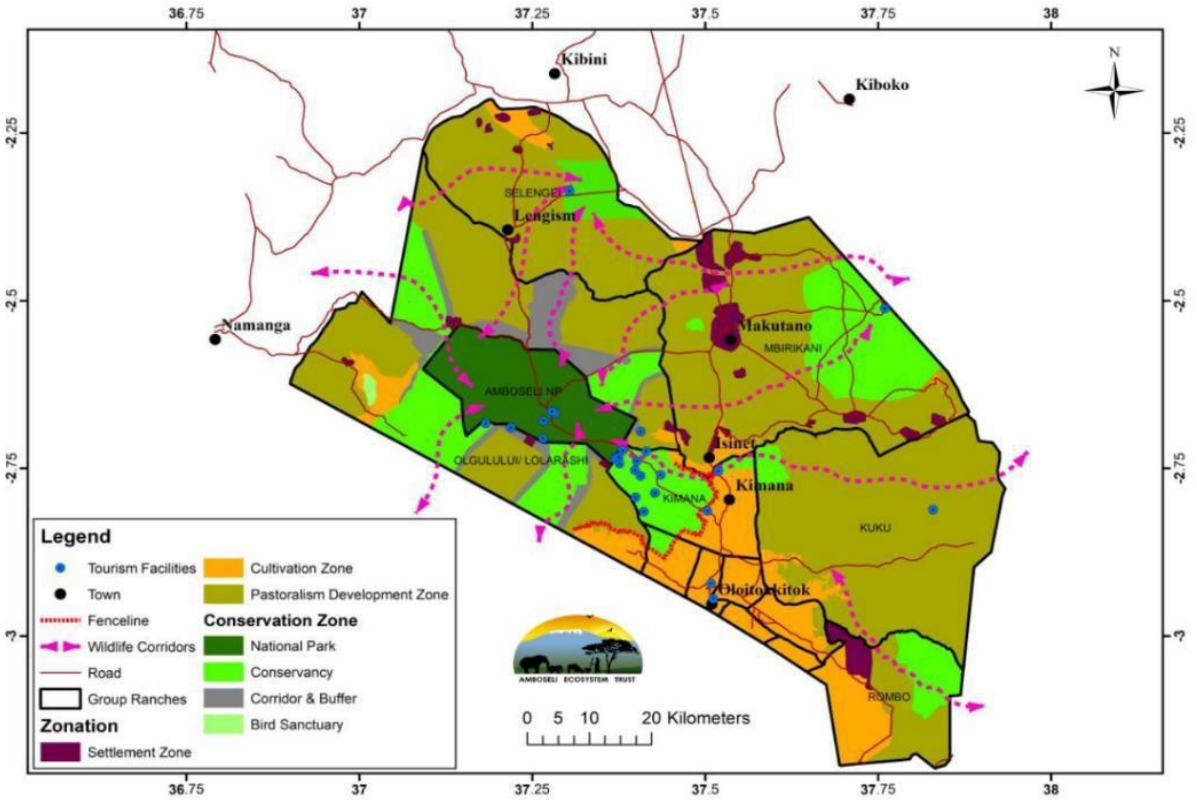


Figure 11: Zonation Map for OOGR

Table 7-2: Designated land use zones, permitted activities and restrictions in the SEA for OOGR LUSP

Land use Zoning Scheme	**Permitted Land use Activities**	**Restricted Land use Activities**	**Management Standards**
Pastoral Zoning Scheme	• Grazing of livestock. • Building of traditional 'manyatta's and livestock 'bomas'. • Animal watering points.	• Construction of permanent 'bomas' or building. • Fencing. • Further subdivision of land. • Change of user.	• Controlled grazing to be encouraged. • Establishment of communal grass banks. • Sensitization on carrying capacities and modern

Land use Zoning Scheme	**Permitted Land use Activities**	**Restricted Land use Activities**	**Management Standards**
	• Cattle deeps. • Fodder storage stores.	• Change of ownership. • Road construction.	livestock husbandry practices.
Clustered Settlement Zone	• Commercial. • Residential. • Light industrial. • Social amenities; educational, health, community halls, play grounds, administration, churches, shops, hotels, open air markets etc. • Permanent buildings by OOGR members. • Burial. • Semidetached bungalows and flats shall be encouraged. • Road construction. • Street lighting. • Greening the residential areas and road reserves is encouraged. • The game fence around nucleated must be constructed. • Urban agriculture; Kitchen gardening, small scale poultry industry. ***Prior to undertaking any of the above activities, development approval shall have to be granted by the competent planning authority.*** ***Development applications seeking for approval or development***	• Rearing of livestock prohibited. • Further subdivision and change of user is prohibited. • Row housing shall be prohibited. • Burial will be undertaken only in the designated areas.	• Management standards for urban agriculture in terms of type, location and management of wastes of activity to be provided as development conditions prior to approval. • Conformity to eco-friendly standards: iron sheets, rain water harvesting, use of solar panels/renewable energy and eco-friendly waste disposal using oxidation ponds among others. • Setbacks. Front3m, side 2m, back 2mfor residential areas. • Plot ratio of ground to first floor for all users. • Plot coverage of 50% for residential. • Setbacks.Front2m, for commercial. • Plot coverage of 75 % for commercial. • Plot ratio ground to first floor for all users. • Site Master Plans should be prepared for education, health, recreation and other social infrastructure prior to construction taking into account current and future population needs including environmental considerations to forestall haphazard development and sprawling of the nucleated settlement. • The use of green energy i.e solar and wind is recommended.

Land use Zoning Scheme	**Permitted Land use Activities**	**Restricted Land use Activities**	**Management Standards**
	permission shall be sought from the competent planning authority in a manner prescribed by the law.		• Adequate Water provision and reticulation is recommended for nucleated settlement. ***The management committee for each of the nucleated settlement shall be established including a resident association.***
Environmental and wildlife conservation zone	• Wildlife habitats. • Game viewing. • Bird watching. • Ecological research. • Controlled Photography. • Filming. • Drawing water from the rivers. • Controlled construction of tented camps in the riverine environment. • Controlled construction of cultural 'manyattas' in the buffer zone. • Controlled grazing of livestock. • Controlled establishment of tented camps. • Laying of underground infrastructure. • Construction of water pans.	• Location of tented camps restricted. • Bed capacity of tented camp restricted. • Human settlement or building in any form prohibited • Road construction prohibited. • Prohibit construction of dam and weirs. • Restriction of the number of traditional livestock in the 'manyattas'. • Fencing prohibited. • Exotic tree species prohibited. • Change of user and subdivision prohibited.	• Bed capacity for each camp shall fall in the range between 6to 10 beds per camp. • Location of tented camps to be determined through consultation, between OOGR management committee, conservation experts and investors and the county government. • The cultural 'manyatta' be based on masaai traditional 'manyatta' concept. • Game viewing to be done by four wheel drive vehicles to forestall the need for permanent road construction. • Filming rights to be granted by OOGR committee for purpose of revenue generation for the community. • Only buffering roads to the conservancies may be opened and graded to serve as a delimitation of conservancy blocks. • The number and location of cultural 'manyatta' to be determined by OOGR trustee board and County Government. ***Prior to establishing the tented camps development approval shall have to be***

Land use Zoning Scheme	**Permitted Land use Activities**	**Restricted Land use Activities**	**Management Standards**
			granted by the competent planning authority.
Transport Infrastructure Zone	• Only primary, secondary and roads in the nucleated settlement shall form the backbone of transportation in the OOGR. • The purpose of tertiary/ access roads within the pastoral and conservancies and buffer zone is only to facilitate the approval of the scheme plan for the issuance of titles and registration of land rights. • Only the classified road C103 which is a primary road and roads in the nucleated settlement may be bituminized or graveled. • The secondary roads may be graveled. • Primary, secondary and nucleated settlement road reserve may be used in laying utility and services. • Airstrip may be improved to bituminized surface and auxiliary utilities may be constructed including perimeter fencing.	• The tertiary and access roads shall not be opened, constructed and used for transportation purposes to forestall serious degradation of the natural environment. • No construction of any form shall be undertaken on the primary and secondary road reserve. • Tree planting is not allowed on the primary road except in nucleated settlement. • Bituminization of secondary roads is prohibited. ***The roads reserves provided in terms of primary, secondary and tertiary shall not interfere with any form of development.*** ***Only the C 103 shall be bituminized. The rest of the roads shall be graveled.*** ***Access roads in the human settlements are exempted from these regulations.***	• The widths of primary and secondary roads reserve shall be maintained at 40M, 36M and 25 M as per the zoning scheme. • Nucleated settlement roads shall be maintained at 25M, 18, 15M to 9 M as per the scheme plan.

Land use Zoning Scheme	Permitted Land use Activities	Restricted Land use Activities	Management Standards
Irrigation Zone	• Cultivation of high value crops e.g tomatoes, onions, capsicum, coriander, herbs among others. • Farming and bulking of fodder. • Perimeter fencing of the irrigation block.	• Settlement is prohibited. • Change of user is prohibited. • Construction of permanent 'bomas' or building is prohibited. • Fencing of individual parcels prohibited. • Further subdivision of land prohibited. • Change of ownership restricted.	• Control of soil erosion and water conservation to be prioritized.

7.2. Pastoral Zone Scheme

4.10.3 Description of the zoning scheme

Pastoralist zoning scheme measures 79,848 Ha and is divided into eight zones with representatives and elected leaders. The zones are namely; Kitirwa Namelok, Ormoti, Olgulului, Meshinane, Loolakef, Lengisen, Lisanjalt and Enkong-Narok zone. The groups also have a grazing plan to guide their activities. These areas allow for the establishment of cattle dip, livestock development activities such as fattening camps, animal watering points. A number of livestock from OOGR members graze in the group ranch and during dry season, they venture into Amboseli National Park, and the newly established conservancies.

4.10.4 Positive impact

Livestock grazing constitutes the livelihood of local communities in OOGR. It therefore goes without question, that having vast lands for grazing improves livelihoods. It enables communities to earn a decent living, pay school fees, and fend for their families. In line with this livestock population will certainly increase.

Water is a major issue in livestock farming, and in areas where there are boreholes, there is need to enhance it, provide for value addition. During this study we noted that in Enkong Narok, there are two boreholes which provide water to local communities and livestock. In one borehole which we were informed its depth was 35 meters, there is provision for water for livestock and around 800 meters, a watering pan for elephants has been established on the elephant's corridor, to keep them from interfering with livestock. This is commendable and worth replicating in other areas.

4.10.5 Negative impact

Increase in livestock population, also can lead to overgrazing, which can reduce fodder not only for domestic animals but also wildlife. It is noted that in OOGR livestock and wildlife conservation are compatible land uses but not without conflict because of competition for resources within the same rangeland since there is no clear demarcation. There are times when farms within the rangelands also attract wildlife leading to direct human -wildlife conflicts, breaking of granaries, crop raiding and killing of people and livestock. Human-wildlife interactions can also lead to transmission of diseases such as the malignant catarrh from wildebeest to cattle.

4.10.6 Mitigation measures

Mitigation measure include:

- Establishing a clear boundary on livestock areas, and wildlife zones
- Enforce grazing plans, and demarcate designated areas to ensure everyone is aware and adheres to the rules.
- Develop education materials to promote and enhance awareness,
- Ensure continual auditing and monitoring.
- Enhance formation of grazing banks in all pastoralist zones
- No fencing of land to allow animal and wildlife movement
- Construction of permanent Bomas not allowed
- Further subdivision of the area not allowed
- Develop guidelines, rules and ensure enforcement by the relevant stakeholders

Table 7.2: Pastoral Zone Impact Mitigation Guideline

Permitted uses	**Restriction**	**Management Standards**	**Actions (Remarks)**	**By Who?**
i. Grazing of livestock ii. Building of traditional manyatta's and livestock bomas iii. Animal watering point iv. Cattle deep v. Fodder storage stores	i. Construction of permanent 'bomas' ii. Fencing iii. Further subdivision iv. Change of User v. Change of ownership vi. Road construction	i. Controlled grazing to be encouraged ii. Establishment of communal graze banks iii. Sensitization on carrying capacity and modern animal husbandry	Develop a grazing plan Provide signage to inform on permitted land use in the area	OOGR OOGR

7.3. Clustered Settlement Zone

4.10.7 Description of clustered settlement zone

These areas will entail establishment of residential and commercial houses, social amenities such as health and educational facilities, community halls, churches, open air market, game fence to around nucleated establishment, and burial sites. These clustered settlements have already started taking shape around Enkong Narok near Serena Hotel, as it has a school, health center, borehole, and scattered residential areas.

4.10.8 Positive impact

The establishment of the above social amenities will lead to livelihood improvement and diversification of enterprises and other small and medium businesses. It will also bring essential services such as improved road network, health services, and access to electricity, close to the people, and improve their quality of life.

4.10.9 Negative impacts

One of the key challenges with clustered settlement developments include:

- Lack of standards and mushrooming of settlements in non-designated areas.
- Establishment of settlements without provision for essential services such as water, health and sanitation, infrastructure, and security.
- The establishment of settlements may trigger influx of people and may lead to proliferations of social and wildlife crimes such as poaching.
- Poor land use practices that are not inline with tourism

4.10.10 Mitigation measures

In order to mitigate the negative impacts likely to be generated by the clustered settlements, the following measures are suggested:

- Develop standards on settlement that are within the sub division scheme plan, and the framework of Amboseli Ecosystem Management Plan.
- Support establishment of police post in designated areas to deal with social disorders in settlements
- Develop a site master plan and sensitize communities on its uses
- Ensure that land use planning and zoning are compatible with sub-division scheme plans and S.
- Undertake land clinics in consultation with the department of physical planning in Kajiado County, to create awareness on land use and zonation on a need basis.
- Discourage raring of livestock in settlement areas
- Plot coverage 50% for residential, and 75% for commercial
- Use eco-friendly standards on iron sheets that match well with nature and aesthetics of the area,
- Adopt rain water harvesting, solar and renewable energy, as well as waste disposal mechanisms such as oxidation ponds.



Plate 7.1: Center in Enkong-Narok



Plate 7.2: Emerging houses in Enkong Narok

7.4. Environmental and Wildlife Conservation Zone

4.10.11 Description of the areas

Environmental and Wildlife Conservation areas are designated for wildlife habitat and management, and are utilized for tourism through game viewing, wildlife research, establishment of hotels, campsites, bird watching and controlled livestock grazing. The area established for conservation is approximately 46019 Ha, which is approximately 34% of the entire OOGR land.

There are five established conservation areas namely; Kitirwa, Kitendeni A and B, Ole Narika and Ilaingarunyoni. Though the conservancies are at their formative stages, some have established tourism facilities already on site while others are proposed. Kitirwa is managed by Ker Downey and Kitendeni by IFAW. In Kitinden IFAW is supporting conservation cause through training of rangers and enhancing security OOGR. So far Kitendeni has trained 87 rangers comprising both women and men, some of who are deployed in the following areas:

Table 7-3:Wildlife Conservation areas

No	Conservancy	Area	Number of Trained Rangers
1	**Kitendeni**	Lemomo	17
		Imarba	9
		Isiruai	5
2	**Kitirwa**	Esiteti	12
3	**Ole Narika**	Risa	17 (14 women, 3 men)
		Nairabala	5
4	**Ilaingarunyoni**	Ilaingarunyoni	8
		Osewan	7
		Mangula	7

Kitendeni conservancy which is supported by International Fund for Animal Welfare (IFAW), has an established fully functional office, ranger quarters, training camp, radio communication facility with over 50 km range which fully covers the park and OOGR conservancies. There also four trained and licensed drone pilots, which

makes it possible to enhance efficiency through use of technology. Rangers are also trained on wildlife related data collection, using Survey 123 App, and mobile phones, and relay the information on a timely basis.

Plate 7.3: Meeting in Kintenden Conservancy







Plate 7.4: Kitendeni Conservancy Resource Center



Plate 7.5: Meeting with KWS rangers in Kitirwa

4.10.12 Positive impacts

The proposed sub-division is in favor of conservation of natural resources and wildlife. Great efforts have been made to ensure that significant and strategic land has been identified and set aside for conservation. Positive impacts identified are as follows:

- It will enhance co-existence between the local people and wildlife and

- These conservancies will also secure wildlife habitats and protection as the establishment of ranger posts will improve on protection and compliment KWS rangers in Amboseli Ecosystem.
- Livelihoods improvement, as beneficiaries will earn a living from bed nights and leasing of land, and establishment of cultural manyattas.

4.10.13 Negative Impacts

Some of the negative impacts arising from conservation area are as follows:

- The land subdivision did not take into consideration scientific evidence on wildlife connectivity from one park to another and although there is provision for corridors in certain areas, the land is still sub-divided under 21-acre parcels etc. This has potential to create blockages and bottlenecks on wildlife movement leading to human wildlife conflicts as shown in plate 7.8
- There is no clear distinction on where the boundary for grazing and conservancies begins and end when it comes to implementation as animals graze freely as shown in Plate 5.7 and leading to conflict as shown in Plate 5.8.
- The likelihood for disease transmission from wildlife to livestock and vice versa is very high. Malignant Catarrh, bovine tuberculosis, par tuberculosis, brucellosis, and avian influenza, rabies, and cattle fever tick (vector control)—have a wildlife reservoir that is a recognized impediment to eradication in domestic populations. The complex nature of these systems highlights the need to understand the role of wildlife in the epidemiology, transmission, and maintenance of infectious diseases of livestock. Successful management or eradication of these diseases will require the development of cross-discipline and institutional collaborations, to mitigate the risks posed at the livestock–wildlife interface.
- Lack of strategic dry and wet season grazing areas will interfere with visitor experience during dry seasons as animals will migrate to wetlands in the park or other areas in the ecosystem.
- Proliferation and mushrooming of campsites in undesignated areas which will enhance accommodation facilities which will lower costs and impact on Amboseli as high value tourism destination.

4.10.14 Environmental and Wildlife Conservation Impacts Mitigation Measures

The following mitigation measures are proposed in order to reduce negative environmental impacts in OOGR and Amboseli Ecosystem

- Align subdivision scheme with data on wildlife movement, to set aside corridors and dispersal areas in accordance with Wildlife Migratory Corridors and Dispersal Areas Report 2017 (See Migratory Corridor Map in Figure 3, 4,5, 11, 12,13, 14 and 15) which can be leased out to potential conservationists to protect wildlife. This can also be leased out for carbon offsetting for grasslands.

- Demarcate and put clear signage on boundaries for grazing and conservancies
- Establish guidelines, Regulations, enhance enforcements, ranger patrols, education and awareness on land use limitations etc.

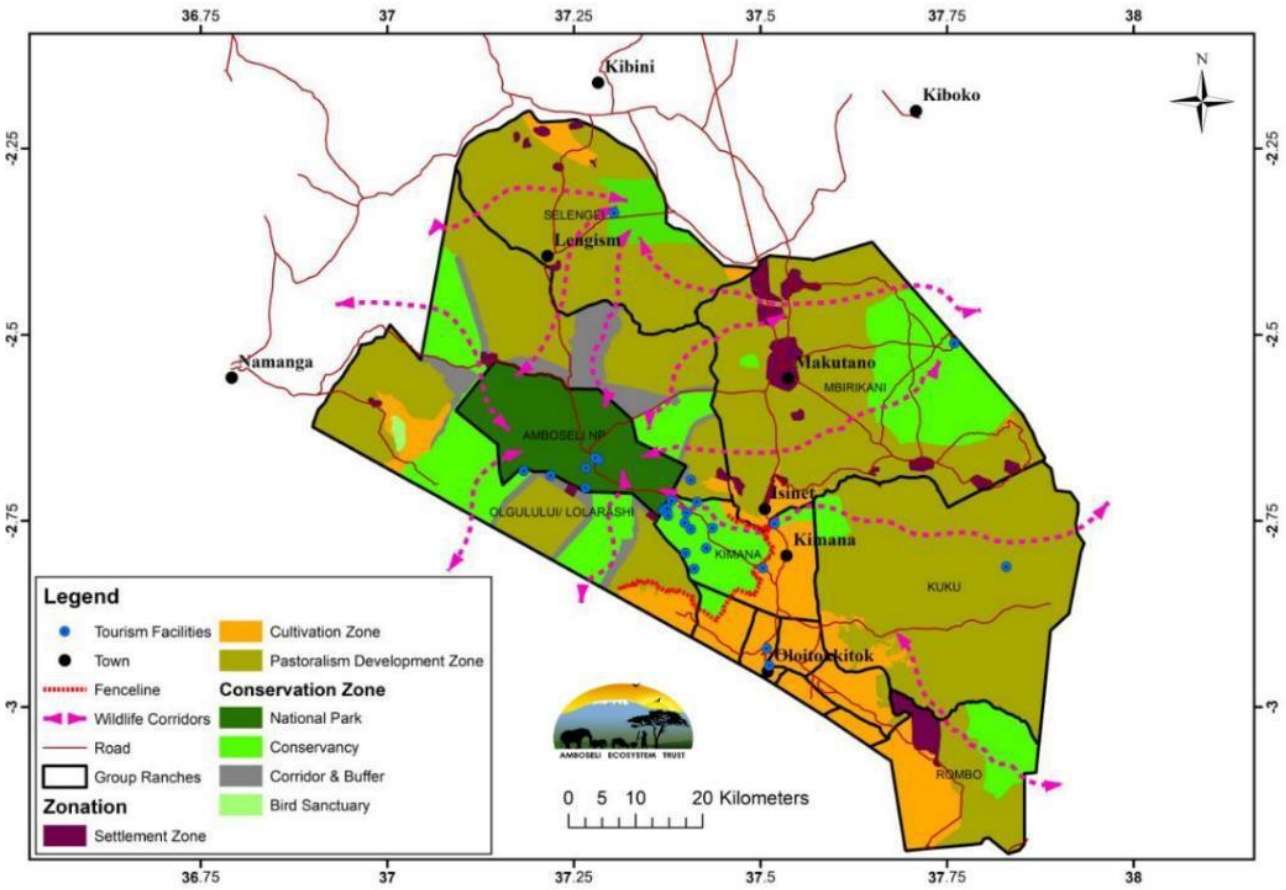


Figure 12: Zonation Map for OOGR

Source: Amboseli Management Plan 2019

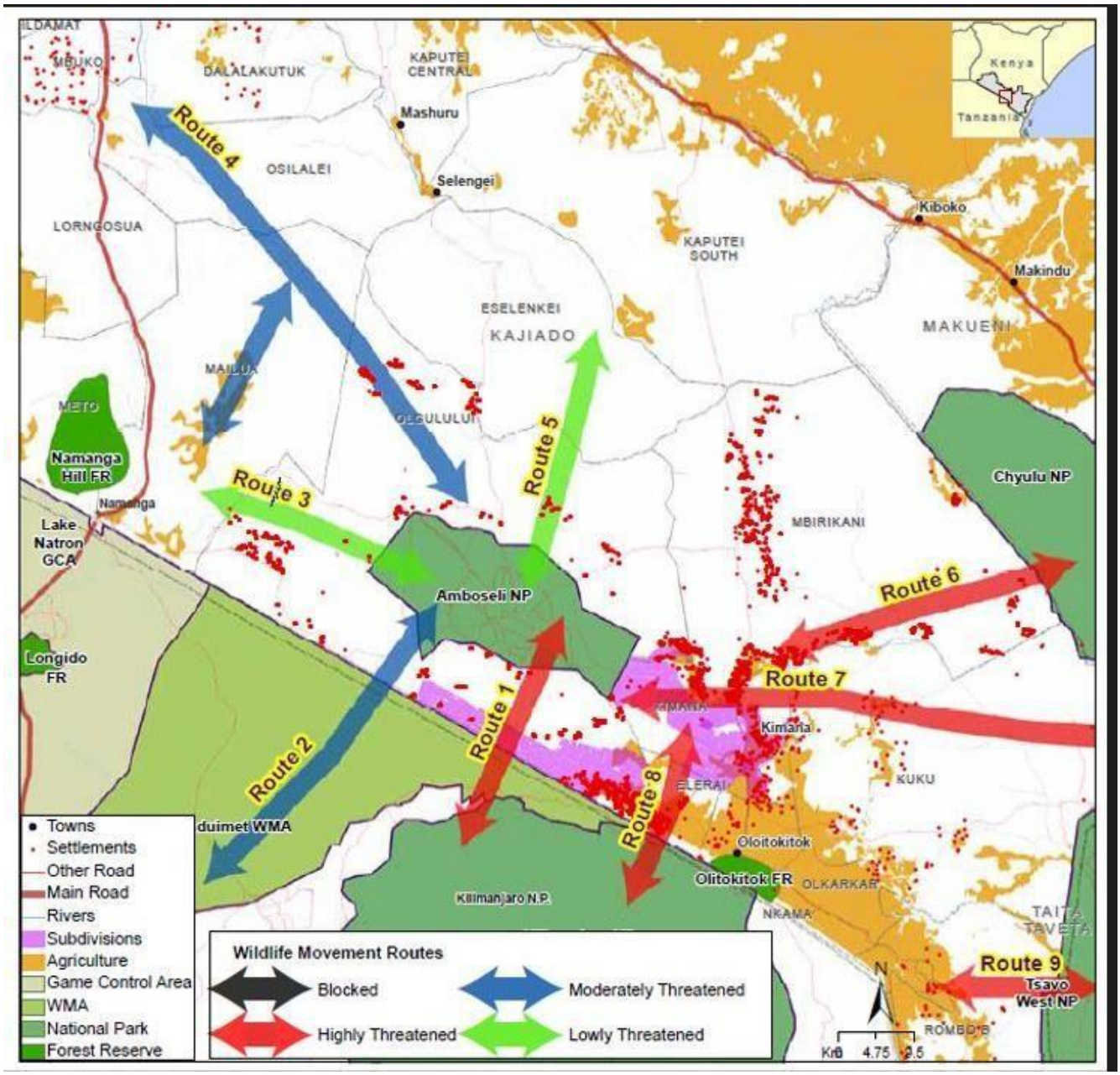


Figure 13: Wildlife Migratory Corridors and Dispersal Area Map in Amboseli Ecosystem

Source: GoK (DSRS) Wildlife Migratory Corridors and Dispersal Areas Report 2017

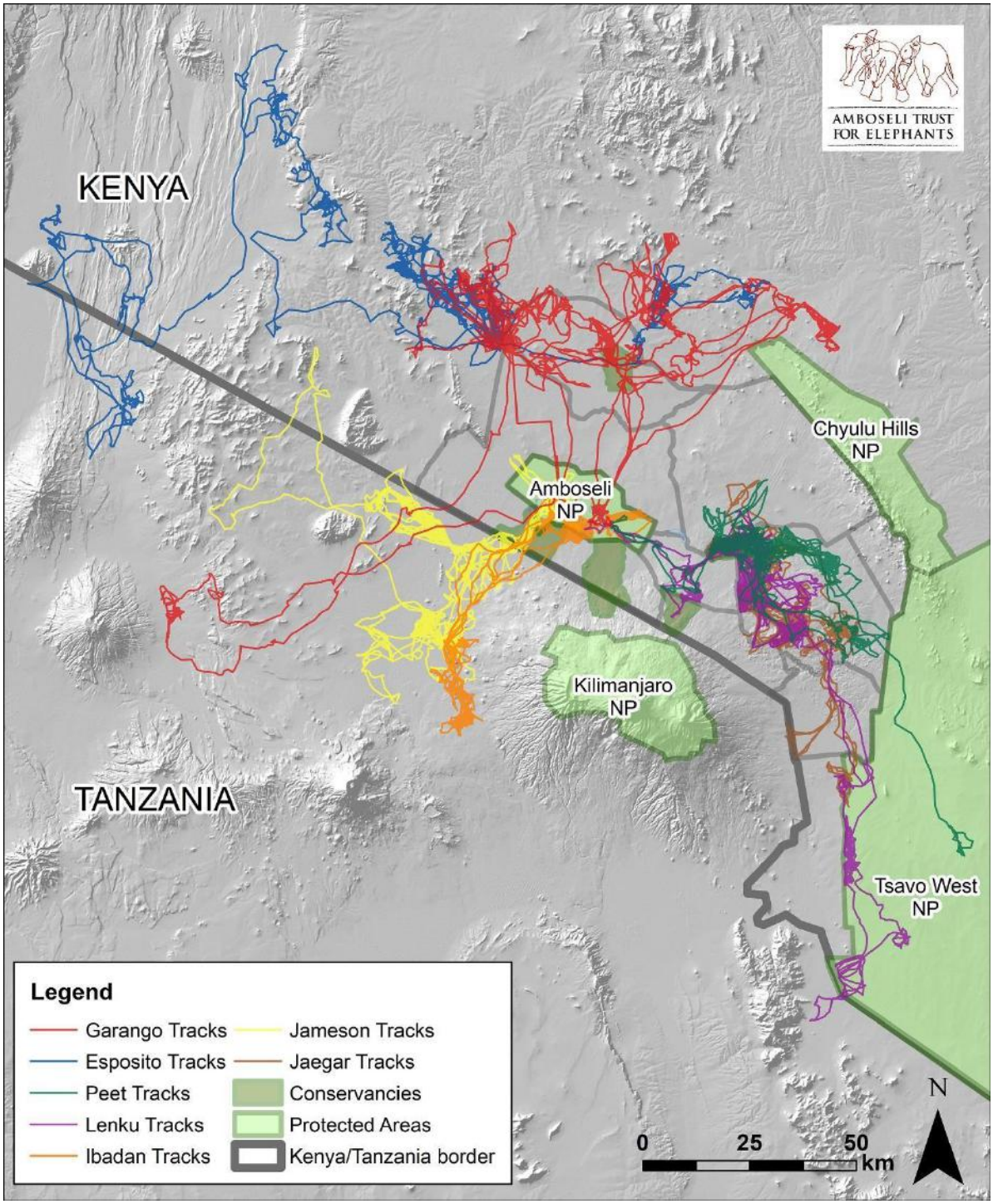


Figure 14: Elephant tracks in Amboseli courtesy Amboseli Trust for Elephant

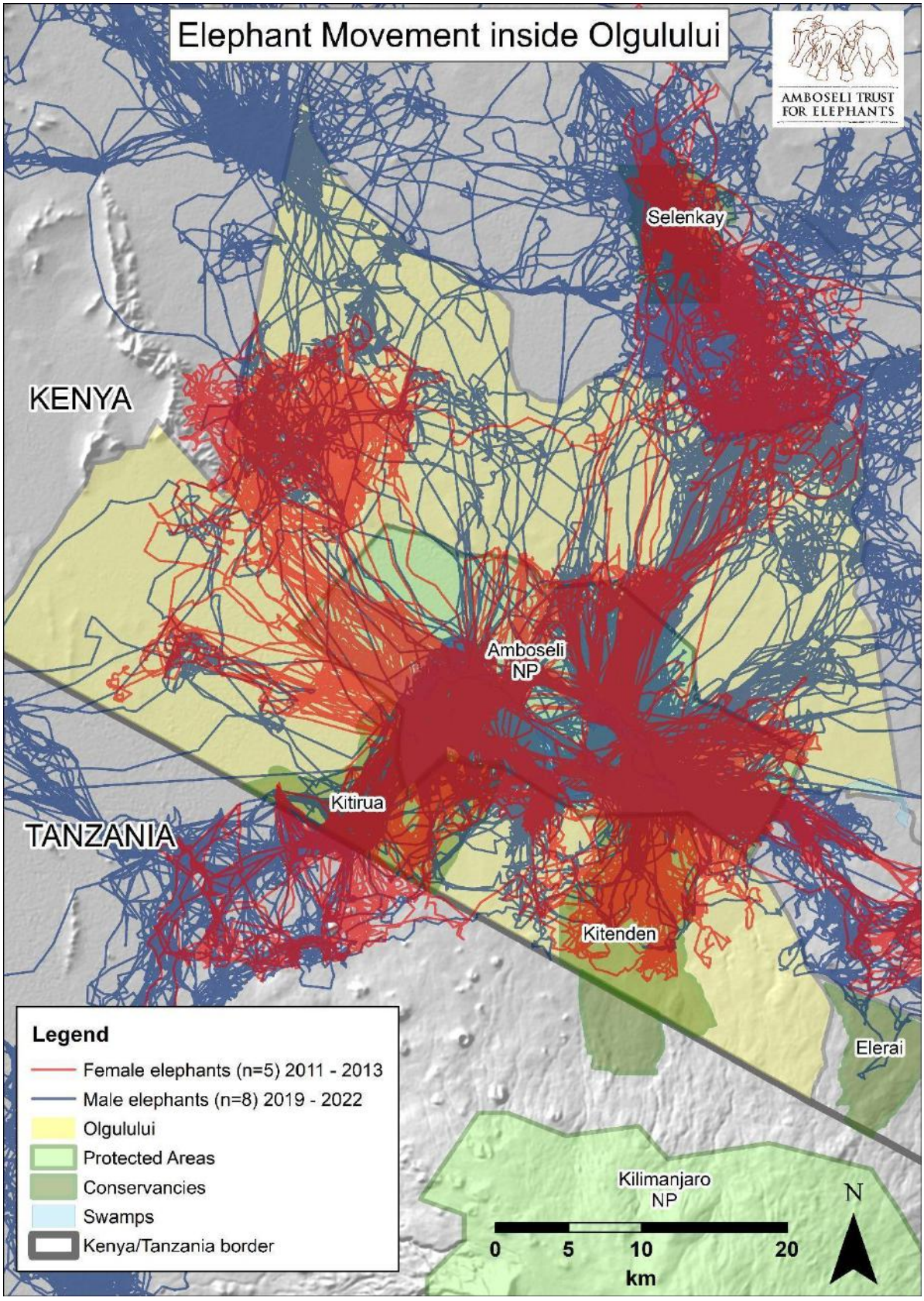


Figure 15: Elephant Movement in Olgulului courtesy Amboseli Trust for Elephants



Plate 7.7: Livestock grazing in Kitendeni Conservancy



Plate 7.8: Cow killed by Elephants in a conservancy



Plate 7.9: A camel killed in a conservancy

7.5. Transport Infrastructure Zone

4.10.15 Description

The transport infrastructure refers to roads that are primary (C 103) and secondary in nucleated settlements. The primary road can be bituminized or graveled subject to government development plans. The purpose of roads on the conservancies, and grazing zones is for the purposes of issuance of title deeds, and shall not be graded. Utility lines such as electricity will be aligned with the primary roads. Air strips may be improved to bitumen as need be subject to Environmental Impact Assessment license, and authorization from relevant authorities, and securing of the premises.

4.10.16 Positive impacts

Access roads tend to improve livelihoods through opening up the areas in the following ways:

- It will enhance access to goods and essential services in the area
- It will improve efficiency and mobility
- It will trigger development of centers within OOGR
- It will enhance land value for commercial development and collaterals

4.10.17 Negative Impacts

Improved road access, in as much as it brings in development, it also brings in unforeseen impacts. Critical among them are:

- Development of roads in undesignated areas

- Off road driving ruining the nature of the land especially in pastoralist and conservation areas
- It will trigger influx of new people with conflicting cultures, that are not compatible with conservation
- It will trigger development of social amenities such as bars and associated moral decay such as prostitution, which may not augur will with cultural values of the local communities.

4.10.18 Mitigation

The following mitigation measures will ensure that the roads are established as envisioned in the SEA for OOGR subdivision scheme plan:

- The widths of primary, and secondary roads reserve shall be maintained at 40 m, 36M, and 25 M as per zoning scheme
- Nucleated settlement roads shall be maintained at 25M, 18M, 15M, to 9M as the scheme plan
- Do not permit Bituminization of secondary roads
- Maintain roads, provide signage to show "no off-road driving" and associated penalties
- In order to mitigate degradation of natural environment, do not open tertiary access roads
- No construction of any form on primary and secondary road reserves

7.6. Irrigation Zone

4.10.19 Description of the area

Namelok and Ilmisigeiyo are two designate areas for irrigation which form a major breadbasket in Kimana and Loitokitok. These areas are very fertile and are a major source of tomatoes and onions. In order to reduce human wildlife conflict in these areas, Big life has supported erection of 100.72km short fence, of which 25km is in the new irrigated area in Ilmisigeiyo. Members of OOGR have been allocated 10 acres each in this area and majority of the land owners have leased to external people for farming. Land along Kitendeni conservancy frontiers has been leased to IFAW for conservation purposes.

4.10.20 Positive impacts

The positive impacts arising from converting land for agriculture use are as follows;

- It will enhance food security in the area that is predominantly pastoralist zone.
- It will create employment for farmers and locals
- It will improve food and nutrition in the area
- It will provide alternative livelihood option, especially in an area where drought impacts on livestock
- Irrigation on farm is one way of climate change adaption strategy for the community as the area is vulnerable and at the time of this study

it was evident livestock was dying due to drought. Hence engaging in agriculture is positive for the communities.

4.10.21 Negative Impact

The negative impact arising from irrigated farms lies on unsustainable land use practices. It was noted that some members are leasing out the land for farming, and tenants are cutting down trees and not engaging in any agroforestry practices. The land around Ilmisigeiyo primary school is an example of unsustainable land use practice as shown in Plate 5.11. Leases' as it has been seen in other parts of the country, focus on their profits and have no interest in conserving the environment as has been seen in Narok. This in effect leads to flush floods and creation of huge gulley's as was evident at the time of this study and shown in Plate 5.10.

4.10.22 Mitigation measures

In order to ensure that the land use in irrigated areas is well utilized the following mitigation measures are proposed:

- Those converting land for agriculture and cutting trees, should engage in agroforestry by undertake boundary tree planting, this will act as windbreak, and prevent wind erosion. It will also support soil structures that are subject to erosion if not well protected.
- Chemical wastes and containers should be disposed properly to prevent contamination of water sources, and affecting wildlife
- Farmers should be trained on Sustainable Land use and Management (SLUM) practices
- For sustainability enhance ownership of the short electric fence, to ensure that farmers can maintain it as human wildlife conflicts are unpredictable as captured in Plate 5.12 a day before our study team visited the area.
- Prohibit fencing of land
- As per the SEA For OOGR sub-division scheme prohibit construction of permanent bomas or buildings
- No change of users and further subdivision of land



Plate 7.10: Gulley erosion in the irrigation zone in Ilmisigeiyo



Plate 7.11: Bare agricultural land cleared of trees and no boundary tree planting



Courtesy: Kitendeni Conservancy 2022

Plate 7.12: House and maize storage facility in Ilmisigeiyo destroyed by elephants

4.10.23 Offsite significant impacts

Given the pressure to subdivide and occupy the land by OOGR members there is the looming danger that the potential of the land may be reduced if development is unplanned and not regulated.

The pressure or clamor for title deeds and registration of land rights by OOGR members is palpable and unstoppable. This has been occasioned by among other reasons the fact that all group ranches/ community lands in the area surrounding OOGR have been provided with ownership documents and occupied by their members.

The clamor is also as a result of the desire to benefit equitably from the benefits accruing from the land and land-based resources in OOGR. However, the challenge faced by the leadership and members of OOGR is how to achieve the aforementioned desire of the community without compromising the potential of the land and the fragile environment in which it is situated. Apart from this, the other challenge that is faced in this respect, relates to how to regulate the use and development of land once title deeds have been provided to the members.

4.10.24 Climate change mainstreaming

Climate change is real in OOGR project area and at the time of this study it was evident that livestock was dying due to drought. Key mitigation strategy employed in the scheme is that each member has land allocation for irrigation which means they can rely on agribusiness to supplement their income during drought. It is also understood that during drought wildlife also perishes and they tend to move to settlement areas looking for water. OOGR has established boreholes in centers and provided water pans for elephants where they can access water away from the community. Provision of wildlife corridors is also one way of ensuring that wildlife movement in and out of the park is guaranteed especially during drought.

7.7. Climate Change Risk And Vulnerability Assessment Mainstreaming

Kenya is highly exposed to climate change, ranking 41st in the world's most vulnerable countries, according to the Notre Dame Global Adaptation Initiative (ND-GAIN) (2021)[1]. Amboseli Ecosystem OOGR included is highly dependent on the natural resource base, and thus is highly vulnerable to climate variability and change. Rising temperatures and changing rainfall patterns, resulting in increased frequency and intensity of extreme weather events such as droughts and flooding, threaten the sustainability of the Amboseli Ecosystem's development.

The response to climate change in Amboseli Ecosystem, OOGR must adhere to the constitutional governance framework {National Climate Change Response Strategy (2010), NCCAP (2013–18), NDMA Act (2016), National CCA (2016)—rare among its peers—Green Economy Strategy and Implementation Plan (2016–30), National Adaptation Plan (2017), and NCCAP (2018–22)} and commitment to sustainable development, while addressing the goal of attaining low carbon climate resilient development.

To attain the latter, this SEA for OOGR LUSP focuses on appropriate mechanisms to enhance climate resilience and adaptive capacity, and the transition to low carbon growth.

7.8. Weather Change and Trends

Change in altitude, and seasonal variation in surface area and water temperature between wet and dry periods in major wetlands of Kajiado County reflects the seasonality of the availability of moisture (MoALF. 2017). Assessment of historical temperature trends over 25 years (1981 to 2005), indicate that mean first season temperatures have increased by approximately 0.5°C, while second season temperatures decreased slightly ≤0.1°C. Analysis of precipitation trends over a 35-year period (1981-2015) showed that average long seasonal rainfall had decreased moderately, while that of the second season had increased by more than 50mm particularly since 2000[2]. Because of these changes in temperature and rainfall, the first season has experienced a large increase in the number of heat stress days affecting water resources and livestock productivity, while flood risk in both seasons has increased (MoALF. 2017)[3].

7.9. Impacts of climate Change

OOGR which is part of the ASALs, is a fragile ecosystem and the lack of investment in public goods and services in this ASAL area increases the vulnerability to climate change.

[1] Notre Dame Global Adaptation Initiative (ND-GAIN) (2021)
[2] Kajiado County Spatial plan 2019 - 2029
[3] MoALF 2017

The impacts of climate change cut across diverse aspects of society, the economy and the environment. The adverse impacts of climate change have the potential to significantly inhibit the sustainable development of the ecosystem in key priority areas:

4.10.25 Environment, Water and Forestry

Amboseli Ecosystem OOGR included has been adversely affected by climate change, including through variations of temperature and precipitation. The decline in environmental quality brings social and economic hardship to the communities who depend on AE, and increases contestation and the likelihood of conflict over diminishing natural resources. It also creates a window for invasive species and, new pests and diseases. AE being an ASAL is particularly vulnerable to climate change impacts especially in the absence of sufficient investments in mechanisms to build resilience. The AE OOGR included is currently under threat from land degradation and desertification caused by climatic variations and human impacts such as overgrazing of livestock, smallholder farming on poor soils, and the creation of small cities or towns.

Impacts include loss of biodiversity, threats to animal and plant species, change in vegetation composition and structure, decrease in forest coverage, rapid deterioration of land cover, and depletion of water quality and quantity through the destruction of catchments and underground aquifers. Increased scarcity of water resources is a core concern, making resource management more difficult and increasing the likelihood of conflict.

Potential impacts include declining forest coverage, reduced water quality and quantity for domestic and industrial use, high water pricing and increases in water borne diseases.

Forest degradation and deforestation, exacerbated by climate change, have led to reduced canopy cover and altered biodiversity composition. This affects the ecosystem services that forests provide, such as reducing soil erosion, natural pest control, preserving water availability and maintaining water quality. Deforestation and forest degradation also increase GHG emissions.

4.10.26 Pastoralism

AE being an ASAL needs an efficient Pastoralism/Livestock management which rely extensively on natural systems such as rain fed pasture. These livestock systems are very climate sensitive, being vulnerable to the impacts of changing and irregular rainfall patterns and droughts. Greater drought frequency in this ASAL increases livestock morbidity and mortality because of reduced availability of forage, increased disease incidences and a breakdown of marketing infrastructure.

4.10.27 Physical Infrastructure

An improved and expanded physical infrastructure is an important and necessary enabler of socio-economic development. Vision 2030 aspires to develop world-class

infrastructure facilities and services by focusing on quality, aesthetics and functionality of the infrastructure services. The target is increased investments in the road network; water and sanitation services; rail, sea and air transport; and energy supply services. The adverse impacts of climate change need to be identified and addressed when developing these infrastructure facilities. One approach is to climate proof infrastructure, which refers to the integration of climate change risks and opportunities in the design, operation and management of infrastructure. Another consideration is the promotion of investment in infrastructure that supports transformation to a low carbon economy while creating employment and reducing poverty.

8.2.4 Energy

Energy production and utilization has a close connection with climate change. Biomass energy, such as charcoal and firewood, continues to be used in the OOGR's households. Security in access to biomass energy is important for building resilience. However, it is equally critical to ensure efficient production and use of this biomass energy, including through sustainable plantation forests, sustainable tree harvesting techniques for charcoal production, and efficient charcoal kilns and cook stoves.

8.2.5 Tourism

Tourism is highly climate sensitive because of its close connection to the natural environment. A large proportion of tourism depends directly on natural resources and much is focused on protected areas. In addition, the tourism sector, which accounts for about 10 per cent of GDP, is important for human development in Kenya because of its potential to reduce poverty and create employment. However, climate variability is causing negative impacts that could inhibit the positive contribution of tourism to the Amboseli Ecosystem OOGR included. Increasingly warmer temperatures are reducing plant and vegetation productivity in this semi-arid environment, affecting wildlife diversity and distribution. This results in wildlife competing with domestic livestock and human beings for both food and water.

To mitigate this, OOGR will require consideration of climate change impacts and commencement of appropriate response and intervention measures.

4.10.28 Health

Human health has been affected adversely by climate change impacts in AE. OOGR has a high degree of risk from climate-sensitive infectious diseases such as food or waterborne diseases like diarrhea, hepatitis A, and typhoid fever. Vector-borne diseases such as malaria, dengue fever, and Rift Valley Fever are also common. High temperatures and intense rainfall, which are some of the effects of climate change, are known to be critical factors in initiating malaria epidemics.

7.10. Adaptation and mitigation measures on effects of climate change

Climate change related issue	Impact	Adaptation/mitigation action to be taken	Responsibility
Variation of temperature and precipitation /Drought	-Loss of biodiversity -Invasive species -Change in vegetation composition and structure -Decrease in forest coverage	-Conservation of natural vegetation -Build capacity on rainwater harvesting techniques and associated	Plan Owners, PIC, Investors, Kajiado County Government,

Climate change related issue	Impact	Adaptation/mitigation action to be taken	Responsibility
	-Increased scarcity of water resources -Increased Water Borne Diseases -Reduces Pasture -Loss of livestock and Wildlife -Uneven distribution of wildlife. -climate-sensitive infectious diseases	mitigation for wildlife interactions -Development of Dams, Water Pans and Boreholes -Improve livestock breeding and husbandry -Develop and implement a climate change adaptation and mitigation action plan -Control Invasive Species	stakeholders and Scientists.
Absence of sufficient investments in mechanisms to build resilience	- Deforestation - Loss of critical Wildlife habitat - Decrease in land coverage	-Develop Carbon Credit Projects -Develop and implement a climate change adaptation and mitigation action plan	Plan Owner, Investors, Kajiado County Government, stakeholders and Scientists
land degradation and Forest Encroachment	-Decrease in land coverage - loss of critical wildlife habitat - Reduces Pastures	-Restoration of degraded areas -Appropriate rangelands management practices - Reforestation Projects -Develop and implement a climate change adaptation and mitigation action plan	Plan Owner, Investors, County Government, KWS, NEMA and Scientists
Increased Grazing and browsing preassure	-Loss of grazing areas -Human wildlife conflict -Livestock Diseases - Reduced Pasture	-Appropriate rangelands management practices -Develop and implement pasture management and livestock grazing plans -	Plan Owner, Communities
Destruction of catchments and underground aquifers	-Decrease in land coverage -Loss of critical wildlife habitat - Loss of biodiversity	-Initiate new and support existing habitat, protection, restoration and rehabilitation measures -Forestry development projects -Monitor and control illegal water abstraction from both surface and groundwater sources -Develop and implement water allocation plans	Plan Owner, Ministry of Water, WARMA
Poor methods of developing infrastructure	- Increase in degraded areas - Loss of critical wildlife habitat - Loss of biodiversity	-Establish climate proof infrastructure design to support social and Economic development -Control and regulate infrastructure growth -Conduct EIA/EA on Infrastructure projects	Plan Owner, Kajiado County Government and stakeholders
GHG Emission through Industrialization and mining	-Increased air pollution -Decrease in land coverage - loss of critical wildlife habitat	-Develop and implement a climate change adaptation and mitigation action plan	Plan Owner
Use of Biomass Energy	-Deforestation -Loss of critical wildlife habitat - Decrease in land coverage	-Promote use of sustainable energy sources to curb habitat degradation	Plan Owner and Stakeholders

Climate change related issue	**Impact**	**Adaptation/mitigation action to be taken**	**Responsibility**
		-green energy development and awareness creation	

8. IMPACT ANALYSIS AND ALTERNATIVE OPTIONS

8.1. No Land Use and Subdivision Plan Option

This option will ensure that the land use status quo remains as it was in the past. Land is all communal and is leased out for conservation. This option will ensure that the land use remains pastoralism and conservation which will leave community members as beneficiaries with very little options to improve their livelihoods. In this regard they will continue to wallow in poverty, as the current land use option is limited in terms of improving income to community members, and livelihood activities. In addition, community discontent on the current land use will continue to pile up and it may be counterproductive.

8.2. Land use plan only

Land use plan only will ensure that allocation is done for grazing, conservation and transport infrastructure. This option will ensure that pastoralism, and conservation thrive, and will only benefit a few and will continue to create dissenting voices and may not be preferable.

8.3. Subdivision Plan Only

This option will ensure that land for settlements and centres and utilities is subdivided. This option is not wholesome and will leave out critical value of the land which supports pastoralism and conservation.

8.4. Integrated Land subdivision scheme plan

This entails undertaking a land subdivision scheme plan and subjecting it to a Strategic Environmental Assessment to ensure that it takes into consideration environmental concerns, and integrate them into the plan. This will ensure positive environmental impacts are enhanced, negative ones are mitigated, and taken into account through the project period, and reviewed as is required. The option will also ensure holistic and sustainable land use by all stakeholders. It is clearly understood that the objective of land sub-division is to optimize and improve the use of land and land-based resources in OOGR for the benefit of the local community and to ensure sustainable land use management.

9. STRATEGIC ENVIRONMNENTAL MANAGEMENT AND MONITORING PLAN (SEMMP)

9.1. Management and Monitoring Action

The aim of the Strategic Environmental Management and Monitoring Plan (SEMMP) is to recommend in detail the actions required for the effective application of the SEA for OOGR LUSP as an instrument for land subdivision and land use governance after the land reforms and transition into private land tenure regime. This is necessary to alleviate or minimize the risk of negative environmental and social impacts in all the land use zones. The SEMMP will support the long-term management, monitoring and evaluation of the environmental and social status in the land use zones. It is important to note that an SEMMP is a living entity in that it is to be updated and amended based on emerging situations including new policies, legal frameworks, regulations, guidelines, national strategies, and ratification of additional international agreements.

9.2. SEMMP- Schedule

The schedule serves to give the list of environmental action to be undertaken. The SEMMP schedule is given in Table below:

Table 9-1: Strategic Environmental Management and Monitoring Plan (SEMMP)

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
1.	Pastoralism	Overstocking	Overgrazing	Promote and enforce grazing plans	Grazing committee	Daily	Number of livestock per grazing area Number of grass banks established
		Human wildlife conflict	Grazing in conservation areas	Enforce provisions of subdivision schemes on land allocation	OOGR committee/Grazing committee	Daily	Number of incidences reported
		Establishment of manyattas	Illegal settlements	No permanent manyattas in grazing areas	OOGR Committee/Grazing committee	Daily	No Manyattas in grazing zones
		Fencing	Creating barriers for animals and wildlife	No fencing in grazing areas and in settlements	OOGR Committee	Daily	No incidence of fencing
2	Conservation areas	Blocking of wildlife corridors	Human wildlife conflicts	Provide for connectivity and free movement of animals and wildlife	OOGR committee	Quarterly	Cases of Human wildlife conflicts reported

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
		Grazing in conservation areas	Transmission of diseases from wildlife to animals	Ensure livestock are kept in designated areas out of conservation areas. Provide signage for grazers to understand	Grazing committee	Daily	No. of disease transmission cases reported
3	Settlement areas	Non-adherence to settlement plans	Mushrooming of unplanned houses and tented camps	Stick to settlement scheme plan, and develop standards for the same	OOGR committee	Daily	No of settlements and tented camps approved and within approved standards
		Selling of land	Disenfranchisement of locals	No land sub-division	OOGR Committee	Daily	No of plots sold or taken up by the proposed Trust
		Population growth	Congestion, proliferation of wildlife and social crimes	Establishment of police posts in centers, and security committees.	OOGR committee	Once	No. of police posts established; No. of security committees formed
4	Irrigation areas	Clearing of trees	Wind and soil erosion, Creation of gulley's,	Practice agroforestry	OOGR irrigation committee	Quarterly	No. of farmers planting trees on boundaries, No. of tree nurseries

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
			Flush floods, and flooding of conservation areas				established in the area
		Non-maintenance of fence	Human wildlife conflict	Training of community scouts to take over the fence, enhance community ownership of the fence to ensure sustainability	OOGR committee/BIG five	Quarterly	No. of scouts trained, no of community members involved in fence maintenance
5	Infrastructure	Proliferation of roads in non-designated areas	Off road driving, soil erosion,	Ensure only designated roads are used and maintained	County Government/Public works/KWS	Daily	No. of roads identified and classified. No. of cases of off-road driving reported.

10. CONCLUSION AND RECOMMENDATIONS

10.1. Conclusions

The SEA for OOGR land subdivision scheme is a well thought out plan which has taken into consideration land use practices around the community and the people's way of life. It has strived to address social issues surrounding the need for diversification and benefit sharing while integrating conservation of wildlife in Amboseli Ecosystem. The plan has five programmes namely Pastoralism; Settlement; Wildlife and conservation; Irrigation; and Transport infrastructure, which seek to address various needs within the ecosystem. The call to undertake this SESA is timely and very critical in addressing some of the issues that have been identified in order to ensure that the plan is implemented in a smooth way and it is sustainable in the long run.

Based on review of the subdivision scheme plan, consultation with stakeholders, observations, field visits, situation analysis, and study findings, we wish to make the following remarks for consideration

- The plan is relevant, based on needs of the community, and responsive to pastoralism and wildlife conservation requirements in OOGR and within Amboseli Ecosystem. The Subdivision plan has also taken into consideration the desires and aspirations of the community and their future.
- In order to enhance sustainability, the plan needs to take into consideration key elements such as connectivity of the Amboseli Ecosystem and ensure that wildlife corridors are not blocked leading to transfer of impacts in other areas.
- There is need to undertake sensitization and awareness on grazing plans that are in place, and where none exists, there is need to develop one.
- There is need to undertake land clinics so that during implementation of the plan community members adhere to the conditions of the Sub division scheme plan and mitigate mushrooming of settlements, campsites and hotels in non-designated areas.
- There is need to develop guidelines for zoning scheme with attendant enforcement mechanisms especially on establishment of infrastructures to enhance aesthetics and maintain tourism characteristics.

10.2. Recommendations

The SEA for OOGR land subdivision scheme is a comprehensive plan that takes into account the land use practices and community lifestyle in the Amboseli Ecosystem. It aims to address social issues, promote diversification, and ensure the conservation of wildlife. The plan consists of five programs: **Pastoralism**, **Settlement, Wildlife and conservation**, **Irrigation,** and **Transport infrastructure,** which aim to address meet various community needs within the ecosystem.

After reviewing the subdivision scheme plan, consulting with stakeholders, conducting field visits, and analyzing the situation, several remarks and recommendations have been made:

1. **Compliance:** The Plan Owner must ensure compliance with the suggested Strategic Environmental Management and Monitoring Plan as well as all suggested mitigation measures and other conditions to be issued by the Approving Authority (NEMA).
2. **Relevance and Responsiveness:** The plan is considered relevant as it addresses the needs of the community and aligns with the requirements of pastoralism and wildlife conservation in the OOGR and Amboseli Ecosystem. It also considers the aspirations and future of the community.
3. **Sustainability and Connectivity:** To enhance sustainability, it is important to consider key elements such as maintaining connectivity within the Amboseli Ecosystem. Wildlife corridors should not be blocked to prevent the transfer of negative impacts to other areas.
4. **Wildlife Corridors and Buffer zones:** It is recommended that during the plan implementation phase, the plan owner works closely with the Amboseli Ecosystem Trust, KWS, Kajiado county Government, NEMA, and all other sector players to ensure that mapped wildlife corridors and buffer zones are not encroached.
5. **Grazing Plans and Sensitization:** There is a need to raise awareness and conduct sensitization on existing grazing plans. In cases where such plans do not exist, it is necessary to develop them to ensure responsible land use.
6. **Land Clinics:** It is recommended to organize land clinics to educate and engage community members in adhering to the conditions of the subdivision scheme plan. This will help prevent the unauthorized establishment of settlements, campsites, and hotels in non-designated areas.
7. **Integrated Land use planning and wildlife conservation:** It is recommended that the OOGR works closely with all relevant agencies to ensure that the various assigned land uses and zones are safe guarded to enable proper land use planning and wildlife conservation with minimal disruptions to the social livelihoods of the people and protection of the ecological sensitive areas.

8. **Zoning Guidelines and Enforcement:** Developing guidelines for zoning schemes, particularly regarding the establishment of infrastructure, will contribute to maintaining aesthetics and preserving the tourism characteristics of the area. Adequate enforcement mechanisms should be put in place to ensure compliance.

9. Taking cognizance of the fact that this is an **Ex-post SESA**, it is recommended that the plan be **gazetted** as it is with this SESA report annexed for ease of reference during plan implementation and review.

10. The OOGR Management and their stakeholders should comply with the **Ten (10) Approval Conditions** on permission to subdivide issued by the Director of Physical Planning on 18th June, 2019 and attached in section3.3.2 (Notification) of this SESA report.

11. During implementation it is crucial that the OOGR members comply with the zonation, grazing, conservation plans and guidelines, and where these are unavailable or inadequate suitable ones be developed. Proper instruments are crucial in enforcement mechanisms.

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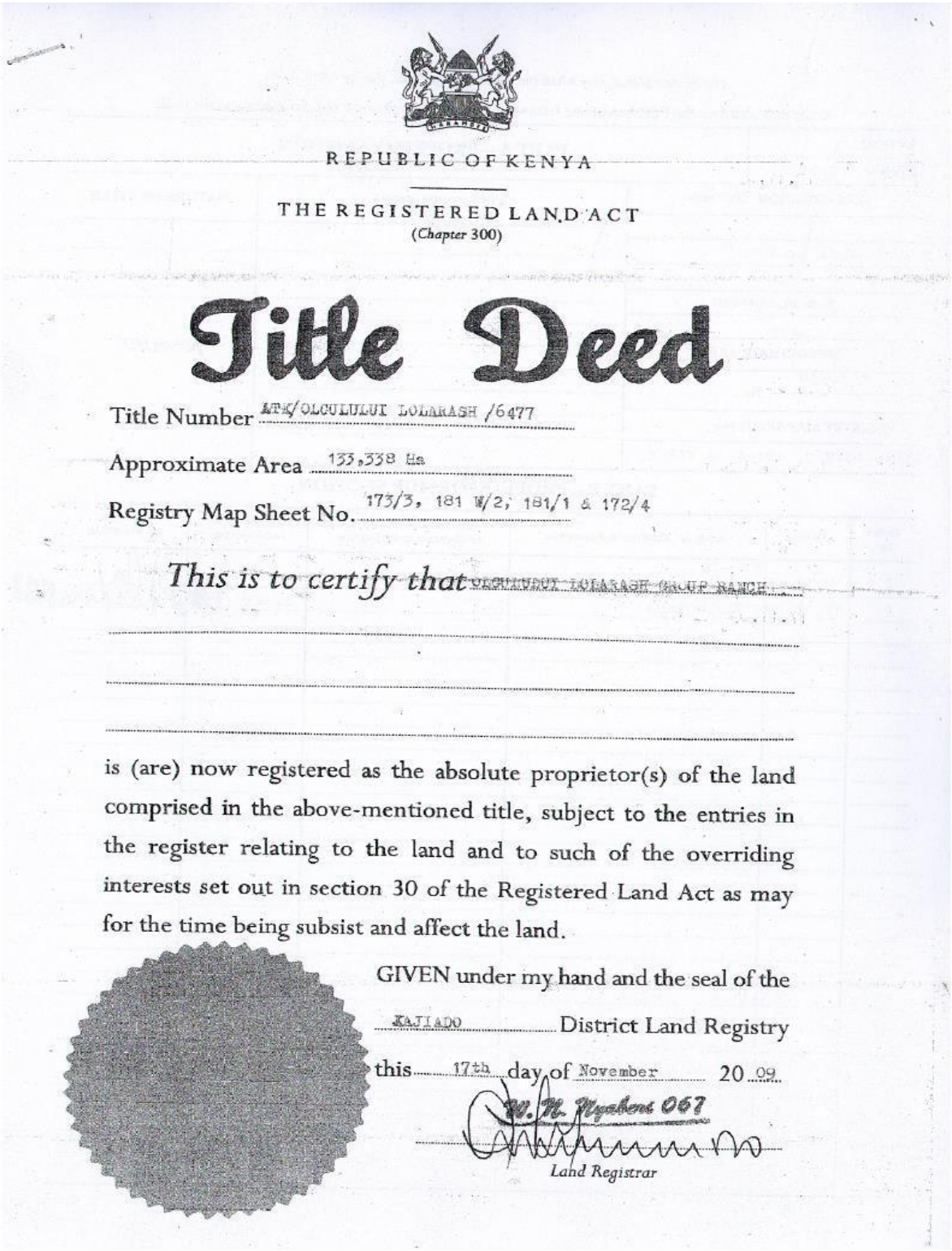
11. APPENDICES

APPENDIX 1: TITLE DEED



REPUBLIC OF KENYA

THE REGISTERED LAND ACT
(*Chapter* 300)

Title Deed

Title Number ~~ATK~~/OLCULULUI LOLARASH /6477

Approximate Area 133.338 Ha

Registry Map Sheet No. 173/3, 181 W/2, 181/1 & 172/4

This is to certify that OLCULULUI LOLARASH GROUP RANCH

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 30 of the Registered Land Act as may for the time being subsist and affect the land.

GIVEN under my hand and the seal of the

KAJIADO District Land Registry

this 17th day of November 20 09

W. M. Nyakeri 067

Land Registrar

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1
OPENED: 12.11.09

PART A—PROPERTY SECTION

REGISTRATION SECTION	EASEMENTS, ETC.	NATURE OF TITLE
OLGULULUI LOLARASHI		
PARCEL NUMBER		
6477		
APPROXIMATE AREA		ABSOLUTE
133.338 Ha.		
REGISTRY MAP SHEET No.		
173/3, 181W/2, 181/1 & 172/4		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
1	12.11.09	OLGULULUI LOLARASE GROUP RANCH			
2	17.11.09	TITLE DEED		ISSUED	

APPENDIX 2: CERTIFICATE OF INCORPORATION

MINISTRY OF LANDS AND PHYSICAL PLANNING

Telegraphic Address: **"LANDCON"**
.Telephone: Nairobi 718050
When replying please quote

LAND ADJUDICATION AND
SETTLEMENT DEPARTMENT
P.O. Box 30297
NAIROBI

REF: GR/1/101

Date: 21st November, 2018

The Chief Land Registrar
P.O. Box 30089
NAIROBI

RE: CERTIFICATE OF INCORPORATION NO. 00096 OLGULULUI/ OLOLARASHI GROUP RANCH

Enclosed herewith please find a copy of Certificate of incorporation for the above named Group Ranch for your record purposes.

EUSTACE N. KITHUMBU
FOR: DIRECTOR OF LAND ADJUDICATION AND SETTLEMENT

C.C

District Land Adj/Settlement Officer
P.O. Box 52
KAJIADO

The Chairman
Olgulului/Ololarashi Group Ranch
LOITOKITOK

29 MAR 2019

FORM B

REPUBLIC OF KENYA

THE LAND (GROUP REPRESENTATIVES) ACT
(CAP. 287, SECTION 7 (2)

CERTIFICATE OF INCORPORATION

NO. 00096

I, **EUSTACE N. KITHUMBU,** Registrar of Group Representatives, hereby certify that subject to the limitations and exemptions listed on the back of this certificate the **OLGULULUI/OLOOLARASHI GROUP RANCH** whose representatives at the date of the issue of this certificate are:

1. **DANIEL KIRIA LETURESH**
2. **LONINGO OLE SEREKA**
3. **JOSEPH KIPAIPAI NTAANI**
4. **ELIJAH KEEN NAINI**
5. **LEPERES OLE KOSEI**
6. **THOMAS MARIMPET**
7. **LENKISHON KIMITI SITOYA**
8. **KEEN OLE NKOMIYA**
9. **RINKOINE KALAMA**
10. **SIMON MPUTE OLOITIPITIP**

is incorporated under section 7 of the Land (Group Representative) Act, Cap. 287.

Dated at Nairobi this **21ST NOVEMBER, 2018.**

29 MAR 2019

EUSTACE N. KITHUMBU
Registrar of Group Representatives

21 NOV 2018 (R.I.O.)

APPENDIX 3: MINUTES OF GENERAL ELECTION MEETING

77

MINUTES OF ANNUAL GENERAL MEETING OF OLGULULUI/ OLOOLARRASHI GROUP RANCH ON 19TH NOVEMBER,2018.

VENEU: ENKONGU NAROK, NEAR SERENA-AMBOSELI.

PRESENT:

1. Daniel K. Leturesh- Chairman
2. Sammy Manina- Vice Chairman
3. James M. Moonka - Secretary
4. John Milia Muli- Treasurer
5. Bob Kimiti
6. Joshua Nasisi Nkapayia
7. Matei Koromo
8. Joel Tumuke
9. Keteko Kisopia
10. Joshua Talasua

IN ATTENDANCE

National Government Officials

1. Mr. L.M. Kinyua - DCC Kajiado South
2. Mr. Stephen Mayaka - Assistant Director of Land Adjudication and Settlement representing Registrar of Group Representatives- Presiding Officer.
3. Mr. Josiah Lessan - County Land Adjudication and Settlement Officer- Kajiado County - Taking Minutes
4. Ms. Nancy Isatia- LASA
5. Mr. Simon Wanjau- LASA
6. Mr. Moss Ndiwa - OCPD Kajiado South
7. Mr. Onesmus Mugela - DAPC Kajiado South

County Government of Kajiado Officials

1. Mr. Alais Kisota -CEC Public Service, administration and Citizen Participation.
2. Mr. Moses Murunya - Chief Officer Lands, Physical Planning and Urban Development.
3. Mr. Jonathan Maison - Ward Administrator Entonet Lenkisim
4. Mr. Japheth Saruni - Sub County Administrator Kajiado South.

1

COUNTY LAND ADJUDICATION & SETTLEMENT OFFICER
29 MAR 2019

5. Mr. Philip Murkuku - Deputy Director Land Administration.
6. Mr. Molu Halake - National Land Commission County Coordinator.

AGENDA

Election of New Group Representatives of Olgulului/Olcolarrashi Group Ranch.

Min. 1. Quorum

Over 95% of the Registered members attended.

Min. 2. Preliminaries

A preliminary meeting was held at Serena Lodge Amboseli for briefing the contestants. This was a follow up of a signed agreement spelling out the mode of election. The session went well and all the contestants were in agreement as follows:

1. Queue voting would be the mode of election.
2. Vote counting would start at 2:00 pm.
3. The two contestants for the Chairman would stand at the head of their respective queue for counting.
4. Each contestant chairman would nominate 6 agents each for the exercise to ratify genuine members.
5. Counting Officers shall be Mr. Simon Wanjau and Nancy Isatia both of the department of Land adjudication.
6. The contestant with the highest simple majority would be declared the winner.
7. Both parties unanimously agreed that All members present in the queue will be counted.
8. The looser in the election to concede defeat and work with the elected committee.
9. The Presiding Officer Mr. Stephen Mayaka shall announce the Results to all present at the end of Counting and Tallying.
10. The Presiding Officer declared the Group Representatives officially dissolved at 2:00 pm to pave way for the Election of New Office Bearers.

Min. 3 Vote Counting

Counting started at 2:20 pm and went on smoothly up to 5:40 pm when Tallying started.

29 MAR 2019

With the Tallying having been completed the following were Elected into Office with a Majority of 8,796 votes against 8,516 for his opponent:

1. Daniel Kiria Leturesh - Chairman - ID no. 3929575
2. Loningo ole Sereka - Vice Chairman - ID no. 22460901
3. Joseph Kipaipai Ntaani - Secretary - ID no. 28544544
4. Elijah Keen Naini - Treasurer ID no. 14672882
5. Leperes ole Kosei - Member -ID no. 24925986
6. Thomas Marimpet - Member - ID no. 24973254
7. Lenkishon Kimiti Sitoya - Member - ID no. 25671632
8. Keen ole Nkomiya - Member - ID no. 25666635
9. Rinkoine Kalama - Member - 11728094
10. Simon Mpute Oloitipitip - Member - Member - ID no. 22475359

Min. 4. Adjournment

There being no other business the meeting ended at 6:00 pm with a word of Prayer.

J.K.Lessan

County Land Adjudication and Settlement Officer, Kajiado

Signature..... 20/11/2018

Daniel Kiria Leturesh

Chairman Olgulului/Oloolarrashi Group Ranch

Signature..... 20/11/2018

OLGULULUI / OLOLARASHI GROUP RANCH
★ 20 NOV 2018 ★
P. O. Box 388, LOITOKITOK

G.T.C.O

COUNTY LAND ADJUDICATION & SETTLEMENT OFFICER
29 MAR 2019
KAJIADO

3

APPENDIX 4: LETTERS OF APPROVAL AND NOTIFICATION

COUNTY GOVERNMENT OF KAJIADO

COUNTY PHYSICAL PLANNING DEPARTMENT
P.O. BOX 11-01100
KAJIADO
FIFTH SCHEDULE

FORM P.P.A. 2 {S.33 (1) (A)}

Registered No. Application S/1160/2019

NOTIFICATION OF APPROVAL OF DEVELOPMENT PERMISSION

TO:
OLGULULUI OLOLARASH GROUP RANCH,
P.O BOX 388,
LOITOKITOK

Pursuant to provisions of PPA Cap 286, the Subdivision Approval Committee has approved the subdivision scheme plans submitted on **11/06/2019** for L.R. No. **Kajiado/Olgulului Ololarashi/6477** situated in **Loitokitok** via Minute **010/2019** on **18/06/2019** subject to the following / appended condition(s):

1. All land/parcels designated for public use (both in urban areas and beyond) to be surrendered to the County Government for custody and administration free of charge without any conditions.
2. The County recommends conditional titles to beneficiaries in the scheme. Any further subdivision or fragmentation shall not be allowed
3. Land designated as conservancies is restricted from human activities. Any development shall be subject to recommendations and approval by the County.
4. There shall be a clear buffers between the settlements and both the National Park and conservancies. The buffer should be maintained at all time to minimize encroachment.
5. The County shall be allowed free access to exercise monitoring, inspection and regulating of land to ensure sustainable use ,intergenerational equity and protection of land against abuse
6. All nature assets within the subdivided zone remains National and County assets; protected by the County Regulations and National Statutes; Both the County and National governments shall regulate use and exploitation. Only County and National governments shall provide policy and regulation
7. Registry Index Map (RIM) must be amended before allocation of new numbers
8. Obtain Compliance Certificate from the County Government in accordance with Physical Planning Act (Cap 286).
9. The County government of Kajiado is indemnified against any unforeseen circumstances that may result from professional negligence and/or misrepresentation of facts by the applicant
10. The County Government of Kajiado can nullify the approval or cause amendments of the conditions of approval in case of non-compliance as it may deem fit

18 JUN 2019
APPROVED

Dated.....

Signed.....
County Director of Physical Planning

REPUBLIC OF KENYA
COUNTY GOVERNMENT OF KAJIADO

DEPARTMENT OF PHYSICAL PLANNING
P.O.BOX 11-01100
KAJIADO

THE PHYSICAL PLANNING ACT (CAP 286)

(Form P.P.A.5) n.4 (3)

CERTIFICATE OF COMPLIANCE

Certificate No. 02502

Name of Applicant OLGULULUI OLOLARASH GROUP RANCH

Address P. O BOX 388 - LOITOKITOK

Type of development SUBDIVISION

On L.R. / Parcel No. KAJIADO/ OLGULULUI-OLOLARASHI 6477

Situated in LOITOKITOK (Municipality, Township, etc.)

Locality (Road, Street, Estate, etc) OFF HAMANGA ROAD within Kajiado County

This is to certify that the application as above is in compliance with:

(a) Local Physical Development Plan

(b) Approved Subdivision Plan no _____

(c) Special Conditions stipulated in the Notification of Approval (Form P.P.A.2)

dated 18/06/2019 Minute No 010/2019

(d) In compliance with the Physical Planning Act (Cap 286 of 1996) and County land use zoning standards/guidelines with respect to registered application no. (P.P.A 1) _____

Date of Issue 18/06/2019 Fees Paid (Kshs) 1500 Official Receipt No. TT9170X445R

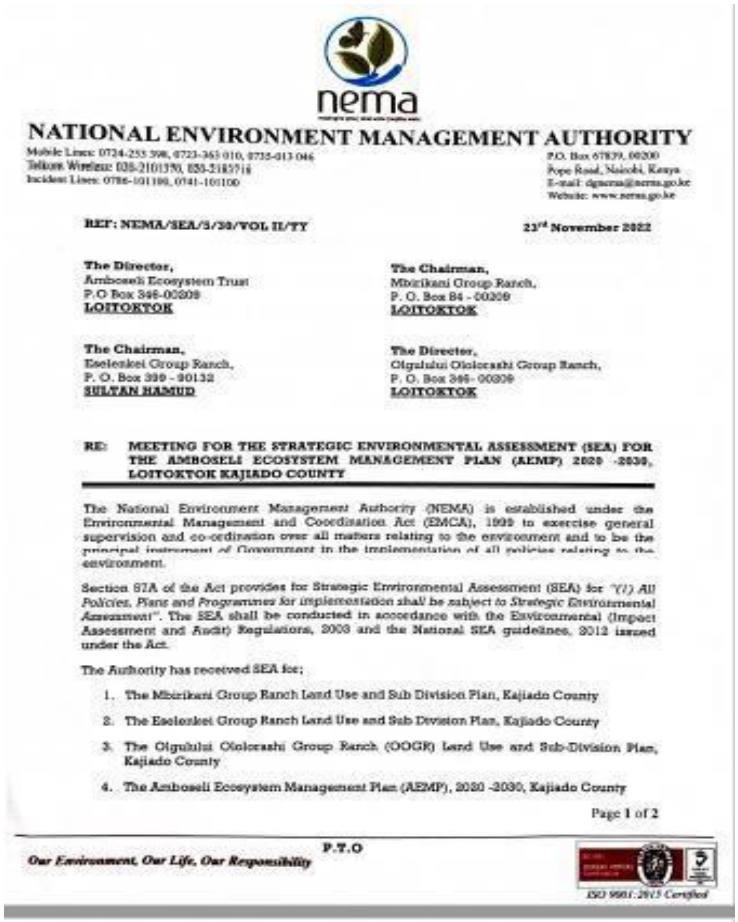
18 JUN 2019 APPROVED

Department Seal

Signature _____

County Director of Physical Planning

APPENDIX 5: VIRTUAL MEETING ON SEA SCREENING



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Lines: 0724-253 398, 0723-363 010, 0735-013 046
Telkom Wireless: 020-2101370, 020-2185716
Incident Lines: 0786-101100, 0741-101100

P.O. Box 67839, 00200
Popo Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
Website: www.nema.go.ke

REF: NEMA/SEA/S/30/VOL II/TY **21st November 2022**

The Director,
Amboseli Ecosystem Trust
P.O Box 346-00209
LOITOKTOK

The Chairman,
Mbirikani Group Ranch,
P. O. Box 84 - 00209
LOITOKTOK

The Chairman,
Eselenkei Group Ranch,
P. O. Box 399 - 90132
SULTAN HAMUD

The Director,
Olgulului Ololorashi Group Ranch,
P. O. Box 346- 00209
LOITOKTOK

RE: MEETING FOR THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR THE AMBOSELI ECOSYSTEM MANAGEMENT PLAN (AEMP) 2020 -2030, LOITOKTOK KAJIADO COUNTY

The National Environment Management Authority (NEMA) is established under the Environmental Management and Coordination Act (EMCA), 1999 to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment.

Section 57A of the Act provides for Strategic Environmental Assessment (SEA) for *"(1) All Policies, Plans and Programmes for implementation shall be subject to Strategic Environmental Assessment"*. The SEA shall be conducted in accordance with the Environmental (Impact Assessment and Audit) Regulations, 2003 and the National SEA guidelines, 2012 issued under the Act.

The Authority has received SEA for;

1. The Mbirikani Group Ranch Land Use and Sub Division Plan, Kajiado County
2. The Eselenkei Group Ranch Land Use and Sub Division Plan, Kajiado County
3. The Olgulului Ololorashi Group Ranch (OOGR) land Use and Sub-Division Plan, Kajiado County
4. The Amboseli Ecosystem Management Plan (AEMP), 2020 -2030, Kajiado County

Page 1 of 2

P.T.O

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The processing of these SEAs has revealed that they are all located within the same locality i.e the Amboseli Ecosystem. The technical complexity and the potential Environmental & Social risks associated with the implementation of the Plans requires a concerted technical evaluation to inform decision making.

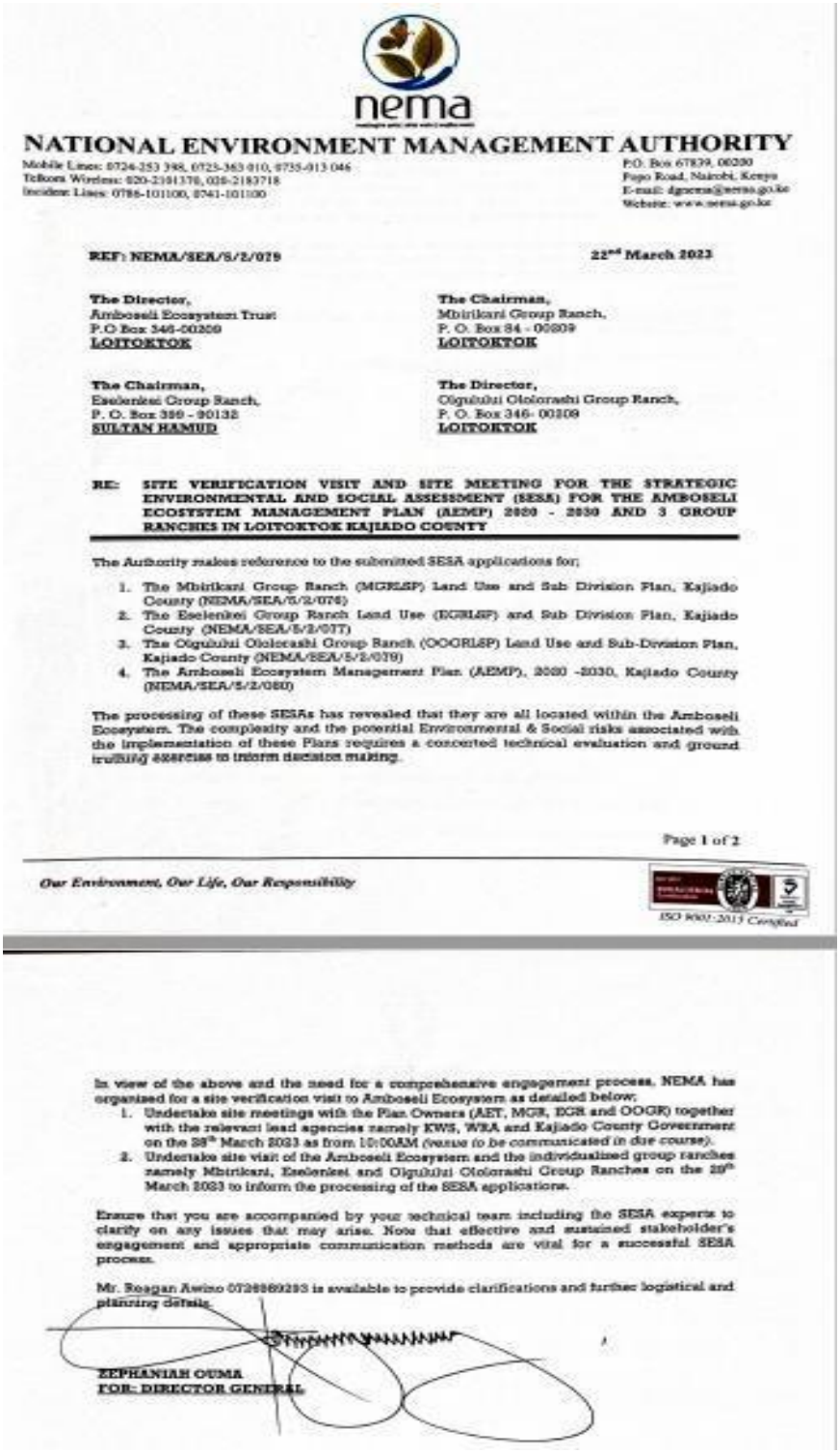
In view of the above and the need for a comprehensive engagement process, the Authority is inviting you to a virtual technical meeting to be held on Monday, 28th November 2022 through google meet/zoom *(link to be shared by NEMA)* **starting at 10:00 AM to clarify the following issues among others:**

1. **Clear description of the Plan sites including geospatial data delineating the plan sites in relation to each other.**
2. **Stakeholders mapping, identification and the engagement process.**
3. **The potential individual and cumulative impacts of the Plans to the Amboseli Ecosystem and proposed measures.**
4. **The linkages between the existing PPPs with the strategic actions at different tier levels (the links between the PPP and higher - and lower-tier strategic actions).**
5. **The objectives of the land use and sub division plans and the integration of the Amboseli Ecosystem Management plan in the Land Use Plan making process.**

Ensure that you are accompanied by your technical team including the SEA experts to clarify on any issues that may arise. Note that effective and sustained stakeholder's engagement and appropriate communication methods are vital for a successful SEA process.

ZEPHANIAH OUMA
FOR: DIRECTOR GENERAL

APPENDIX 6: NEMA SITE VERIFICATION MEETING



nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Lines: 0724-253 398, 0725-363 010, 0735-013 046
Telkom Wireless: 020-2101376, 020-2183718
Incident Lines: 0788-101100, 0741-101100

P.O. Box 67839, 00200
Popo Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
Website: www.nema.go.ke

REF: NEMA/SEA/S/2/079 **22nd March 2023**

The Director,
Amboseli Ecosystem Trust
P.O Box 346-00209
LOITOKTOK

The Chairman,
Mbirikani Group Ranch,
P. O. Box 84 - 00209
LOITOKTOK

The Chairman,
Eselenkei Group Ranch,
P. O. Box 389 - 90132
SULTAN HAMUD

The Director,
Olgulului Ololorashi Group Ranch,
P. O. Box 346- 00209
LOITOKTOK

RE: SITE VERIFICATION VISIT AND SITE MEETING FOR THE STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) FOR THE AMBOSELI ECOSYSTEM MANAGEMENT PLAN (AEMP) 2020 - 2030 AND 3 GROUP RANCHES IN LOITOKTOK KAJIADO COUNTY

The Authority makes reference to the submitted SESA applications for;

1. The Mbirikani Group Ranch (MGRLSP) Land Use and Sub Division Plan, Kajiado County (NEMA/SEA/S/2/076)
2. The Eselenkei Group Ranch Land Use (EGRLSP) and Sub Division Plan, Kajiado County (NEMA/SEA/S/2/077)
3. The Olgulului Ololorashi Group Ranch (OOGRLSP) Land Use and Sub-Division Plan, Kajiado County (NEMA/SEA/S/2/079)
4. The Amboseli Ecosystem Management Plan (AEMP), 2020 -2030, Kajiado County (NEMA/SEA/S/2/080)

The processing of these SESAs has revealed that they are all located within the Amboseli Ecosystem. The complexity and the potential Environmental & Social risks associated with the implementation of these Plans requires a concerted technical evaluation and ground truthing exercise to inform decision making.

Page 1 of 2

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In view of the above and the need for a comprehensive engagement process, NEMA has organised for a site verification visit to Amboseli Ecosystem as detailed below;

1. Undertake site meetings with the Plan Owners (AET, MGR, EGR and OOGR) together with the relevant lead agencies namely KWS, WRA and Kajiado County Government on the 28th March 2023 as from 10:00AM *(venue to be communicated in due course)*.
2. Undertake site visit of the Amboseli Ecosystem and the individualized group ranches namely Mbirikani, Eselenkei and Olgulului Ololorashi Group Ranches on the 29th March 2023 to inform the processing of the SESA applications.

Ensure that you are accompanied by your technical team including the SESA experts to clarify on any issues that may arise. Note that effective and sustained stakeholder's engagement and appropriate communication methods are vital for a successful SESA process.

Mr. Reagan Awino 0728869293 is available to provide clarifications and further logistical and planning details.

ZEPHANIAH OUMA
FOR: DIRECTOR GENERAL

APPENDIX 7: SESA SCOPING REPORT APPROVAL

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Lines: 0724-253 398, 0723-363 010, 0735-013 046
Telkom Wireless: 020-2101370, 020-2183718
Incident Lines: 0786-101100, 0741-101100

P.O. Box 67839, 00200
Popo Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
Website: www.nema.go.ke

NEMA/SEA/5/2/079 **13th April 2023**

The Director,
Olgulului Ololorashi Group Ranch,
P. O. Box 346- 00209
LOITOKTOK

RE: APPROVAL OF THE SCOPING REPORT FOR THE STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) FOR THE OLGULULUI OLOLORASHI GROUP RANCH (OOGR) LAND-USE AND SUB-DIVISION PLAN, KAJIADO COUNTY

The National Environment Management Authority (NEMA) has reviewed the issues addressed to the scoping report that was submitted to the Authority on 11th April 2023.

In light of the provisions of section 57 A of the Environmental Management and Coordination Act (EMCA), Regulations 42 and 43 of the Environmental (Impact Assessment and Audit) Regulations, 2003 and the National Guidelines for Strategic Environmental Assessment 2012. The scoping report for the proposed Olgulului Ololorashi Group Ranch land use and subdivision plan is hereby **APPROVED.** However, the issues raised vide our letter dated 27th February 2023 *(copy attached)* needs to be comprehensively incorporated during the SESA study.

As you prepare to undertake the SEA study, the Authority informs you that effective and sustained stakeholder's engagement and appropriate communication methods are vital for a successful SEA process.

Ensure that linkages between the Master Plan and other regional, National and local plans are taken into consideration. You are informed to engage your SESA experts *(Planning & Environmental Consultancy Services (PECS) Ltd)* who shall conduct the SESA process and prepare the draft SESA report for submission to NEMA.

Along with the prescribed fees of Kshs. 1 million (1,000,000) submit ten hard copies and one electronic copy of the draft SESA report (which should include a non-technical summary and the submission form).

MARGARET NJUKI
FOR: DIRECTOR GENERAL

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APPENDIX 8: LIST OF PARTICIPANTS FOR NEMA SCOPING MEETING



nema

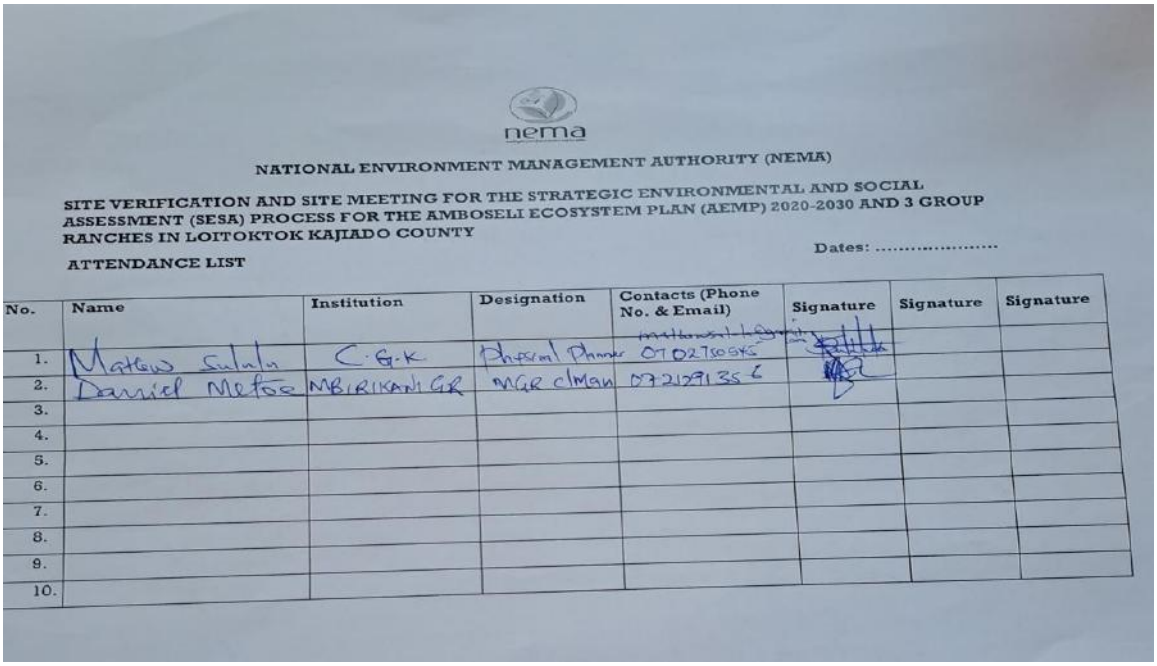
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

SITE VERIFICATION AND SITE MEETING FOR THE STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) PROCESS FOR THE AMBOSELI ECOSYSTEM PLAN (AEMP) 2020-2030 AND 3 GROUP RANCHES IN LOITOKTOK KAJIADO COUNTY

ATTENDANCE LIST

Dates: 28/March-2023

No.	Name	Institution	Designation	Contacts (Phone No. & Email)	Signature	Signature	Signature
1.	MARGARET NJUKI	NEMA	SPCO	mnjuki@nema.go.ke			
2.	MARRIAN KIOKO	NEMA	SPEO	mkioko@nema.go.ke			
3.	Kennedy Changandu	Inferior	SACC	changandu2015@gmail.com			
4.	Abdinoor Jirma	KWS	AWT	ajirma@kws.go.ke			
5.	Francis Mwawa	ENRM/HP	Consultant	francismwawa2015@gmail.com			
6.	David Manoa	ENRM/HP	Consultant	mawadand@gmail.com			
7.	JAMES MUTIMU	ENRM/A	Consultant	0722857230			
8.	JOHANA REUBEN O. OUMA	NEMA	SEO	jouma@nema.go.ke			
	VALENTINE OKOTH	WRA	L.O	0725639127 valokothawino@gmail.com			
	ANNE W. MACHARIA	NEMA HQ	PC&EO	wmacharia@nema.go.ke			



nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

SITE VERIFICATION AND SITE MEETING FOR THE STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) PROCESS FOR THE AMBOSELI ECOSYSTEM PLAN (AEMP) 2020-2030 AND 3 GROUP RANCHES IN LOITOKTOK KAJIADO COUNTY

ATTENDANCE LIST

Dates: .....

No.	Name	Institution	Designation	Contacts (Phone No. & Email)	Signature	Signature	Signature
1.	Matlew Sululu	C.G.K	Physical Planner	0702750545 matlewsulu@gmail.com			
2.	Daniel Metoe	MBIRIKANI GR	MGR c/man	0721291356			
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

No.	Name	Institution	Designation	Contacts (Phone No. & Email)	Signature	Signature	Signature
11.	Christine Mwinzi	KRTI	R/Scientist	0722299912	[illegible]		
12.	Daniel Ole Kidir	MGRCS		0721682890	[illegible]		
13.	Joel ole Leshno	MGR	C/M subdivision	T.F. 0722475086	[illegible]		
14.	Oceanic Sakwa	NEMA		0720318948	Sakwa		
15.	ERIC DEETE	NEMA	PEETO	0726069351	[illegible]		
16.	ANDREW MACHORU	SURVEY OF KENYA	SUB COUNTY SURVEYOR	0721376687	[illegible]		
17.	PAUL NTIATI	MGR	MGR-TASK FORCE	0729353176	[illegible]		
18.	Dr. Bernard Kaaria	PECS Ltd	MD	0722773951	[illegible]		
19.	Koikai Oloitiptip	Amboseli E. Trust	Partnership Coll.	0700727499	[illegible]		
20.	Lekapusha Kenka	Subcounty Administrator Ktd south	D/Director	0728917388	[illegible]		
21.	~~Kennedy Changanda~~	~~Interior~~	~~SACC~~	~~0723667579~~	[illegible]		
22.	Jackson Maraesi	EGR	TREASURER	0726078078	[illegible]		
23.	Jacob Leyian	EGR	Committee member	0745655435	[illegible]		
24.	Daniel Mapi	MGR-Secretary	Secretary	0724772240	[illegible]		
25.	LESANTA KEREMPU	Vice MGR	V/CHAIR	0711542572	[illegible]		
26.	Benson Leycon	BLF	C.E.O	0725941926	[illegible]		
27.	Loningo Sereka	OOGR	V/CHAIR	0727759703	[illegible]		
28.	JOSEPH KIPAIPAI	OOGR	Secretary	0728975304	[illegible]		
29.	Joshua Leyian	OOGR	Treasurer	0723856113	[illegible]		

FORM 7 (r.15(2))

nema
mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No : NEMA/EIA/ERPL/18586

Application Reference No: NEMA/EIA/EL/24440

M/S **Planning and Environmental Concultancy Services Limited**
(individual or firm) of address
P.O. Box 702 - 00517 Nairobi

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Firm of Experts** registration number **7839**

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

Issued Date: **1/13/2023** Expiry Date: **12/31/2023**

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001:2015 Certified

APPENDIX 9: NEMA LICENSES FOR EXPERT AND FIRM

FORM 7 (r.15(2))

nema
mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No : NEMA/EIA/ERPL/18587

Application Reference No: NEMA/EIA/EL/24442

M/S **Dr. Bernard Kaaria Irigia**
(individual or firm) of address
P.O. Box 702 - 00517 Nairobi

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert General**

registration number **0079**

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

Issued Date: **1/13/2023** Expiry Date: **12/31/2023**

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001: 2015 Certified




STAR
Quotation Summary


STAR


STAR

APPENDIX 10: SESA TEAM RESUME

Dr. Bernard Kaaria Irigia, PhD, HSC- Curriculum Vitae

CONTACT ADDRESS
P.O. Box 702-00517,
Nairobi, Kenya
Phone: +254 722 773 951
Email: kaariairigia@gmail.com ; pecskenya@gmail.com

CAREER PASSION

To work towards reducing rural poverty by empowering the local communities through improved sustainable livelihoods that focus on integrating environment and natural resources.

CAREER PROFILE AND COMPETENCIES

- Decorated with the Head of State Commendation (HSC) in 2009 for my commitment to sustainable environmental conservation and for empowering Kenyans with environmental sustainability skills.

- 30 solid years full employment by Kenya Wildlife Service (KWS) and retired in 2014 as the Director of Planning and Environmental Compliance responsible for environmental sustainability and climate change mitigation, adaptation and resilience within the wildlife conservation and tourism sectors.

- Exposed to design, implementation, monitoring and evaluation of projects and programs in climate change adaptation, agroforestry, sustainable policies, institutional governance, and entrepreneurship projects in agriculture, tourism and other rural development projects.

- Steered KWS towards strategies that promote sustainable tourism and minimize environmental and other hazards that trigger disasters. Disaster Risk Reduction, focusing Kenya's National Parks and Reserves in partnerships with communities living within protected areas has been my attention since 1994 after attaining a Master's degree in Environmental Impact assessment. Under my guidance KWS in partnerships with the communities developed and applied policies and strategies to minimize environmental vulnerabilities and risks such human-wildlife conflicts and climate change. Developed adaptation and restoration projects for degraded habitats and ecosystems in conservation areas.

- I was instrumental in establishment of several conservancies including among others the Kimana Wildlife Sanctuary in Loitokitok, the Malunganji Wildlife Conservation and Ecotourism Sanctuary in Kwale, the Lewa Downs Community Wildlife and Ecotourism Sanctuary, the Kakamega Forest Community Ecotourism project, the Samburu Lerogghi/Kelisia Community Wildlife and Ecotourism Sanctuary, as well as plans for conservancies in the Maasai Mara Ecosystem including Siana, OlChoro-Oiriwa, Lemek, Olkinyei, ORPUA Mara Conservancy, Enarau Conservancy, Nyekweri Kimintet Community Forest Conservation Trust, and the Kenya Wildlife Training Institute Ecotourism and Wildlife Sanctuary in Naivasha. I was also the Lead consultant engaged by the Ministry of Tourism and Wildlife to develop the EIA Guidelines for the tourism Sector adopted for implementation by all conservancies in Kenya.

- Enormous experience in the field of Tourism, Wildlife Management, environmental management, Disaster Risk Management, Climate change mitigation, adaptation and resilient mechanisms, and Sustainable Development.

- Lead expert in EIA, EA, SEA, SESA and registered by NEMA in 2003 under **(Reg No 0079)**. KWS lead expert in EIA Training from 2005. Responsible for developing policies on human -wildlife conflicts in Kenya and also appointed as Chairman of the NEMA Technical advisory committee (TAC) from 2003 - 2009 to advise the Director General of NEMA on EIA Related matters.

- Leadership and management experience in environmental policy formulation, preparation of general management plans for parks and reserves, based on the IUCN Protected Area Planning Guidelines; climate action plans, Ecosystem Management Plans, ecological assessments, assessments of tourism impacts, tourism planning and management, wildlife management strategies, tourism security and safety, management of recreational areas to inform decisions on project proposals inside ecologically sensitive areas.

- Founder of Planning and Environmental Consultancy Services (PECS) Limited in 2015, a special purpose vehicle (SPV) under which we undertake Environmental consultancy on environment, tourism and wildlife conservation, environmental compliance and enforcement, capacity building in environmental and social impact assessment, project environmental assessments, strategic environmental assessment, strategic environmental and social assessment (SESA), and preparation of conservation area management plans, natural resource management, climate change mitigation and adaptation as well as community participatory resilience actions to counter environmental disasters and risks resulting from climate change challenges.

- In the teaching field I am credited for initiating and facilitating the inaugural Environmental Impact Assessment and Environmental Audit (EIA/EA) NEMA approved courses in Kenya National Cleaner Production Centre, African Nazarene University (ANU), Riara University and University of Nairobi (UON), Wangari Maathai Institute. I have also been teaching these courses on part time basis in other institutions such as Africa Waste and Environment Management Centre (AWEMAC) and Catholic University of Eastern Africa (CUEA).

PROFESSIONAL EXPERIENCE & ACCOMPLISHMENTS

DIRECTOR IN CHARGE OF PARKS PLANNING PROCESS AND ENVIRONMENTAL COMPLIANCE, KENYA WILDLIFE SERVICE (KWS)

2010 - Nov 2014 Coordinated preparation of park plans using the PAPF framework, ensured enforcement of environmental standards for sustainable wildlife conservation and maintaining cooperation with partners, strengthening institutional capacity while retaining financial stability.

Accomplishments

Laid firm foundation for improved compliance and enforcement level of environmental regulations, enhanced relationships between KWS and NEMA and ensured sustained KWS capacity in application of sustainable environmental management tools, with significant financial savings.

Application of sustainability tools and preparation of ecosystem management plans or general management plans calls for consultation and public participation which has enhanced partnerships with communities and other lead agencies, thus creating more space for wildlife through establishment of community conservation sanctuaries. Due to my efforts in ensuring compliance with the national and international environmental statutory requirements, KWS won the coveted Company of the year Award (COYA) consecutively for two years.

SENIOR SCIENTIST (EIA), KENYA WILDLIFE SERVICE (KWS)

2000 - 2009 Responsible for ensuring compliance with EMCA, 1999 regulations, and guiding the organization towards leadership in environmental management and corporate social responsibility.

Accomplishments

KWS and donor funded conflict resolution and tourism investment projects were subjected to EIA and approved for implementation. This led to significant reduction of human wildlife conflicts, improved working relations with stakeholders and enhanced livelihoods.

SENIOR BIODIVERSITY PLANNER, KENYA WILDLIFE SERVICE (KWS)

1998 - 2000 Responsible for coordinating preparation of **integrated management plans** for Parks and Reserves, implementation of EIAs and formulation of policy and wildlife conservation strategies

Accomplishments

Effective negotiations on memoranda of understanding (MOUs) between KWS and the local County Councils for managing wildlife in the national reserves. This enhanced stakeholder interest and skills for managing wildlife outside protected areas.

RESEARCH SCIENTIST, KENYA WILDLIFE SERVICE (KWS)

1985 - 1993 Responsible for ecological surveys and monitoring, animal census, community-wildlife interactions and conflicts resolution studies.

Accomplishments

Wrote research papers that justified the establishment of the Problem Animal Management Unit (PAMU), a KWS human-wildlife conflict resolution response team.

AGRO-FORESTRY RESEARCH OFFICER IN KITUI, AND AGRO-FORESTRY CENTRE MANAGER, MINISTRY OF ENERGY AND REGIONAL DEVELOPMENT, KITUI AND KISII COUNTIES

1985 - 1993 Mobilizing and coordinating rural communities in tree planting programs, renewable energy projects (making energy saving cook stoves and making of charcoal briquettes).

Accomplishments

Increased on-farm tree cover at the rural household levels, minimizing dependence on natural vegetation and containing land degradation levels in Eastern and Western parts of Kenya.

SOCIAL RESPONSIBILITIES

- Chairman Jesus Hobbs Hope Home and Children School in Kitengela Kajiado County
- Vice Chairman, Greater Ongata Rongai Residents Welfare Association (GORRWA).
- President Nominee Rotary Club of Kiserian (RCK).
- Past Chairman, PCMF Langata PCEA Church, Deacon, Mbagathi Outreach District and currently the Treasurer, PCMF Langata PCEA Church.
- Chairman Laiser Community Estate Security Committee, Ongata Rongai.
- Chairman, SMART Group Welfare Association, Rongai.

EDUCATION

2006 - 2008 **Doctor of Philosophy (PHD) in Arts in Hotel Management and Tourism,** Title of thesis: "*Effectiveness of EIA in Managing Tourism Generated Waste within Wildlife Conservation Areas",* Washington International University, USA. My PhD thesis has been instrumental in guiding the development of KWS Waste Management Policy and technical guidelines for KWS.

2004 **International Diploma, Environmental Management,** Galilee College, Israel.

1993 - 1994 **Master of Science (MSc) Environmental Impact Assessment T**itle of thesis: " *The role of EIA in resolving Human- elephant conflicts in Kenya",* University of Wales, UK

1987 - 1988 Post Graduate **Diploma, Rural and Land Ecology Survey**, ITC, Netherlands, and several certificate courses

1979 - 1982 **Bachelor of Science (BSc)-Botany, Zoology & Chemistry** Punjab University, India.

OTHER PROFESSIONAL TRAINING

2010 - Finance Training for Non Finance Managers held at KWS between 9th and 11th February, 2010.

2009 - Leadership and management workshop held at PCEA Hostel, Nairobi West in December, 2009

2000 - Strategic Environmental Impact Assessment Course held in Hong Kong and organized by the International Association for Impact Assessment (IAIA), June 2000.

2000 - Environment in EC Development and Economic Cooperation workshop at Holiday Inn, Nairobi between June 13 and 16, 2000. The workshop focused on Environmental Analysis, Country Dialogue and Strategic Environmental Assessment.

1999

1999	• Environmental Decision Making workshop held in Glasgow, University of Stratechlyde, UK and organized by the International Association for Impact Assessment in June, 1999.
1999	• Environmental Management Systems (EMS) Course, held in Glasgow, University of Stratechlyde, UK and organized by the International Association for Impact Assessment in June, 1999.
1998	• Mutonga Grand Falls EIA Review workshop at Kenya College of Communications Mbagathi, Nairobi, 1998.
1998	• The Role of Community in Coastal Forest management Workshop at Lotus Hotel Mombasa, 1998.
1996	• KWS/UNESCO Workshop on Community Participation in Planning and Management of Amboseli Biosphere Reserve, Namanga River Hotel 1998.
1996	• Integrated Planning workshop for Mwea National Reserve and the environs held at Masinga Lodge, 1996.
1995	• Gender Awareness and Planning workshop held at Naivasha and facilitated by the Center for Women Studies and gender analysis, Egerton University, Njoro-Kenya, 1996.
1995	• Participatory Rural Appraisal (PRA) workshop at Naivasha conducted by Egerton University, 1995.
1992	• Integrating Research findings into Planning, Lake Nakuru National Park case study, 1995.
1992	• Communication Skills Course at the Agricultural Information Center-Kabete, 1992.
1990	• Senior Personnel Management Course by Personnel Management Consultants, 1992.
1988	• Protected Area Management Course by IUCN at Mweka College of Wildlife, Tanzania, 1990.
1988	• District Officers Course at the Administration Police Training College (APTC), 1988.
1984	• Wildlife Management Course at the Wildlife Management institute, Naivasha, 1988.
1984	• Fuel wood Conservation Workshop at Homa Bay by Kenya Energy Non-Governmental Organization (KENGO), 1984.
	• Renewable resources as alternative source of energy in the developing countries workshop held at Jacaranda hotel, Nairobi by the USAID, 1984.

RESEARCH INTERESTS

1) Ecological Surveys
2) Human Wildlife Conflicts
3) Habitat restoration
4) Agroforestry and renewable energy
5) Climate change
6) Environmental and social impact assessment
7) Biodiversity Conservation
8) Resource efficiency and pollution prevention
9) Environmental sustainability
10) Climate Risk assessment

KEY PROFESSIONAL SKILLS

- Design, implementation, monitoring and evaluation of project/programs
- Data collection and analysis
- Report writing, Review and presentation
- Team work, attention to detail and good interpersonal skills
- Organization and facilitation of stakeholders' workshops and meetings
- Proficiency with Microsoft Office Suite Applications (Word, Excel, PowerPoint, Project}
- Communication skills
- Advocacy
- Community empowerment

- Stakeholder consultation and participation skills
- Environmental management
- Reviewing EIA reports for compliance with statutory requirements
- Disaster, risk assessment and baseline studies
- Environmental impact assessment and planning processes
- Lecturing and supervision of students

SELECTED RESEARCH PROJECTS AND CONSULTANCIES (PROJECT LEADER)

2023	Lead Consultant in the preparation of Nyekweri Kimintet community forest conservation trust Management Plan 2023 – 2028 to enhance social, environmental and climate sustainability
2023	Lead Consultant in the preparation of Enarau Coservancy Management Plan 2023 – 2028 enhance social, environmental and climate sustainability
2023	Lead Consultant in the preparation of ORPUA Mara Management Plan 2023 – 2028 enhance social, environmental and climate sustainability
2023	Environmental Impact Assessment (EIA) For Establishment of Lion Guardians Limited Research Center in Eserenkei group ranch Kajiado County, Kenya
2023	Strategic Environmental and Social Assessment (SESA) for Olgulului – Oolorashi Group Ranch (OOGR) land use and Land Sub division plan with special focus towards low carbon emission.
2023	Strategic Environment and social Assessment (SESA) for Amboseli Ecosystem Management Plan (AEMP) 2020 – 2030
2022	End term Evaluation for the Green horticulture at Lake Naivasha (GOALAN Project) Supported by WWF Kenya in collaboration with Blueprint strategic advisors Limited.
2020	Lead Wildlife Expert in the preparation of the Amboseli Ecosystem Management Plan 2020 – 2030
2020	Lead Expert in the Strategic Environmental Assessment (SEA) of the Amboseli Ecosystem Management Plan 2020 - 2030
2018	Environmental Impact Assessment (EIA) of Oloolua Community Forest Association Fencing Project Supported by Institute of Primate Research – National Museums of Kenya
2017	played a key role in initiating the ISO 26000 process that effectively enhanced the social responsibility of KWS.
2016	Wildlife and tourism expert for the Environmental and Social Impact Assessment of the Standard Rail Gauge (SGR) being carried out by AWEMAC
2015	Consultant specifically handling agriculture, livestock and wildlife sectors during the preparation of Community Development Action Plans for Shimba Hills Water Tower, commissioned by the Kenya Water Tower Agency.
2015	Standard Railway Gauge Consultant responsible for identifying and developing mitigation measures for impacts of the project on protected areas affected (Tsavo East and Nairobi National Parks).
2012 - 2015	As a member of Kenya Bureau of Standards Technical Committee involved in developing international standards in the Environment sector, have in particular contributed in the development of the ISO standard on bioenergy.
2015	EIA Lead consultant on several infrastructural development projects including (Eco lodges, roads,

	buildings, tented camps, electric fences) in ecologically sensitive areas and proposed conservancies within National Parks, Reserves and private lands.
2013	Gazetted as an Environmental Inspector by the Director General, National Environment and Management Authority in Exercise of the powers conferred upon him by Section 117 of the Environmental Management and Co-ordination Act (Gazette Notice No, 5781 dated May 3, 2013.
2005 - 2009	Lead consultant in Strategic Environmental Impact Assessment (SEA) for the proposed AMREF, European Union funded Water, Sanitation and Hygiene Programme in Makueni, Kitui, Kilifi (Kaloleni and Bamba), Malindi and Kajiado (Loitokitok and Mashuru) Counties, Kenya
2009 - Present	As a member of the Environment Institute of Kenya (EIK) and initial founder member of the professional body, I have and continue to make significant professional contributions.
2006	Lead consultant in the development of the EIA Guidelines for the Tourism Sector, commissioned by the Ministry of Tourism and Wildlife.
2003 - Present	As a member of various committees established under EMCA, 1999 have contributed to the development of regulations, preparation of State of Environment Report, and enforcement since I am a gazzeted Environmental Inspector.
2003 - Present	Participated in several NEMA task forces and committees including: **National Committee on Climate Change**, **National State of Environment Committee, National Biodiversity Planning Committee, National Wildlife Policy Review Committee, World Environment Day Taskforce, EIA/EA Regulations Review Task force, KWS COYA Committee** and **National Steering Committee** on the GEF Cross Border Biodiversity Project among others.
2003 - Present	Key EIA/EA and SEA facilitator in most NEMA accredited institutions where I continue to enhance capacity for ensuring a "clean and healthy environment for all" through application of environmental sustainability tools.
2002	Key Member of the NEMA task force developing the Strategic Environmental Assessment (SEA) Curriculum.
2002	Participated in the September, 1994 UNEP EIA Capacity needs assessment programme that packaged issues, trends and practice document in 1996 culminating in the final output, the UNEP EIA Training Manual, 2002.
2000	Lead EIA Consultant of all the roads in Kenya Funded by African Development Bank (ADB)
1999 - 2000	Gazetted by the Minister for Environment as a Member of the National Implementation Committee (NIC-EMCA) on Environmental Management and Coordination Act to establish NEMA, 1999-2000.

DEMONSTRATED EXPERIENCE

Task No.	Some Work Undertaken to illustrate Capability to Handle EIA/ ESIA/SEA Tasks
1	**Environmental Impact Assessment Study Reports (EIASR) for Mau Summit, Kisumu Road, 2004 and the EIA of Nanyuki Isiolo and Merile Road for the Government of Kenya, supported by the African Development Bank (ADB) through the Ministry of Roads, Public Works and Housing.** **Position Held**-EIA Specialist **Activities undertaken involved**: Field visits, data collection, data analysis, consultation and public participation, administration of questionnaires, report drafting, inputting of stakeholder comments and final report compilation. Roads Engineers were trained on EIA and skills gained helped them to incorporate environmental concerns in the road designs. The Roads 2000 Programme supported by the ADB was a beneficiary of my EIA input in the Roads Sector in Kenya.

2	**Community Participation and involvement in Ngare –Ndare Electric Fencing Project, 1991 for Kenya Wildlife service.** **Position Held:** Stakeholder involvement and Community Expert **Activities performed:** Identifying the various communities along the proposed electric fence alignment, stakeholders
3	**The Role of EIA in Resolving Human- Elephant Conflicts in Laikipia District, Kenya, 1994.** This was my MSc in EIA thesis to satisfy the requirements by the University of Wales, Aberystwyth, UK under supervision of Prof Peter Wathern. My thesis formed the basis upon which KWS developed strategies for mitigating human-wildlife conflicts.
4	**The EIA of the Proposed Kimana Community Wildlife Sanctuary, Kajiado District Kenya, 1995 commissioned by USAID through KWS.** **Activities involved**: sensitizing local people on the importance of wildlife conservation, creating awareness on why conservation as a land use in dry areas is superior to agriculture, empowering communities to make informed and sustainable decisions, creating opportunities for self-reliance, sense of belonging and ownership. These activities ensured that the local people benefitted from wildlife and helped in changing their perception that wildlife belonged to the government and had no value to them.
5	**Environmental Impact Statement of the Proposed Imenti Forest Community Project, Kenya 1995 supported by the World bank through KWS.** **Activities involved**: educating local people on the provisions of the Wildlife Conservation and Management Act 1989 that had scrapped compensation for crops damaged by wildlife. Local people are farmers and elephants invaded their crops and the escalated human elephant conflicts in the area were not only contributing to food insecurity but human security as well. Erection of the fence stopped forest elephants from accessing the farms and this enhanced food production and minimized their spearing in retaliation.
6	**The EIA of the Proposed Kimana/Namelog Community fencing Project, Kajiado District, Kenya, 1996 supported by the African Conservation Center (ACC).** **Activities involved:** sensitizing local people on the importance of wildlife conservation, creating awareness on why conservation as a land use in dry areas is superior to agriculture, empowering communities to make informed and sustainable decisions, creating opportunities for self-reliance, sense of belonging and ownership. These activities ensured that the local people benefitted from wildlife and helped in changing their perception that wildlife belonged to the government and had no value to them.
7	Participated in **the Environmental Impact Assessment Study Report (EIASR) for the proposed Electric fence and Associated Civil Works for the Mount Kenya East Pilot** Project **(MKEPP**). The project was executed by Kamfor Co Ltd financed through KWS by Global Environment Facility (GEF). **Role Played**: Reviewed the report and submitted Lead Agency (KWS) comments to NEMA to guide decision.
8	**Strategic Environmental Assessment (SEA) of the AMREF Kenya Water and Sanitation (WASH) Programme, 2005**. **Position Held**: Lead Expert **Activities involved**: Mobilising, educating and training stakeholders and AMREF staff on the legal requirements of the newly enacted Environmental Management and Coordination Act (EMCA) of 1999, convening consultation workshops to involve stakeholders in the identification of environmental issues generated by the WASH programme activities, consultation with the National Environmental Management Authority (NEMA), drafting and reviewing the SEA report with the stakeholders and compilation of the final report for submission to NEMA for approval and certification. This SEA formed the basis upon which AMREF Kenya institutionalized environmental impact assessment and environmental audit (EIA/EA).

9	**Effectiveness of EIA in Managing Tourism Generated Waste within Wildlife Conservation Areas in Kenya.** This was my PhD thesis project to satisfy the requirements of Washington International University, USA, 2008. This document has been instrumental in guiding the development of KWS Waste Management Policy and strategy.
10	**Environmental and Social Impact Assessment Study Report for the Proposed Lot 3 Annuity Road Project for Rhamu-Mandera (75 Km) Road Located in Mandera County, Kenya.** **Position Held:** Tourism and Wildlife Resources Lead Expert **Activities involved**: mapping out tourism and wildlife resources within the project area, identifying road project impacts on the resources and suggesting mitigation measures and developing environmental management and social impact mitigation plan (EMSIMP). Africa Waste and Environment Management Center (AWEMAC) were the main consultants and the assignment was financed by Kenya National Highway Authority (KeNHA) in May, 2017.
11	**Environmental and Social Impact Assessment Study Report of the Proposed Lot 3 Annuity Road Project for Modogashe-Habasweini-Samatar Road (68km) located in Isiolo and Wajir Counties, Kenya** **Activities involved**: mapping out tourism and wildlife resources within the project area, identifying road project impacts on the resources and suggesting mitigation measures and developing environmental management and social impact mitigation plan (EMSIMP). Africa Waste and Environment Management Center (AWEMAC) were the main consultants and the assignment was financed by Kenya National Highway Authority (KeNHA) in May, 2017.
12	**Community Development Action Plan for** **Shimba Hills Water Tower, commissioned by Kenya Water Towers Authority, 2015.** **Position:** Wildlife, Agriculture and Livestock Expert **Activities involved:** Identification of improved agriculture and livestock production systems that could be promoted through various inputs such as identification of markets; preparation of training materials for use by CBO's and/or government agencies concerning suitable land use, improved seed varieties, fertilizer and pest management techniques, development of water sources and irrigation systems for small scale gardens, fisheries, and poultry production systems. Other activities included consulting key stakeholders, reviewing existing data, report writing and participating in stakeholder consultation workshops. The final report made recommendations on community empowerment, poverty alleviation, and role of communities in conserving natural resources with the realization that they form the backbone of their livelihoods.
13	**Environmental and Social Impact Assessment Study Report for the** **Proposed Mombasa-Nairobi Standard Gauge Railway Project** The ESIA, carried out by AWEMAC in 2012 is Vision 2030 Project and was financed by Kenya Railways Corporation and China Road and Bridge Corporation**.** **Role and Activities**: I organized participation of KWS relevant departments during the consultation and public participation meetings, reviewed report and submitted Lead Agency comments to NEMA. Realistic mitigation measures of the project on wildlife were discussed and agreed.

AWARDS

2009	Head of State Commendation (HSC) for significant contribution towards capacity building in the field of Environmental Impact Assessment (2009)
1999 - 2000	Participated in the 1999 Glasgow International Association for Impact Assessment (IAIA) Conference and awarded a certificate of recognition for outstanding contributions. Also Participated in the 2000 Hong Kong IAIA Conference and awarded a certificate of qualification in Strategic Environmental Assessment.

SELECTED PUBLICATIONS, RESEARCH PAPERS & PROJECTS

lrigia, B.K, 1987: The Debarking effects of Giraffes on the vegetation of Lake Nakuru National Park.

Irigia et al, 1987 : The Role of Aerial Photographs in the Management of Protected Areas. (Case Study of Namnao National Park, Thailand, ITC Journal.

Irigia B.K, 1989: The Wildlife Resources of the Nguruman, KWS, Library.

Irigia, B.K, 1990: Effects of Elephants on Combretum molle and Acacia geradii in 0l- Arinyiro, Ranch-Laikipia.

lrigia, B K, 1990: Elephant Crop Raiding Assessment in Ngarua-Division of Laikipia District.

Irigia, B.K, Thouless C. 1990: An Evaluation of the Southern Laikipia Ranches/Farms and their importance to elephants conservation.

Irigia B. K., Hoare R. E 1990: Observations on Crop Raiding, Fence design and Elephant behaviour in Laikipia District in Panchydem, 1990.

Irigia B.K 1991: Ngare Ndare EU supported Electric Fencing (Community Participation and Public Relations).

Irigia B. K 1992: Elephant Crop Raiding Assessment in Laikipia District.

Irigia B. K, 1992- The role of Laikipia Elephant Research in Community Wildlife Service.

Irigia B. K., Kagiri, J. W, 1992: Kiamariga-Raya Fence Project in Mutara Location, Laikipia District (KWS Library).

Irigia, B. K. 1992: Aberdare-Laikipia Elephant Movements in Relation to salt licks and their effects on human/agriculture. Will electric fencing be a solution?

lrigia, B.K, 1994: The Role of EIA in Resolving Human-Elephant Conflicts in Kenya-The case study of Laikipia District (MSc Thesis, Wales University, UK).

Irigia B.K. 1995: The EIA of the Proposed USAID supported Kimana Wildlife Sanctuary-Kajiado, Kenya, Ecotourism Journal,1998.

Irigia B.K.,Wekesa C. Kagiri J., 1995: Wildlife Utilization Policy Guidelines, KWS Archives.

Irigia B.K., Manegene S.M. 1995: Environmental Impact Statement of the proposed lmenti Forest Community Fence Project.

lrigia B.K., Manegene S.M., 1995: Environmental Impact Assessment of the Proposed Mount Kenya Fence Project.

lrigia B.K., et al, 1995: Community Involvement in Biodiversity Conservation in Leroghi-Kirisia Conservancy (A Feasibility Study in Samburu District- Kenya).

Hamisi M. Irigia B.K., 1996: The EIA of the Proposed World Bank supported Kimana-Namelog Community Fencing Project.

Irigia B.K., Kariuki J.M., 1996: KWS Strategy for Conduct and Use of Environmental Assessments.

Irigia B.K., Kodera C. 1996: The EIA of the proposed Hell's Gate 320KV Power Line.

Irigia B.K., Kodera C., 1996: The EIA of the Proposed Tsavo East National Park Bore Hole Drilling Project.

Gathaara G. Irigia B.K, Mukungi F., 1996: The EIA of the Proposed Kibwezi Forest Eco tourism Development.

Irigia, BK., 1999- The Role of EIA in resolving conflicts relating to sustainable resource management (A paper presented at the IAIA Conference at Strachlyde University, Glasgow, UK in IAIA Journal, 1999).

Irigia, B.K, 2000: Towards Environmental Governance and Sustainable Management in Kenya (A paper presented at the IAIA Conference in Hong Kong).

Irigia, B.K, Kuloba, B. , 2001: EIA of the Proposed UNDP Supported Mt Kenya East Beera Community Fencing Project.

Irigia B.K, et al., 2002: EIA of the Proposed Nanyuki-Isiolo Road Rehabilitation Project, supported by the Ministry of Roads and Public works.

Irigia B. K, et al., 2003: EIA Project Report of the Proposed lsecheno Bandas Eco-tourism project, Supported by Eco Tourism Society of Kenya

Irigia B. K, et al, 2004: Environment Audit for all Cooper Motor Corporation Facilities (CMC) in Kenya.

Irigia B.K,.et al, 2004: Role Play Simulation of Land Use change in Kenya-Climate-land Interaction project (CLIP)Working paper, Michigan State University Board of Trustees Publication.

Irigia B.K, et al, 2005-2008: Review of Several Environmental and Social Impact Assessment Reports for KWS and other stakeholders.

Irigia B.K, 2006: Environmental Appraisal for the proposed Fuel tank Location, a KWS internal report.

Irigia B.K, 2006: EIA Project Report for the Proposed Mwea National Reserve Borehole, a KWS Internal Report.

Irigia B.K, et al, 2008: Environmental Impact Assessment Project Report for the Proposed Maktau-Ndii Electric fence, a KWS Compliance report to NEMA.

Irigia B.K, 2008: Investigations into the Effectiveness of Environmental Impact Assessment (EIA) in the Management of Tourism Generated Waste within Wildlife Conservation Areas in Kenya (PhD Thesis, Washington International University, USA).

Washington-Ottombre, C., Irigia B. et al, 2009: Using a Role-playing game to inform the development of land-use models for the study of a complex socio-ecological system, published by Elsevier Journal

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REFEREES

1. Prof. John N. Muthama , PhD
   Director, Environmental Sustainability, University of Nairobi
   (Wangari Maathai Institute)
   Po Box P.O. Box 30197,
   Nairobi, Kenya
   Email: jmuthama@uonbi.ac.ke

2. Dr. Joseph Misati, PhD
   Chairman, Department Environment and Community Development
   The Cooperative University of Kenya
   P.O. Box 24814-00502
   Nairobi, Kenya
   Email: jakuma@cuk.ac.ke

3. Prof. Jacob Kibwage
   Managing Director
   AWEMAC
   PO Box 14365-00100
   Nairobi, Kenya;
   Email: kibwagejk@gmail.com

4. Mr. Francis Mwaura
   Senior Environmental Planning and SESA Consultant
   Haeginia Environmental Consultants
   P.O. Box 19112 – 00100
   Nairobi, Kenya
   Email: mwasunga2000@gmail.com

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GOD'SWILL BARAKA SEWE, - Curriculum Vitae

Updated: Jan 01, 2024

CONTACT ADDRESS

P.O. Box 16661-00620,
Mobil Plaza, Kenya
Phone: +254 714 334 992 | +254 728 769 141
Email: xoneree@gmail.com ; reexone@ymail.com

CAREER PASSION

To work towards reducing rural poverty by empowering the local communities through improved sustainable livelihoods that focus on integrating environment and natural resources.

CAREER PROFILE AND COMPETENCIES

- In 2018 I was nominated as the best Interface and interaction Designer "A Design Awards".
- I've served as creative director and a brand strategist for busy International Technology agency with over $8.2M a year in annual revenue and 110 employees. I've raised revenue by 40% in 14 months through winning and building unbreakable relationships with more than 15 new key clients.
- Managed all aspects of campaign design, including innovation, development, and implementation. Used agile workflow to cut process waste by 45%.
- Drove the best-in-class media strategy to gain insightful performance data across nine marketing channels within a myriad of multivariate testing to identify profitability and scalability for each channel. Directly led marketing strategies and consistently delivered dramatic efficiency increases to enable full-scale digital marketing optimization.
- Exposed to design, implementation, monitoring and evaluation of projects and programs in climate change adaptation, plant health regulations, agri-value chains, sustainable policies, institutions, and investments in agriculture and rural development.
- I was instrumental in establishment of several conservancies including among the Maasai Mara Ecosystem including Siana, OlChoro-Oiriwa, Lemek, Olkinyei, ORPUA Mara Conservancy, Enarau Conservancy, Nyekweri Kimintet Community Forest Conservation Trust, Olerai Conservancy and Pardamat Conservation Area.
- Experience in the field of Tourism, Wildlife Management, environmental management, Disaster Risk Management, Climate change mitigation, adaptation and resilient mechanisms, and Sustainable Development.
- Management experience in environmental policy formulation, preparation of general management plans for parks and reserves, based on the IUCN Protected Area Planning Guidelines; climate action plans, Ecosystem Management Plans, ecological assessments, assessments of tourism impacts, tourism planning and management, wildlife management strategies, tourism security and safety, management of recreational areas to inform decisions on project proposals inside ecologically sensitive areas.
- Demonstrated the ability to design, implement, and maintain GIS systems that meet Environmental protection, urban planning and, emergency management needs. This involve streamlining data collection processes, improving data accuracy, or enhancing decision-making through spatial analysis.

PROFESSIONAL EXPERIENCE & ACCOMPLISHMENTS

TOURISM AND WILDLIFE EXPERT, PLANNING, ENVIRONMENTAL AND CONSULTANCY SERVICES (PECS) LIMITED. KENYA

2023 Nov - Present Coordinated preparation of park plans using the PAPF framework, ensured enforcement of environmental standards for sustainable wildlife conservation and maintaining cooperation with partners, strengthening institutional capacity while retaining financial stability.

Accomplishments

Application of sustainability tools and preparation of ecosystem management plans or general management plans calls for consultation and public participation which has enhanced partnerships with communities and other lead agencies, thus creating more space for wildlife through establishment of community conservation sanctuaries.

CREATIVE DIRECTOR, PULLOVA TECHNOLOGIES INC. WA, USA

2021 – March 2023 Managed and Coordinated Pullova's brand, created and distributed marketing materials, maintained online presence, Developed Users Interface and collaborated with leadership to achieve organizational goals.

Accomplishments

Increased brand awareness by 40% and generated $8.2 million a year in additional revenue through a comprehensive rebranding initiative.

PRODUCT DESIGNER (UI/UX), PULLOVA TECHNOLOGIES INC. WA, USA

2020 As a Product designer I wore multiple hats; conducting user research to understand application needs, crafting intuitive UIs and UXs, collaborating with cross-functional teams, iterating based on testing, and staying up-to-date with industry trends.

Accomplishments

Spearheaded the redesign of a complex feature, successfully navigating stakeholder interests and delivering a solution that met both users' needs and business objectives.

EAST AFRICA REGIONAL COORDINATOR, SWIFT ROBOTICS AI EA LIMITED, NAIROBI OFFICE

2019 As a regional AI coordinator, I fostered business development, supported sales and marketing, managed projects, engage with the local AI ecosystem, and analyze regional data to contribute to strategic decision-making.

Accomplishments

Developed and delivered a series of AI workshops for local businesses, attracting over 100 participants and fostering AI adoption within the East African region.

MULTIMEDIA DESIGNER, SUREWELLNESS HEALTH REFFERAL, WA, USA

2018 - 2019 Responsible for conceptualizing, crafting, and editing visual content across various formats while collaborating with the team and staying abreast of design trends.

Accomplishments

Developed a strong understanding of design principles and software through self-directed learning and mentorship from senior designers.

GRAPHIC DESIGNER, PULLOVA TECHNOLOGIES INC, WA, USA

2018 Responsible for conceptualizing, crafting, and editing visual content across various formats while collaborating with the team and staying abreast of design trends.

Accomplishments

Developed a strong understanding of design principles and software through self-directed learning and mentorship from senior designers.

INTERN, SWIFT ROBOTICS AI EA LIMITED, CHENNAI OFFICE

2018 Aug – 2018 Nov Assisted with data and models, supported projects, and continuously learned new things while networking and seeking to contribute.

Accomplishments

Successfully collected, cleaned, and pre-processed a large dataset for a sentiment analysis project, enabling further analysis and model development

GRAPHIC DESIGNER, KEYDIYAH DESIGN, KENYA

2018 - 2019 Responsible for conceptualizing, crafting, and editing visual content across various formats while collaborating with the team and staying abreast of design trends.

Accomplishments

Developed a strong understanding of design principles and software through self-directed learning and mentorship from senior designers.

DESIGN TRAINEE, MEDIAMAX NETWORK LIMITED, KENYA

2015 Oct – 2016 Jan Assisted with crafting, and editing visual content across various formats while collaborating with the team and staying abreast of design trends.

Accomplishments

Contributed to a positive and collaborative work environment by actively seeking feedback and learning from colleagues.

SOCIAL RESPONSIBILITIES

- Board Member, Ghetto Evolve Community based Organization, Mathare
- Administrative Official, Ajax Rock City Football Club, Mathare
- Secretary, worthy vessels foundation.
- Board Member GREWESCOF CBO, Bungoma.
- Non-Board Member O'motherlands Committee on climate action

EDUCATION AND PROFFESIONAL TRAINING

2022 **BSc in Geographic Information Science and Technology,** Ongoing BSc course in Geographic Information Science, Technology and Geospatial Intelligence, University of Alaska Fairbanks, Canada.

2021 **Diploma in Business Information Technology,** The Management University of Africa, Nairobi, Kenya

2020 **Digital Skills: Artificial Intelligence**, Future Learn, Accenture

2019	**Certificate in Project Management**, Kenya Institute of Management, Nairobi, Kenya
July 2018	**Fundamentals of Digital Marketing,** Google Digital Unlocked
2018	**Introduction to Robotic Application Industry 4.0 professional Course**, Swift Robotics, Nairobi, Kenya
2017 - 2020	**Higher National Diploma (HND), Artificial Intelligence, Robotics and Data Science,** Deep Mind Institute, Chennai, India.
2013 - 2014	**Motor Vehicle Mechanics Grade iii,** Grand Auto Tech Garage, Nairobi, Kenya.

RESEARCH INTERESTS

1) Ecological Surveys
2) Human-centered design (HCD)
3) Design for sustainability
4) Human Computer Interaction (HCI)
5) Human Wildlife Conflicts
6) Habitat restoration
7) Agroforestry and renewable energy
8) Ethical and Social Implications of GIS
9) Geospatial Data Analysis
10) Climate change
11) Environmental and social impact assessment
12) Biodiversity Conservation
13) Resource efficiency and pollution prevention
14) Environmental sustainability
15) Climate Risk assessment
16) Geographical Information Systems
17) Project Management
18) Robotics
19) Deep Learning
20) Sustainable Product Design
21) Nanotechnology

KEY PROFESSIONAL SKILLS

- Design, implementation, monitoring and evaluation of project/programs
- Proficient in GIS software like ArcGIS, QGIS, and ERDAS Imagine
- Excellent data management and visualization skills
- Strong understanding of spatial data analysis techniques
- Proficiency in Graphic Design (Adobe Creative Suite)
- Proficiency in Web development (HTML, CSS, JavaScript, PHP, CMS like WordPress)
- Photography skills
- Excellent communication and interpersonal skills
- Report writing, Review and presentation
- Team work, attention to detail and good interpersonal skills
- Organization and facilitation of stakeholders' workshops and meetings
- Proficiency with Microsoft Office Suite Applications (Word, Excel, PowerPoint, Project

- Communication skills
- Advocacy
- Community empowerment
- Stakeholder consultation and participation skills
- Environmental management
- Reviewing EIA reports for compliance with statutory requirements
- Disaster, risk assessment and baseline studies
- Environmental impact assessment and planning processes

SELECTED PUBLICATIONS, RESEARCH PAPERS & PROJECTS

Sewe G.B, et al, 2023: Development of Pardamat Conservation Area Management plan report

Sewe G.B, et al, 2023: Strategic Environmental Assessment (SEA) for Ogulului Ololorashi Group Ranch (OOGR) Land use and Subdivision Plan (LUSP) report.

Sewe G.B, et al, 2023: Strategic Environmental Assessment (SEA) for Amboseli Ecosystem Management plan (AEMP) report.

Sewe G.B, et al, 2023: Development of Olerai Conservancy Management plan report

Sewe G.B, et al, 2023: Development of Enarau Conservancy Management plan report

Sewe G.B, et al, 2023: Development of Orpua Mara Conservancy Management plan report

Sewe G.B, et al, 2023: Development of Nyekweri Kimintet Conservancy Management plan report

Dr. Elijoy Micheni, Sewe G.B, et al, 2023: Predictive Analytics and Artificial Intelligence in Blended Learning: A New Dawn for Institutions of Higher Learning

SELECTED RESEARCH PROJECTS AND CONSULTANCIES

2023	Lead tourism and wildlife expert in the preparation of Pardamat Conservation Area Management Plan 2023 – 2028 to enhance social, environmental and climate sustainability
2023	Lead tourism and wildlife expert in the preparation of Olerai Conservation trust Management Plan 2023 – 2028 to enhance social, environmental and climate sustainability
2023	Lead tourism and wildlife expert in the preparation of Nyekweri Kimintet community forest conservation trust Management Plan 2023 – 2028 to enhance social, environmental and climate sustainability
2023	Lead tourism and wildlife expert in the preparation of Enarau Coservancy Management Plan 2023 – 2028 enhance social, environmental and climate sustainability
2023	Lead tourism and wildlife expert in the preparation of ORPUA Mara Management Plan 2023 – 2028 enhance social, environmental and climate sustainability
2023	Tourism & GIS Expert Strategic Environmental and Social Assessment (SESA) for Olgulului – Oolorashi Group Ranch (OOGR) land use and Land Sub division plan with special focus towards low carbon emission.
2023	Tourism and Wildlife expert Strategic Environment and social Assessment (SESA) for Amboseli Ecosystem Management Plan (AEMP) 2020 – 2030

REFEREES

1. Dr Bernard Kaaria Irigia, HSC
P.O. Box 702-00517,
Nairobi, Kenya
Phone: +254 722 773 951
Email: kaariairigia@gmail.com ; pecskenya@gmail.com

2. Ms. Esther J. Kotut,
Department of Social Studies
Kenya Utalii College
P.O. BOX 31052-00600
Nairobi, Kenya
Phone: 0722 418 322
Email: jkotut@utalii.ac.ke

3. Prof. Elijoy Micheni
Department of Management Science and Technology
Faculty of Social Science and Technology
Technical University of Kenya
Phone: +254(020) 2219929
Nairobi, Kenya;
Email: elyjoy.micheni@tukenya.ac.ke

4. Prof. Erastus Sifunjo Kisaka. PHD
Department of Finance and accounting
Senior Lecturer
University of Nairobi
PO Box 30197-00100
Nairobi, Kenya;
Phone: 0722 780 852
Email: esifunjo@uonbi.ac.ke

CURRICULUM VITAE
Mr. Nicholas Bunyige

Nicholas Bunyige: Mr. Bunyige holds Masters Degree in Environment Planning and Management from the University of Nairobi ,and trained in Geographical Information Systems from the Regional Center for Mapping for Development (RCMRD), Remote Sensing and Food Security from FAO, REDD+ and Climate Change Training from UNFCC e-learning Center, he is also trained in Ontario Wetland Evaluation, Species at Risk Assessment, Bird Survey, and Natural Heritage Environment Impact Assessment Ontario Canada. He is also trained in Solid Waste Management, Environmental Flows Assessment and Environmental Social Framework from World Bank. He holds a Bachelor of Arts Degree in Humanities from the Catholic University of Eastern Africa, and Arrupe Jesuit University in Zimbabwe. He was involved in development of Strategic Plans for LANABLA, LANABWRUA AND MAMACOF. Mr. Bunyige was also involved in Baseline Surveys for Forestry Irrigation Climate Change and Green Energy Project for the Kenya Forest Service in Gatanga Sub-County, Ithanga, Murang'a County, and in Nyando Sub-county, Kano East as a team leader. He is also currently undertaking Socio-economic surveys for forest adjacent communities focusing on climate change and energy use in Kitunga Forest Station in Mau Complex, Tinderet, and Nandi Forest for the Green Belt Movement. He has also completed similar studies this year for Marania, Ngaya forests in Meru County, and Kiera Forest in Tharaka Nithi County. Mr. Bunyige has also been trained in GIS Mapping of Resources and Development of Maps using ArcGIS, QGIS, ENVI and ERDAS Imagine, Digitization and coding of Data collection tools on mobile platform using Kobokit, Arcgis 123, and Survey to go etc. His experience in data collection will be useful in this study as he will be able to help in questionnaire design, digitization, monitoring and quality control.

Mr. Bunyige has also worked in Tea, and Coffee farms for Sasini and KTDA in over 12 factories in various parts of the country and is conversant with Fair Trade among other certification standards. He has also had useful experience in flower farms in Bendol farm and James Finlay in Kericho.

He also have useful working experience gained from working with Development organizations in Kenya, Uganda, Tanzania, Rwanda, Ethiopia, Zimbabwe, Chad, South Sudan and Finland. Nicholas has experience in participatory development approaches both for rural and urban community based projects in development.

Education:

2019:	M.A. Environmental Planning and Management, University of Nairobi
2000:	BA, Upper Second Class Honors Humanities, Catholic University of Eastern Africa.
1995-98:	Arrupe Jesuit University, Training in Humanities, Harare Zimbabwe

Other Training

2016:	Geographical Information Management Systems, from Regional Center for Mapping of Resources for Development
2017:	REDD+ and Climate Change in Health, Children, and Planning from United Nation Forum for Climate Change; UNITAR/UNFCC e-learning Center
2018:	Gender and Environment, Gender Matters, Conflict and Conflict Analysis: UNITAR/UNFCC e-learning Center

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2018:	Remote Sensing and Food Security training from FAO e-learning Center/Orbital Africa
2019:	World Bank Environmental Social Framework: Environmental Social Safeguards: WordBank
2020:	Integrated Municipal Solid Waste Management/Environmental Flows Assessment/Digital Agriculture : WorldBank

Work:

2014-2023: PECS LTD Environment and GIS

2004-2008: Kamfor Company Limited. Consultant in Environment

Work Experience

No.	Date from to	Company Reference and Contact details	Position	Description
1	August 2022	Strategic Environmental Assessment for Olgulului Ololorrashe Group Ranch in Amboseli Ecosystem	Assistant Team Leader/GIS expert	Review and Subjecting Olgulului Ololorrashe Group Ranch Sub-division Scheme 2019 to Environmental Social Impact Assessment and propose mitigation measures and environmental social framework before it is gazetted for adoption. Assessing how the plan will impact on pastoralism and conservation in Amboseli National Park.
2	July 2022	Danish Refugee Council	Team Leader	Needs Assessment for Plastic Waste Pickers in Nairobi, and Refugee host counties of Machakos and Kajiado. Undertook needs assessments in Kawangware, Kabiria, Kibera, Mathare, Dandora, Mwiki, Githurai, Kayole, Eastleigh, Kitengela, and Ngong town
3	1st July-Ongoing	LANABWRUA Naivaisha	Team Leader	Development of Strategic Plan for 2021-2026, Mapping of Stakeholders, Situation analysis, SWOT and PESTEL, Strategy development using Objective Oriented Tools, Logframe, activities and costing, Finance Strategy, Monitoring and evaluation Framework
4	15th May-30th June 2021	Kenya Forest Service	Socio economic Survey/ Resource Mapping Specialist	Review and Development of Participatory Forest Management Programmes for Marania and Ngaya Forests in Meru County, and Kiera Hill in Tharaka Nithi County.
5	July-October 2020	Lake Naivasha Basin Landscape Association/WWF	Team Leader	Development of Strategic Plan 2020-2025, Mapping of Stakeholders, Situation analysis, SWOT and PESTEL, Strategy development using Objective Oriented Tools, Logframe, activities and costing, Finance Strategy, Monitoring and evaluation Framework
6	April-June 2020	Kenya Forest Service	GIS	Documentation of Tree Species and degraded areas in Kiambicho, Kimakia, Wanjere Forest stations in Muranga County. Identification of tree species, literature review, mapping of degraded areas, report writing.
7	January 2020	Vantage Square Development Ltd	Consultation and Public Participation	Environmental Impact Assessment for the Proposed Hotel, Apartments (150), and Supermarket on Garden City Road opposite Roasters Inn off Thika Road
8	February 2020	Feed the Children Kenya	Consultation and Public Participation	Environmental Impact Assessment for the Proposed Water Pan in Kiltamany in Waso West in Samburu County
9	November -Dec 2019	Lake Naivasha Basin Landscape/WWF	GIS and Data Collection	Study on Socio-economic Impact of PELIS in Nyandarua Forest, North and South Kinangop Forest Station, and Geta Forest Station. Assessment of the socio-economic impacts of PELIS and preparation of Petition to the government to enhance the programme to improve livelihoods in the area.
10	April-June 2019	Upper Tana NRMP Project	GIS and Land cover specialist/Digitization of data collection tools in mobile kits	Assessed ecological impact and socio-economic impact of wildlife barrier in Mt. Kenya Ecosystem.

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No.	Date from to	Company Reference and Contact details	Position	Description
11	April -June 2019	Kenya Forest Service	Environment and GIS, Digitization of Social Economic Survey tool in Mobile Kits	Review of Participatory Forest Management Plans for Kiambicho, and Karua Forest Station in Murang'a County, Chehe and Zuti in Nyeri County, and Chogoria and Development of PFMP for Munguni Hill in Tharaka Nithi Count
12.	Nov 2018-January 2019	Institute of Primate Research/PECS Ltd Dr. Bernard Kaaria info@pecskenya.com	Environment/GIS	Environmental Impact of Erection of Electric Fence in Oloolua Forest
13	Nov-Dec 2018	PECS Ltd/Elegant Company Limited Dr. Bernard Kaaria info@pecskenya.com S Ltd	Environment/GIS	Environmental Impact of Aloe Vera Processing in North Pokot Subcounty, West Pokot County
14	May-August 2018	Vi Agroforestry Mr. Peter Wachira pwachira@vi.agroforesty.org	Environment/GIS Specialist and Trainer Kenya/Tanzania/Designer of Data collection tools, and analysis using Mobile Apps	Baseline on Impact of Wildlife in Serengeti Mara Ecosystem (SEMA) Project in Narok, and Bomet Counties in Kenya, and Bunda, Tarime and Serengeti in Tanzania.
15	March -June 2018	KFS/UTaNRMP Contact: Mr. Paul Njuguna Land and Environment Coordinator utanrmp@gmail.com njugunapmacharia@gmail.com	Formulation of Social Economic Survey using Mobile App/GIS	Development of Participatory Management Plan for Kabage Forest Station

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No.	Date from to	Company Reference and Contact details	Position	Description
16	October 2017- December 2017	Trocaire Kenya, Contact: Mr. Japheth Muli Japheth.Muli@trocaire.org	Climate Change and GIS and Trainer	Study on the Effect of Gender, Age, and Ability in Climate change adaptation in Eastern Marginal Farmer Zones in Embu, Tharaka and Kitui Counties
17.	April and May 2016	University of Nairobi/ University of Ghent Contact: Prof. Daniel Olago/ Prof. Dirk Verschuren dolago@uonbi.ac.ke Dirk.verschuren@ugent.be	Environment GIS/CPP Specialist	Environmental Impact Assessment (EIA) of the proposed Deep Challa Drilling Project in Lake Challa, which is supported by International the Continental Scientific Drilling Programme (ICDP). Used IFC Environmental and Social Review Procedures.
18.	Sept. – Nov 2015	Water Service Trust Fund Contact: Mr. Kega Muthoni Monitoring and Evaluation Coordinator Isaac.kega@waterfund.go.ke	Assistant Team Leader	Undertook a baseline survey which collected both quantitative and qualitative data of water utilities in Narok County. Set benchmarks for the water utility interventions and also undertook formulation logical framework for of the purposes of monitoring and evaluation.
19.	July - October 2015	KWS/IFCMIS Contact: Mr. Philip Wamahiu Integrated Forestry Consultants Forestry consultancy@yahoo.com	GIS and Environment Specialist	Evaluation and Analysis of Alternative Sources of Energy Production and Consumption around Mt. Marsabit Forest and Design of a Sustainable Supply System. Further developed a workable operation plan and formulated a logical framework for ease of monitoring and evaluation.
20	May – July	KFS/UTaNRMP	Assistant Team Leader	Undertook the review of the Participatory Forest Management Plan for Gatare

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	2015	Contact: Mr. Paul Njuguna Land and Environment Coordinator utanrmp@gmail.com njugunapmacharia@gmail.com		Forest in the Aberdares Water Tower. Strategies included ensuring forest adjacent communities benefit from forest conservation and management, and thus ensure that they are also more responsible in protecting and managing the forest.
21	Jan- March 2015	Contact: Mr. Paul Njuguna Land and Environment Coordinator utanrmp@gmail.com njugunapmacharia@gmail.com	Data Collection and Management	Woody Biomass Survey in 29 River Basins in the upper River Tana Catchment cutting across the counties of Nyeri, Muranga, Embu, Kirinyaga, Meru and Tharaka Nithi. Collected and analysed both quantitative and qualitative data in the 29 basins and came up with recommendations on natural resources
No.	**Date from to**	**Company Reference and Contact details**	**Position**	**Description**
				management and tree growing in the basins and forests in the catchment to off- set deficits.
22.	March 2014- July 2015	Energy and Environment Partnership Programme/Ministry of Foreign Affairs, Finland Contact: Faith Odongo Deputy Director Ministry of Energy and Petroleum fahamala@yahoo.com	Assistant Project Manager	Efficiency Enhancement and Entrepreneurship Development in Sustainable Biomass Charcoaling in Kenya. The Project involved undertaking a charcoal survey and designing and installing integrated chamber wood retorts at Ministry of Energy and petroleum Energy centers in Nyeri and Meru. The kilns are made of local brick with product gas utilization and distillate removal system, which would be efficient, environmental friendly, affordable to local entrepreneurs and easy to operate and maintain. The kiln uptake will then be up-scaled so that local charcoal producers use efficient charcoal production methods.

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22.	Oct – Dec 2014	UTANRMP Contact: Muthoni Livingstone – Project Coordinator Justus Makau – M&E Officer utanrmp@gmail.com	Assistant Team Leader	Baseline Survey for the Upper Tana Natural Resources Management Project (UTANRMP) covering 24 river basins cutting across the counties of Nyeri, Muranga, Embu, Kirinyaga, Meru and Tharaka Nithi. Qualitative and quantitative data collected included that on environmental management and management. Also reviewed natural resources Logical framework formulated during the design stage
23.	June – Sept 2014	Green Belt Movement (Kenyan Environmental Organisation) Contact: Mercy Karunditu Deputy Director, Programmes mkarunditu@greenbeltmovement.org	Energy Devices Needs assessment Specialist	Formulation and Development of a roll-out strategy and action plan for Green Belt Movement to upscale it involvement in Energy Efficient Technologies. This off-setting pressure from forests was geared towards by having alternative technologies. The Green Belt Movement is involved in Tree Planting and Forestry Conservation and was started by Prof. Wangari Mathai, Nobel Laureate.
24.	May – Aug 2014	Parsons Brinckerhoff, UK/KETRACO, Kenya Contact: Contact: Mark Fraser fraserm@pbworld.com	Environment, IS, and CPP Specialist. Review, transecting and georeferencing of project	Environmental Analysis and Feasibility Study of Transmission lines 50 km, DongoKundu - Mariakani line to evacuate 700 – 800 MW of power from the proposed Liquefied Natural Gas/Compressed Natural Gas plant at Dongo Kundu, Mombasa and the extension of Mariakani sub-station; 520 km, Lamu –
o.	**Date from to**	**Company Reference and Contact details**	**Position**	**Description**
			affected persons along the transmission line	Kitui - Nairobi East line to evacuate 900 - 1000MW of power at Lamu and 900 – 1000 MW at Mui basin, Kitui. Both Plants will be coal fired and will also include

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				the Nairobi East 400/220 kV sub-station; and Proposed Makindu 400/132 kV substation along the 400 kV Mombasa-Nairobi line. The assignmentincluded assessments of both environmental and social impacts, including possible relocation of persons and their resettlement. AfDB and IFC safeguard policies and guidelines were used
22	May 2011 - Dec 2016	Ministry of Energy Contact person: Ms. Esther Wangombe, Deputy Director, Renewable Energy: emmwangombe@gmail.com	Community Liason	Afforestation of Upper River Tana Catchment. Undertaking forests rehabilitation of 200 ha on forest in Mt. Kenya and Aberdare Ecosystems. The project mobilized Community Forest Associations who were in turn employed to undertake the planting and maintenance of seedlings. Seedlings for the project are also sourced from local tree nurseries. The project was geared towards improving community livelihoods while at the same time improving conservation of the catchment.
23	May 2012 and July 2009	Mount Kenya East Pilot Project for Natural Resources Management Contact: Mr. Paul Njuguna Land and Environment Coordinator utanrmp@gmail.com njugunapmacharia@gmail.com	Environment Specialist	Environmental and Social Audit of Mt. Kenya East Pilot Project (MKEPP) activities. The audit looked at over 100 community based projects supporting livelihoods supported by MKEPP as the project aimed at poverty reduction targeting about 136,000 households (580,000 people) who are considered poor or on the brink of sliding to poverty in the project districts namely: Embu, Mbeere, former Meru Central (now comprising of Imenti North, Meru Central and Imenti South), Meru South Maara and Tharaka. IFC safeguard policies were used.

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24.	Feb – Apr 2012	Lake Victoria Basin Commission Qureish Noordin Project Manager q.noordin@yahoo.com	Assistant Team Leader	Documentation of Best Practices in Waste Water Management in Mara River Basin. Looked at best practices in waste water management among municipalities, industries and hotels within the Mara River Basin and developed a guidebook to encourage uptake of improved waste water treatment technologies.

No.	Date from to	Company Reference and Contact details	Position	Description
25.	September 2011	Parsons Brinckerhoff, UK/KETRACO, Kenya Contact: Contact: Mark Fraser fraserm@pbworld.com	Environment/GIS specialist	Environmental Analysis and Feasibility Study of Transmission lines in Garsen- Hola-Garissa (240Kms);Garissa-Wajir (330Kms); and Galu-Lungalunga (50Kms). Undertaking the environmental and social impacts scoping assessment of these lines.
26.	July- Sept 2010	Natural Resources Project Ministry of Water Project Manager	Environment/GIS specialist	Environmental Audit of the Kenya Natural Resources Management Project. The assignment reviewed hundreds of community based projects and further reviewed environmental and social management Framework of the the project whose activities were being implemented by the National Irrigation Board. Kenya Forests Service and Water Resources Management Authority.
27.	November – December 2010	Parsons Brinckerhoff, UK/KETRACO, Kenya Contact:	Environment/GIS specialist	Environmental and Social Impact Assessment of the Nairobi Ring Power Project. the social and environmental impact The assignment looked at assessment of putting up a 400kV transmission line between Suswa and Isinya (100Kms): 220

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		Contact: Mark Fraser fraserm@pbworld.com		KV line between Suswa and Ngong (50Kms); 220kV line between Ngong and Athi river (58Kms); 220 kV line between Athi River and Dandora (60Kms); constructing a 400/200/66kV substation at Ngong and Suswa; and a 220/66kV substation on Thika Road. The ESIA also came up with mitigation measures, a Resettlement (RAP); Action Plan and an Environmental and Social Management and Monitoring Plan
28.	May – June 2010	Lake Victoria Basin Commission. Qureish Noordin Project Manager q.noordin@yahoo.com	Assistant Team Leader	Mara River Basin Institutional Capacity Needs Assessment. The study evaluated capacity needs of key institutions dealing with Natural Resources Management in the Mara River Basin. Key areas of coverage were forestry, wildlife, and water resources management. The assessment then came up with a comprehensive action plan to fill capacity gaps identified. The project was funded by USAID.
29.	Oct – Nov 2010	ADRA-Somalia Doris Ouno	Trainer/Designing of Data Collection Tools	Biomass Utilization Survey in Bay and Bakol Regions in Somalia. Undertook a survey to determine biomass use and supply in the two regions in Somali and

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No.	Date from to	Company Reference and Contact details	Position	Description
		d.ouna@adrasom.org		then determined suitable interventions in both demand management and supply enhancement that would be initiated.
30.	Apr – June 2009	MKEPP/IFAD Contact: Mr. Paul Njuguna Land and Environment Coordinator utanrmp@gmail.com njugunapmacharia@gmail.com	Environmental and Socio-economic Impact Specialist	Mid-Term Review of Mount Kenya East Pilot Project (MKEPP) for Natural Resources Management. Reviewed whether the project was on its way to achieving its intended objectives, and to make recommendations on what needs to be done to meet the original goals in the remaining period. Looked at impacts, efficiency, effectiveness, relevance, and sustainability of the project and also proposed institutional arrangements for improved overall impacts.

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Other assignments undertaken:

2017: **On farm forestry Study for Water Tower Protection Project in Mt. Elgon and Cherengani,** in West Pokot, Bungoma, Kakamega, Kisumu, Nandi, and Uasin Gishu Counties. Client ACAL Consultants/KEFRI
2017: **Environmental Impact Assessment for the Proposed Dinning Hall in Kenya High School.** Client: Kenya High School
2015: **Analysis of alternative Sources of Energy Production and Consumption Around Mt. Marsabit Forest Ecosystem and Design of Suitable Supply System.**Client: Kenya Wildlife Service

2015: Review and Development of Participatory Forestry Management Plan for Gatare Forest in Murang'a County 2015-2019. Client: Kenya Forest Service

2012: Environmental Audit of Sasini Tea and Coffee Factories in Sotik, Kiambu, and Nyeri. Client: Sasini Tea and Coffee
2011: Afforestation of Upper Tana Catchment Area in Lower Imenti, Aberdares, and Mt. Kenya. Client: Ministry of Energy
2011: Environmental Impact Assessment for Nairobi Pentecostal Church Parklands,
2011: Environmental Impact Assessment for Tea Research Foundation of Kenya Factory.
2010: Environmental and Social Impact Assessment for the Proposed Electricity Transmission Line from Suswa to Isinya, and Associated Substations: Client: KPLC, PB Power Uk

2010: Environmental Impact Assessment for the Proposed KTDA Olenguruone Tea Factory in Kiptagich.

2009: Development and Backstopping of the Tree Biotechnology Programme Trust. The assignment involves ensuring the Sustainable delivery of clones/seedlings at farm level through tree nursery operators' networks and development of capacity building for wider distribution of clones/seedlings and subsequent management of the planted crop. The assignment also involved developing a Clonal Tree Nursery Manual for use by nursery operators, and assisting tree growers form an association and developing an accreditation scheme for tree nurseries and products. **Client. Tree Bio-technology Programme**

2008:Study on the Nature and Extent of Environmental Crime in East Africa
Undertaking research and giving a country status report on nature and extent of environmental crime in Kenya. : The assignment involved desk study and interviews with key stakeholders on the form, and scale of environmental crimes in Kenya focusing on forestry – illegal logging; wastes – transportation and dumping of harzardous wastes; pollution; wildlife; illegal trade in flora and fauna; and other environmental crimes.
Client: The Institute for Security Studies.

2008:Environmental Impact Assessment on Erection of Wildlife Barriers in Mt. Kenya Region. The study was two fold with Phase one undertaking an EIA Project Report for rehabilitation of roads, bridges, construction of ranger outpost and extension of electricity line. Phase two undertook an EIA for construction of wildlife barriers starting with a scooping study to identify the best barrier type with key considerations being the communities preference, cost, environmental impacts, and socio-economic impacts.
Client: Kenya Wildlife Service/GEF

2008:Environmental Audit for Agricultural Development Corporation ranches, Gulana, Kulalu, and Kiswani
Assessed the environmental impacts of the ranches and proposed mitigation/improvement measures. Also developed an environmental management plan. Client: Agricultural Development Corporation.

2007: Small Grants Management Project for the Ministry of Energy and Mineral Development in Uganda: The assignment involves vetting and disbursing small grants to small scale minors in Uganda: **Client: Ministry of**

Energy and Mineral Development in Uganda.

2007:Communication Needs Assessment for Lake Victoria Environmental Programme. The assignment involved review the impact of LVEMP I programme among Lake Victoria Basin communities.
Client: Lake Victoria Environmental Programme.
2007: Formulation of Environmental Impact Assessment Guidelines for the Tourism Sector. Formulating sectoral guidelines for the Tourism sector to ensure sustainable and best environmental practices for the tourism industry in Kenya. **Client: Tourism Trust Fund**
2007: Feasibility Study for Nguuru Gakirwe Irrigation Scheme. Client: Mt. Kenya East Pilot Project
2007: Country Profile on Environment Study in Kenya. Client: JICA
2006: Environmental Impact Assessment for Proposed Office Block at Jumuiya Place, Hurlingham. Undertook the Environmental Impact Assessment of the proposed project, proposed mitigation and enhancement measures. **Client**: NCCK

2006: Development of River Basin Management Plans for Kapingazi and Rupingazi Rivers. Undertook development of river basin management plans for two river basins in Embu and Mbeere districts. The management plans involved looking at environmental, social, geological, hydrological, agricultural, and economic issues to ensure the sustainable management of the river basins natural resources. **Client: Mount**
Kenya East Pilot Project for Natural Resources Management.

2006: Environmental Impact Assessment of Sasini Tea and Coffee Limited. Undertook the environmental impact assessment of the proposed Coffee Mill and proposed mitigation measures. **Client**: Sasini Tea and Coffee Limited.

2006: Environmental Impact Assessment of Tree Biotechnology Borehole. Undertook the environmental impact assessment of the proposed borehole and proposed mitigation measures. **Client**: Tree Biotechnology.

2006: Environmental Impact Assessment of Daystar Laboratories. Undertook the environmental impact assessment of the proposed laboratories and proposed mitigation measures. **Client**: Daystar University.

2006: Environmental Audit for Sasini Tea and Coffee Limited (Self Audit)– Coffee and Tea Factories as well as Plantations. Assessed the environmental impacts of the Tea & Coffee Estates of Sasini Tea and Coffee Limited. Proposed mitigation/improvement measures. **Client: Sasini Tea & Coffee Limited.**

2006: Environmental Audit for Kenya Meat Commission. Assessed the environmental impacts of the Kenya Meat Commission Factory. Proposed mitigation/improvement measures. **Client:** Kenya Meat Commission.

2005:Environmental Impact Assessment for Naivasha Country House Hotel. Assessed the environmental impacts of the hotel in Naivasha and proposed mitigation/improvement measures Client: Kenvash Hotel.
2005/6:Environmental Management of Aberdare Safari Hotels – Tree Tops and Outspan. Developed an Environmental and Social Management Plan for both hotels and undertook advisory and supervisory role in an environmental rehabilitation programme. **Client: Aberdare Safari Hotels**.

2005: Environmental Impact Assessment of four Proposed Kenya Tea Development Agency factories in Igembe – Meru; Tirgaga – Bomet; Kaptumo – Nandi South; and Kuri – Kiambu. Looked at potential environmental impacts, legal and regulatory frameworks and came up with mitigation measures for adverse impacts. **Client.** KTDA.

2005: Environmental Impact Assessment of Coral Key Luxury Cottages. Undertook the environmental impact assessment of the proposed cottages and proposed mitigation measures. **Client**: Overlook Management Ltd
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2005: Formulation of Manual/Tool Kit for Tourism Trust Fund. The assignment involved looking at best practices in the field of eco-tourism and making a manual to help applicants supply TTF with enough information when applying for funds. Key aspects in the manual were: project sustainability, environmental conservation aspects,

poverty alleviation, community participation and sharing of benefits, and tourism diversification. **Client: TTF/European union.**

2005: Renewable Energy Resource Information Development And Capacity Building Assessment- Formulation of a renewable data base and preparation of investment packages in renewable energy spanning ten years. Also capacity building on ministry's staff to identify investment projects and to mobilize resources for their actualization. **Client: Ministry of Energy and Minerals Development-Uganda/World Bank**

2005: Ex-Post Evaluation of Kenya Institute of Surveying and Mapping. Evaluated the impacts and sustainability of KISM five years after project funding by JICA. Involved tracing ex-trainees and employers, administration of questionnaires, interviews, data analysis and reports writing. Recommendation on how to ensure a positive impact and institutional, technical and financial sustainability were given. **Client: JICA**

2005: Environmental Audit of Maasai Mara National Game Reserve and Maasai Mau Trust Land Forest. Assessed the Environmental Impact of the activities in Maasai Mara National Game Reserve and Maasai Mau Trust Land Forest, and proposed mitigation measures. **Client: County Council of Narok.**

2005: Environmental Audit of Kenya Tea Development Authority. Assessed the environmental impacts of the 7 KTDA factories (Kiru, Chinga, Iriqni, Gitugi, Gathuthi, Ragati, and Ndima) to assess their impacts on the environment and give mitigation/improvement measures. **Client:** KTDA.

2005: Environmental Audit of Sasini Tea And Coffee Estates and Factories. Assessed the environmental impacts of the tea and coffee growing and processing activities of sasini Company. In all visited 2 coffee factories and 5 estates in Thika; 1 factory and two coffee estates in Nyeri; and 2 tea factories and four tea estates in Nyamira/Bureti. Proposed mitigation/improvement measures and synthesized their different operation plans into an environmental management plan. **Client:** Saini Tea and Coffee.

2005: Environmental Audit of Switchgear and Controls. Assessed the environmental impacts of the electrical panels making industry in Nairobi's industrial area and proposed mitigation/improvement measures.
Also developed an environmental management plan. **Client:** Switchgears and Control Ltd.

2004: Environmental Audit of Aquarius Hotel. Assessed the environmental impacts of the hotel in Watamu and proposed mitigation/improvement measures. Also developed an environmental management plan. **Client:** Boci Boci Kenya Limited.

2004: Environmental Audit of Blue Key Hotel. Assessed the environmental impacts of the hotel in Watamu and proposed mitigation/improvement measures. Also developed an environmental management plan. **Client:** Blue Key Hotel.**2004: Environmental Audit of Tsavo Buffalo Hotel.** Assessed the environmental impacts of the hotel in Watamu and proposed mitigation/improvement measures. Also developed an environmental management plan. **Client:** Katmai Investments Limited.

Certification:

I, the undersigned, certify that these data correctly describe me, my qualification, and my experience.



Date: 15th January 2024
[Signature of staff authorized representative of the staff]

Full name of Staff Member: **Mr. Nicholas Bunyige**

Full name of authorized representative: D**r. Kaaria**

14

D. Kalele CV

Dorcas Nzasu Kalele

P. O Box 40299- 00100
Nairobi, Kenya
Mobile: +254 725 801 666/0780373164 **Email**: doriskalele@gmail.com

Summary

Dorcas is a dynamic agriculture and climate change adaptation specialist with over fifteen (15) years of working experience. Her expertise includes project planning and implementation, capacity strengthening, sustainable agriculture technologies, disaster risk reduction, design, implementation and analysis of agriculture and climate change policies. She is passionate about research, and capacity building initiatives with gender equality and inclusion lens for transition to low-carbon and resilient development.

Key Professional Skills and Competencies

- Design, implementation, monitoring, and evaluation of project/programs
- Technical, analytical, and conceptual skills
- Teamwork, attention to detail and good interpersonal skills
- Ability to build effective relationships with stakeholders
- Organizing and facilitating stakeholders' engagement processes

Education Background

- Sept' 2014 – Dec' 2021, **PhD in Climate Change and Adaptation**, University of Nairobi, Kenya
- Sept' 2006 – Sept' 2007, **Master of Science in Nematology**, Ghent University, Belgium
- Sept' 1999 – Dec' 2004, **Bachelor of Science in Horticulture**, Moi University, Kenya

Professional Working Experience

- **June 2022- Current, Research Fellow in Climate Resilient Economies and Agriculture, Food and Nutrition Security Programs, African Centre for Technology Studies**: involved in development, review and tracking progress of program's workplans and performance monitoring and evaluation, resource mobilization through formulation of multidisciplinary project proposals and concept notes, coordinating implementation of research projects, development of monitoring, evaluation and learning frameworks, collection and synthesis of scientific data and information to guide policy dialogues and capacity strengthening, stimulating dialogues on technology brokerage and knowledge exchange to support climate-resilient economies, research dissemination through policy briefs, scientific reports, publications, working papers, blogs and other relevant communication materials, monitoring and management of execution of project grant agreements, consulting agreements and other contracts for delivery of goods and services.

- **March 2019 to June 2021, Research Associate, Global Challenges Research Fund (GCRF) Project[1], A collaborative project between University of Leeds, UK and University of Nairobi, Kenya**, I was

[1] 'Information in Climate Change Adaptation in rural Kenya'.

involved in designing and implementing action-based research geared to garner diffusion of weather and climate information among farming communities, engagement of stakeholders in the process (county government experts, farmers organizations' leaders) and involvement of smallholder farmers on climate policy formulation and how this intersection guides farmers' adaptation processes.

- **March 2015- November 2017, Project Assistant, IPP-GAP[2] Program, (Food and Agriculture Organization (FAO) project,** I was involved in developing the capacity of smallholder farmers' groups on climate-smart agriculture (CSA) practices and technologies and supporting integration and technical implementation of conservation agriculture (CA) principles and good agricultural practices (GAP) in maize smallholder farming systems for increased agricultural productivity and profitability.
- **May 2010 - January 2015, Plant Health Inspector, Kenya Plant Health Inspectorate Service (KEPHIS),** I was recruited to strengthen the Pest Risk Analysis (PRA) Unit, in the Phytosanitary Division. Was involved in several responsibilities: including conducting phytosanitary systems' audits and pest surveys, pest risk analysis, product certification and quality controls, risk assessment for bioproducts, development of project proposals and concept notes, monitoring and evaluation and reporting.
- **January 2008-May 2010**, **Registration Officer, Pest Control Products Board (PCPB):** was involved in evaluating pest control products' dossiers; monitoring product's efficacy trials, evaluating products' efficacy reports, farmers trainings and sensitization on safe use of pesticides, and conducting surveys on pest control products use and effectiveness.

Key Consultancy & Research Assignments

- **April to date, Associate Consultant, PlanAdapt Collaborative gUG:** 'Knowledge Brokering for the Commonwealth Futures Climate Research Cohort 2023-2025' for the Association of Commonwealth Universities (ACU). Acting as to-go-to advisor, mentor, and reviewer, accompanying Early-Career-Researcher (ECRs) and supporting the design and implementation of the stakeholder engagement plans/projects (phase II and III of the project).
- **Nov to Dec 2022, Lead Consultant, Worldwide Fund for Nature (WWF, Kenya):** supporting in end of term evaluation of the Green Horticulture at Lake Naivasha (GOALAN) project. The evaluation adopted the use of a mixed-method approach to collect both quantitative and qualitative data using primary and secondary data sources.
- **July 2021 to February 2022, International Consultant, Alliance of Bioversity International and International Centre for Tropical Agriculture (CIAT):** Development of Mongolia's Livestock and Agriculture Green Country Profile which aims to identify and inform policy actions to support adoption and implementation of sustainable, climate-smart technologies and incentives for low carbon investments.
- **July 2020 to June 2021, Consultant, Alliance of Bioversity International and CIAT:** Development of Kisii and Nyamira County climate risk profiles which are made to inform the County governments and stakeholders on climate change risks and opportunities for agriculture.

[2] 'Increasing Productivity and Profitability of Smallholder Farmers through the Scaling up of Good Agricultural Practice and Conservation Agriculture

- **July to Sept' 2021, Consultant, COLEACP:** Development of a Whitefly Management Strategy Dossier to support producers and national plant protection bodies to elaborate national action plans to control the presence of the whiteflies in exported agricultural products to the European Union.
- **Feb' to March 2019, Research Assistant, Solidaridad Eastern and Central Africa:** Participated in extensive stakeholder engagement processes (workshops, Key informant interviews) coupled with literature reviews to develop a climate vulnerability assessment manual for coffee value chain in Machakos County, Kenya.
- **Sept' 2015 to Nov' 2016, Associate researcher, GIZ-UNEP Project:** Pilot Study on operationalizing green economy transition in Africa.

Professional Certification

- Training of Trainers (ToT) on Crop Protection, COLEACP, Dec 2021
- Result-Based Management Thinking Tools, Centre for International Development and Training (CIDT), University of Wolver Hampton, UK, March to May 2016
- Project Monitoring and Evaluation, Kenya Institute of Management, May to August 2011
- Research and Proposal Writing, Author AID, June to July 2015
- Training of Trainers (ToT) on Organizations' Social Responsibility, Pesticide Initiative Programme (PIP), April 2015
- Environmental Risk Assessment, Centre for Environmental Risk Assessment (CERA), March 2014

Scholarships, Research grants and awards

- African Women in Agricultural Research and Development (AWARD) Policy Fellow - Cohort 1 Gender Responsive Agriculture Systems Policy (GRASP) Fellowship
- Kenya's National Research Fund (NRF) Grant, 2016
- African Union (Mwalimu Nyerere) female scholarship, 2014
- Flemish Interuniversity Council (VLIR-UOS) scholarship, 2006
- A Book prize by German Academic Exchange Service (DAAD), 2007

Selected Professional Trainings and Conferences

- Enhancing Negotiations Skills for Women course by AWARD on 24th -30th September, Mombasa, Kenya
- Women's Leadership and Management Course organized by AWARD on 16th -22nd April 2023, Nairobi, Kenya
- Training of Trainers (ToT) on Crop Protection, organized by COLEACP (NExT Kenya Project), AICAD Hotel – Juja, Kenya, 17th –26th November; 29th November –4th December 2021
- Africa Climate Smart Agriculture Summit 2018, organized by AID & International Development Forum (AIDF), Trademark Hotel, Nairobi, Kenya, 15-16 May 2018 (Served as a Conference Volunteer)
- Phytosanitary Capacity Evaluation (PCE) Facilitators Training Course organized by the International Plant Protection Convention (IPPC), Ronciglione, Italy, 19-30 September 2016
- Volkswagen Foundation Summer School Course on Collecting, Processing and Presentation of Information on Bio-Geo Sciences, Ethiopia, 20th September to 11th October 2015 and in Kenya on 22nd February to 11th March 2016
- 2nd Africa Ecosystem Based Adaptation for Food Security Conference held at the United Nations, Nairobi on 30-31 July 2015

- Integrated Pest Management and Food Safety Training held at Centre for Development and Innovation of Wageningen, the Netherlands on 9-27 June 2014
- Pest Risk Analysis Training held at Hyderabad, India 3-7 September 2013

Membership and professional affiliations

- Member of the African Group of Negotiations on Gender and Climate Change
- A board member of the African Science and Technology Advisory Group (AfSTAG) of the African Union Commission on Disaster Risk Reduction
- A member of The Organization for Women in Science for the Developing World (OWSD)
- A member of the World Climate Research Programme (WCRP) Academy Steering Group

Selected Publications

- **D.N. Kalele**, W.O. Ogara, C. Oludhe, O.O. Onono. Climate change impacts and relevance of smallholder farmers' response in arid and semi-arid lands in Kenya, Scientific African, 12(2021).https://doi.org/10.1016/j.sciaf.2021.e00814
- **Kalele DN**, Oludhe C, Onono JO, Ogara WO. Historical Climatic Trends and Smallholder Farmers' Perceptions to Climate Variability and Change in Arid and Semi-Arid Lands, Kenya. Sci Lett 2021; 9(3):95-109. doi.org/10.47262/SL/9.3.132021020
- Motaroki L., Ouma G., **Kalele D**. (2021) "Conservation Agriculture," Possible Climate Change Adaptation Option in Taita Hills, Kenya. In: Leal Filho W., Ogugu N., Adelake L., Ayal D., da Silva I. (eds) African Handbook of Climate Change Adaptation. Springer, Cham. https://doi.org/10.1007/978-3-030-42091-8_184-1
- **Dorcas Kalele** (2016). Can conservation agriculture solve the food security crisis in Kenya? Available at http://www.scisnack.com/blog/2016/05/10

Certification:

I, the undersigned, certify that these data correctly describe me, my qualification, and my experience.

Signature: 

Full Name: Dorcas Nzasu Kalele

Date: 25th March 2024

A. Personal Details

Name : Dr. Patrick Chege Kariuki
Designation: Senior Lecturer
Contact:+254715936997
School/Institute: Geothermal Training and Research Institute(GeTRI)
Email: patrick.kariuki@dkut.ac.ke or kariukipatrick011@gmail.com

B. Academic Background

Qualification	Institution	Year
PhD in Remote Sensing	Technical University,Delft, Netherlands	2004
M.Sc. (Geological Survey)	University of Twente, Netherlands	1999
PGDip in Seismology	International Insititute of Seismology & Earthquake Engineering (IISEE), Tsukuba Japan	1995
B. Sc. (Geology),	University of Nairobi, Kenya,	1990

C. Professional Qualifications

Qualification	Institution	Year
Cert. Building Geodatabase, spatial Analysis & Advanced analysis with ArcGIS	ESRI	2005
Cert. Continuous Performance Management	InCA	2006
Cert. Python scripts	ILRI	2006
Cert. Change Management Processes	InCA	2007
Cert. Management and supervisory skills	SEKU	2010
Cert. Performance Contracting	SEKU	2011
Cert. Grant Proposal writing skills	SEKU	2013
Cert. Project Management	SEKU	2014
Cert. EIA and Environmental Audit	SEKU	2015
Cert.Community Based Monitoring System	Parnership for Economic Policy (PEP)	2015
Cert. Competence Based Curriculum	VU University	2016
Cert. Monitoring and Evaluation	VU University	2018
Cert. Data Curation	Springer	2019
Cert. Spatial Methods for Sustainable Landuse	VU University	2019
Cert. Water Resource Management Modelling	VU University	2019
Management and Leadership	DKuT	2020
CBC programs preparation	TVET-CDACC	2021
Cert. Transient Electromagnetics fo groundwater Assessments	RCGW	2023

D. Areas of Expertise

Geosciences, Remote sensing , Geographical Information Systems (GIS), Enviromental Impact Assessment (EIA)/Environmental Audit (EA) and Database management

E. Work Experience

Date	Name of Employer and Position	Countries of Experience	Key-Tasks Handled

07/ 2020 – to date	Dedan Kimathi University of Technology (DeKUT), Geothermal Energy Training and Research Institute(GeTRI), Senior Lecturer	Kenya	Lecturer in Geological Sciences, Remote Sensing and Geographical Information systems (GIS) at both the undergraduate and postgraduate level. Also supervises graduate students at Masters and PhD level. Involved in various research projects
09/2010 – 06/ 2020	South Eastern Kenya University (SEKU), Lecturer	Kenya	Lecturer in Geology, Remote Sensing and Geographical Information systems (GIS) at both the undergraduate and postgraduate level. Carried out various multidisciplinary research projects
09/ 2004 – 09/ 2010	International Livestock Research Institute (ILRI), Remote Sensing (RS) and GIS unit Manager	Kenya	Was in charge of spatial data management at the Institutional level where he established a centralised ArcSDE database system and was in charge of spatial data sharing across the intranet/internet via customised services. He was also in charge of capacity building in GIS, Global Positioning System (GPS) and Remote Sensing applications within the Institute. He was responsible for carrying out an average of four training sessions of between one and four weeks for external collaborators and internal staff every year. Other than the managerial and training tasks, he also participated in spatial analysis and predictive modelling using GIS/RS tools in various projects as the lead geo-information scientist.
09/1991 – 08/2004	Department of Resource Surveys and Remote Sensing (DRSRS) Nairobi, Research Officer (RO)	Kenya	Responsible for natural resources surveys; general landcover/landuse mapping, land use planning, land evaluation, crop yield estimation and mapping of natural resources using remote sensing and GIS system products. Was also involved in Disaster mitigation projects such as the Early Warning Programmes in the form of studies on natural disasters, an example being a project on study of the impact of the 1998 and 2000 droughts in Kenya for the United Nations Environmental Program (UNEP,2006). His last assignment at the station was on landslide hazards zonation mapping and risk assessment that involved establishing the triggering factors and identifying potential risk to enable develop proactive mitigative measures.

F. Other University National and International Responsibilities

1. 2022-Present: External examiner- University of Nairobi
2. 2019-Present: Member of the Sector Skills Advisory Committee (SSAC) for TVET CDACC on Competence Based Education and Training (CBET) Curriculum Development in energy and

extractives

3. 2007-Present: Editorial Advisory Board member of the International Journal of Applied Earth Observation and Geo-information

G. Peer review for International Journals

1) Reviewer for Clays and Clay Minerals,
2) Reviewer for Journal of Environmental Management (JEM),
3) Reviewer for African Journal of Ecology (AJE),
4) Reviewer for International Journal of Remote Sensing (IJRS),
5) Reviewer for Engineering Geology Journal
6) Reviewer for International Journal of Applied Earth Observation and Geo-information (JAG).
7) Reviewer for Journal of Ecological Processes
8) Reviewer for CANTENA Soil Journal
9) Reviewer for Minerals MDPI Journal

H. Consultancies

1. 2021-2023: Lead Geodatabase expert with Intercontinental Consultants and Technocrats Pvt. Ltd. (ICT), New Delhi in undertaking a countrywide road inventory and condition survey: County Roads, Kenya, a World Bank funded project

2. 2021-2023: Lead Geo-information expert and community Infrastructure development lead with Regional Development Consultants (RDC) in Development of Settlement Level Community Plans in Kisumu and Kakamega (cluster 3) for State Department for Housing and Urban Development, a World Bank funded project in informal settlements in Kenya

3. 2021-2023: Disaster risk management expert and team leader Mombasa in the development of urban resilience strategies for five selected cities in Kenya namely; Nairobi, Mombasa, Kisumu, Nakuru and Eldoret, a World Bank funded project

4. 2021-2023: Member of the National Technical team to Integrate Hazard Maps into The National Building Code Regulations (Building Code) 2020, a World Bank funded project

5. 2020-2021: Lead Geo-information expert in Environmental and Social Impact Assessment (ESIA)/Resettlement Action Plan (RAP) by AWEMAC for KETRACO high voltage powerline between Rongai Kenya and Mwanza Tanzania

6. 2020: Lead Geo-information expert in Environmental and Social Impact Assessment (ESIA) for proposed Asbestos burial site in Thika by EMATECH CONSULTANTS.

7. 2019: Lead Geo-information expert with Regional Development Consultants (RDC) in Development of slums typology in Kitui Kenya, this was research to inform World Bank's future work in informal settlements in Kenya

8. 2018-2019: Geo-information/ESIA expert in Preparation of Amboseli Ecosystem Management Plan (AEMP)-2019-2029) and its Strategic Environmental Assessment (SEA)

9. 2017-2019: Remote Sensing specialist in a Geodev project on preparation of maps for the 2019 census for Kenya National Bureau of Statistics (KNBS)

10. 2017: Geotechnical assessment and geological mapping of ballast potential in Kithimani area

11. 2016: Mapping Limestone resources in south eastern Kenya for SINOMA-Kenya

12. 2015: Feasibility Study for Endau Hill Catchment, Endau Malalani Ward, Kitui East Sub-County together with a team from Kenyatta University and Kitui County

13. 2015: Lead Geo-information expert in NAWASCO sewerage extension for Nairobi County with Geodev Consulting Company
14. 2015: Lead Geo-information expert in ESIA by AWEMAC for Shimba and Chyulu Hills Water Towers
15. 2015: Lead Geo-information expert in ESIA by AWEMAC for Standard Gauge Railway (SGR) extension to Narok
16. 2015: Lead Geo-information expert in ESIA by AWEMAC for Vipingo Industrial Park Development by CENTUM
17. 2015: Consultancy in Capacity building of Monitoring and Evaluation teams from across Africa, in Arusha and Nairobi for Policy and Value Chain Program of ReSAKSS ECA-ILRI
18. 2015: Geotechnical assessment and geological mapping of ballast potential for Longonot Gate in Naivasha
19. 2014: Geotechnical assessment and geological mapping of ballast potential for Makuyu Resorts
20. 2014: Assessment of Geothermal potential for Pass Africa in Menengai area in collaboration with the Ministry of Mining and University of Nairobi
21. 2013: Assessment of ballast and dimension stone potential for Home Africa in Rongai
22. 2014: Development of hydrological models using GIS and remote sensing products to establish optimal borehole sitting for maximum ground water yields for Insta pumps in Juja and Taita Taveta
23. 2012: Lead Geoinformation expert with AWEMAC in carrying out an Environmental and Social Impact Assessment (ESIA) of the high-speed railway line from Mombasa to Embakasi for Kenya Railway services
24. 2011: Spatial Analyst consultant for ILRI on major cash and food crops production risks assessment and mapping in Kenya for development of crop insurance schemes as a way of climate risk adaptation.
25. 2010: Lead Geo-information specialist on integration of geo-information in milk shed productivity monitoring and evaluation for Land O Lakes
26. 2010: Lead expert in mapping of Maasai bomas for livestock numbers estimation from high resolution satellite imagery by use of spectral characteristics of cattle pens
27. 2010: Project leader in a close out impact assessment on integrated household survey of the Kenya Maize Development Program (KMDP) supported by USAID.
28. 2009: Lead geo-information scientist in a baseline survey on Water and Forestry Resource use in Kenya for the Ministry of Water and Irrigation.
29. 2009: Lead geoinformation expert in developing an outcome and impact monitoring and evaluation framework for ASARECA projects with an input of incorporating Geo-information science in the framework.
30. 2009: Consulted for Stockholm Environment Institute (SEI) on adapting East African ecosystems and productive systems to climate change. This was part of SEI submission to

COP 19 Copenhagen Conference.

I. Publications

i) Books and Book Chapters

1. Western D, Musyoki C, Mwangi E, Mwachala G, Said M, Wargute P, Matiku P, Landsberg F, Waruingi L.W, **Kariuki P**, Situma C, Ojwang G.O, Njinu L.W, Mulenkei L, Muli D, Malombe I, Marchant R.A, Platts P.J, Muchai M, Kamau P, Njoroge P, Wambuyele E, Kimeu J, Kangethe S, Malonza P, Nyingi D.W, Mbau J, Gikungu M, Kioko E, Otieno N, Baraza F, Kanga E, Chege S, Henninger N, Jeltz W, and Stickler M., 2015., Kenya's Natural Capital: A Biodiversity Atlas, Publisher: Government of Kenya, Ministry of Environment Natural Resources and Regional Development Authorities ISBN: 9966-21-178-0

2. **Kariuki, P.C.**, Shepherd, K. and van der Meer, F.D. 2006, Spectroscopy as a tool for studying swelling soils. In: Expansive soils: recent advances in characterization and treatment. / ed. by A. A. Al-Rawas and M.F.A. Goosen. Leiden: Taylor & Francis, 2006. ISBN 0-415-39681-6. pp. 211-229

ii) Peer Reviewed Journal Publications

1. Emekwi, P.L.,Mariita, N.O. and **Kariuki, P.C**. (2024), Structural Controls Analysis and Its Correlation with Geothermal Occurrence at Barrier Volcanic Complex (BVC), Turkana,Kenya. International Journal of Geosciences, 15, 231-245. https://doi.org/10.4236/ijg.2024.153014

2. Edward James Maarifa, **Patrick Chege Kariuki** & Elisante Elisaimon Mshiu (2024): Mapping of surface hydrothermal mineral alterations and geological structures related to geothermal systems in the Songwe region, SW Tanzania, Geosystem Engineering, https://doi.org/10.1080/12269328.2023.2299481

3. Mutunga., E.J., Ndungu, C.K, Mwangi, M, and **Kariuki, P.C**.,2022, Rainfall and Temperature Trends and Variability in Arid and Semi-arid Lands of Kitui County, Kenya, Journal of Environment and Earth Science 12 (No.12, 2022)

4. Phyllis Mumia Machio, Diana Njeri Kimani, **Patrick Chege Kariuki**, Alice Muthoni Ng'ang'a & Michael Murigi Njoroge., 2022, Social Capital and Women's Empowerment, Forum for Social Economics, https://doi.org/10.1080/07360932.2022.2115526

5. Oduke WO, Musembi DK, **Kariuki PC.,**2021, Changes in Cropland Between 1986 and 2019 in Kitui Central Sub-County, Kitui County, Kenya. J Remote Sens GIS 10: p132.

6. Mugo, J.W., Musembi, D.K., and **Kariuki, P.C**., 2021, Determination of the Best Planting Season for Green Grams in Kitui County, Kenya, Using the Analytic Hierarchy Process, Open Access Library Journal, 8: e8156. https://doi.org/10.4236/oalib.1108156

7. Fredrick Tom Otieno, John Gachohi, Peter Gikuma Njuru**, Patrick Kariuki**, Harry Oyas, Samuel A Canfield, Jason K Blackburn, M Kariuki Njenga, Bernard Bett, 2021, Modeling the spatial distribution of anthrax in southern Kenya, PLoS neglected tropical diseases,15(3), March 2021

8. Fredrick Tom Otieno, John Gachohi, Peter Gikuma-Njuru, **Patrick Kariuki**, Harry Oyas, Samuel A Canfield, Bernard Bett, Moses Kariuki Njenga, Jason K Blackburn, 2021, Modeling the Potential Future Distribution of Anthrax Outbreaks under Multiple Climate Change Scenarios for Kenya, International journal of environmental research and public health 18(8), January 2021

9. C.K Ndungu, E.J Mutunga, M Mwangi, **P.C Kariuki**, 2021, Food Insecurity Coping Strategies and Determinants of Households' Choice of Specific Coping Strategies in Kitui County, Kenya, Journal of Food Security, 2021: Available online at http://pubs.sciepub.com/jfs/9/2/1

10. Lincoln K Githenya, Eliud M Mathu, **P C Kariuki**, J Waita, 2021, Integration of remote sensing and geological mapping for economic mineralization mapping in Mwitika-Makongo area, Kitui country, Journal of Remote Sensing & GIS, Vol.10 Iss.2 No:281

11. Mutunga., E.J., Ndungu, C.K, Mwangi, M and **Kariuki, P.C**., 2020, Modelling Determinants of Farmers' Choice of Adaptation Strategies to Climate Variability and Extreme Events in Kitui County, Kenya, International Journal of Environment, Agriculture and Biotechnology, 5(6), Nov-Dec 2020, : https://ijeab.com/

12. Omasire, A.K, Kimondiu, J M, and **Kariuki P**., 2020, Urban Sprawl Causes and Impacts on Agricultural Land in Wote Town Area of Makueni County, Kenya, International Journal of Environment, Agriculture and Biotechnology, 5(3) May-Jun, 2020 | Available: https://ijeab.com/

13. Nyaberi D, Barongo J, **Kariuki P**, Ogendi G and Basweti E,. 2019., Groundwater Resource Mapping through the Integration of Geology, Remote Sensing, Geographical Information Systems and Borehole Data in Arid-Sub arid Lands at Turkana South Sub-County, Kenya, Journal of Geoscience and Environment Protection, 2019, 7, 53-72,

14. Mogaka D.N, Basweti E, Barongo J.O, Ogendi G.M, **Kariuki P.C**., 2019., Mapping of Groundwater through the Integration of Remote Sensing and Vertical Electrical Sounding in ASALs: A Case Study of Turkana South Sub-County, Kenya, Journal of Geoscience and Environment Protection, 2019, 7, 229-243

15. Kiruki, H, Zanden, E.H., **Kariuki, P.C**., and Verburg P.H., 2019. The contribution of charcoal production to rural livelihoods in a semi-arid area in Kenya, Environment, Development and Sustainability https://doi.org/10.1007/s10668-019-00521-2

16. Githenya L.K, **Kariuki P.C**, Waswa A.K., 2019., Application of Remote Sensing in Mapping Hydrothermal Alteration Zones and Geological Structures as Areas of Economic Mineralization in Mwitika-Makongo Area, South Eastern Kenya, Journal of Environment and Earth Sciences, Vol.9, No.11, 2019

17. Njiru, G.N., **Kariuki, P**. and Mwetu, K., 2018., Modeling Soil Erosion for Land Management in Ungauged Golole Catchment in Marsabit County, Kenya. Open Journal of Soil Science, 8, 277-302.

18. Mbithi F. M., **Kariuki, P.C**., and Njuru P.G., 2017, Assessment of the Impact of Groundwater Fluoride on Human Health: A Case Study of Makindu District in Kenya, Journal of Earth Science & Climatic Change (2017) vol.8:4

19. Cheruto, Mercy C., Kauti, M.K., Kisangau, P.D., **Kariuki, P.C.,** 2017., Assessment of Landuse Landcover Change Using GIS and Remote Sensing Techniques: A Case Study of Makueni County, Kenya, J. of Remote Sensing & GIS (2016), vol.5:4

20. Mugo J.W., **Kariuki P.C**, and Musembi D.K, 2016., Identification of Suitable Land for Green Gram Production Using GIS Based Analytical Hierarchical Process in Kitui County, Kenya, J. of Remote Sensing & GIS (2016), vol.5:3

21. Mathu, E. M., Waswa, A. K., **Kariuki, P. C.,** Kianji, G. K., Odhiambo, M. B., & Kiprotich, K. K. (2015). The Middle Eastern Counties In Kenya: An Awakening Giant In Mining And Ideal For Mining Investment. *GEOEACE (2015).*

22. Kathumo V.M., Gachene C.K.K., Gicheru P.T., and **Kariuki P.C.**,2012, Effects of Land-Use and Climate Changes on Hydrological Processes in the River Gucha Catchment, Kenya, E. Afr. agric. For. J. (2012) 78(1),113-118

23. Iiyama, M., Kristjanson, P., Ogutu, J., Maitima J., **Kariuki, P.**, Morimoto, Y. and Baur H., 2008, Conservation, Management and Development of Natural Resources in Rural Africa. In: Natural Resources. / Ed. Jeanette B. Pauling, pp. Nova Science Publishers, Inc. (2008) ISBN 978-1-60456-982-7

24. Iiyama, M., **Kariuki, P.**, Kristjanson, P., Kaitibie, S. and Maitima, J. 2008, Livelihood diversification strategies, incomes and soil management strategies: A case study from Kerio Valley, Kenya. Journal of International Development J. Int. Dev. 20, 380-397 (2008)

25. Okwi P.O., Ndeng'e G, Kristjanson P, Arunga M, Notenbaert A, Omolo A, Henninger N, Todd Benson T, **Kariuki P**, and Owuor J 2007. Spatial determinants of poverty in rural Kenya, PNAS 104(43): 16769–16774

26. Iiyama, M., Maitima, J. and **Kariuki, P**. 2007. Crop-livestock diversification patterns in relation to income and manure use: A case study from a Rift Valley community, Kenya. African Journal of Agricultural Research 2(3) pp58–66.

27. Iiyama, M., Kaitibie, S., **Kariuki, P.**, and Morimoto, Y. 2007. The status of crop-livestock systems and evolution towards integration. Annals of Arid Zones Vol. 46. (3&4), pp1-23

28. Okwi P.O, Ndeng'e G, Kristjanson P, Arunga M, Notenbaert A, Omolo A, Henninger N, Todd B, **Kariuki P** and Owuor, J, 2007, Geographic Determinants of Poverty in Rural Kenya: A National and Provincial Analysis, African Journal of Statistics

29. Okwi P.O, Arunga M, **Kariuki P**, Kristjanson P, Ndeng'e G, Notenbaert A, and Omolo A.,2007, Poverty among Livestock Keepers in Kenya: Are Spatial Factors Important? African Journal of Statistics

30. **Kariuki P.C.**, Woldai, T., and Van der Meer, F.D., 2006, The role of remote sensing in mapping swelling soils. Asian Journal of Geo-informatics, Vol 5(1), pp.43-53

31. **Kariuki P.C.**, Woldai, T., and Van der Meer, F., 2004, Effectiveness of spectroscopy in identification of swelling indicator clay minerals. International Journal of Remote Sensing, 25(2), 455-469

32. **Kariuki P.C.**, and Van der Meer, F.D., 2004, Issues of effectiveness in empirical methods for describing swelling soils (International Journal of Applied Earth Observation and Geoinformation, 4(3), 231-241

33. **Kariuki P.C.,** and Van der Meer, F.D, 2004, A unified swelling potential index for expansive soils, Engineering Geology, 72,1-8

34. **Kariuki P.C.,** Van der Meer, F.D and Verhoef, P.N.W., 2003, Cation exchange capacity determination from spectroscopy. International Journal of Remote Sensing, 24(1), 161-167

35. **Kariuki P.C**., Van der Meer, F. and Siderius W, 2003, Classification of soils based on engineering indices and spectral data (International Journal of Remote Sensing 24(12), 2567-2574

36. **Kariuki P.C.,** and Van der Meer, F.D, 2003, Determination of soil activity from optical spectroscopy. In Geoinformation for European wide Integration, Edited by T. Benes (Rotterdam: Mill press), pp.587-590

37. **Kariuki P.C**, T. Woldai & F.D Van der Meer, 2002, Determination of soil activity in Kenyan soils from Spectroscopy, The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. XXXIV, Part 6/W6

38. **Kariuki, P.C**., 1996. Zoning for ground motions in Kenya-the case of incomplete and uncertain data. International Journal of Rock Mechanics and Mining Sciences and Geomechanics Abstracts (Vol. 5, No. 33, p. 195A).

iii) Publications in conference proceedings

1. Mugo J.W., Musembi D.K, **Kariuki P.C** and, Ongoma V., 2016, Determination of the best planting season for green gram in Kitui county Using AHP, Proceedings of the 2rd International Conference, DeKUT, Kenya, 2rd - 4th November 2016.

2. Mathu E.M., **Kariuki P.C**., 2016., The Potential of Maximising Geological Resources to Boost Food and Agricultural Production in Kenya, Proceedings of the 2rd International Conference, DeKUT, Kenya, 2rd - 4th November 2016.

3. Owuor J, **Kariuki P,** & Okwi P, 2007. Poverty among Livestock Keepers in Kenya: are Spatial Factors Important? Proceedings of the 2nd ESRI East African User Conference, Kampala, Uganda, 13-14th September, 2007.

4. **Kariuki P.C**, Russ Kruska, Owuor J & Arunga M, 2006. Spatial Data Infrastructure in ILRI: Status and Future Directions. Proceedings of the 1st ESRI East African User Conference, Nairobi, Kenya, 5-6th October, 2006.

5. Arunga M, **Kariuki P**, Kruska R and Owuor J, 2006., ILRI Attempt at Spatial Data Infrastructure. Proceedings of the GSDI conference, Santiago, Chile, 2006

6. **Kariuki P.C** & Siderius W, 2004. Spectroscopy Remote Sensing and Other Non-Intrusive Methods in Environmental Studies: Case Study Swelling Soil Mapping. Proceedings of the 5th African Association of Remote Sensing of the Environment Conference, Nairobi, Kenya, 17-22nd October, 2004.

7. **Kariuki, P.C.,** van der Meer F. D., 2003, Swelling Clay Mapping for Characterizing Expansive Soils; Results from Laboratory Spectroscopy and HySens DAIS Analysis. Proceedings of the Third EARSeL Workshop on Imaging Spectroscopy, DLR, Oberpfaffenhofen, 13 - 16 May 2003.

8. **Kariuki P.C**, T. Woldai & F.D Van der Meer, 2002, Determination of soil activity in Kenyan soils from Spectroscopy, In: Proceedings of the Dar es Salaam, ISPRS workshop, 25-28 March 2002.

9. **Kariuki P.C**., and F.D Van der Meer., 2000. The effectiveness of spectroscopy in detecting the swelling clay minerals in soils, In: Proceedings of the Second EARSeL Workshop on Imaging Spectroscopy, ITC, Enschede, 11-13 July 2000.

10. **Kariuki P.C** & Van der Meer, F., 2000. Spectroscopy to map swelling potential of soils. Proceedings Vijfde Nederlands Aardwetenschappelijk Congres, 20-21 April, Veldhoven, pp. 2-23

11. Van Dijk, P., Van der Meer, F. & **Kariuki, P**. 2000. The mapping of swelling clays with remote sensing; potential of high spectral resolution sensors. Proceedings of the 31st International Geological Congress, Rio de Janeiro, Brazil, 6-17 August, 2000 (1 page abstract).

iv) Technical Papers

1. Machio, P.M, Murigi, A.M, M.N, Nganga and **Kariuki, P.C**, 2019. SDG Profile of Gikindu Location, Murang'a County. Technical Report, Partnership for Economic Policy (PEP), Nairobi, Kenya

2. Machio, P.M, **Kariuki, P.C,** Murigi, M.N, and Nganga, A.M, 2019. Social Capital and Women's Empowerment in Kenya, A Case Study of Murang'a County. Technical Report, Partnership for Economic Policy (PEP), Nairobi, Kenya

3. Kimani, D.N., **Kariuki P.C**., Machio, P.M., Murigi, M.N., and Mariara, J.K., 2017. Youth Employment and Entrepreneurship in Murang'a County, Kenya. Technical Report, Partnership for Economic Policy (PEP), Nairobi, Kenya

4. Kimani, D.N., **Kariuki P.C**., Machio, P.M., Murigi, M.N., and Mariara, J.K., 2017. Development and Implementation of Community Based Monitoring System (CBMS) In Murang'a County, Kenya. Technical Report, Partnership for Economic Policy (PEP), Nairobi, Kenya

5. Kimani, D.N., **Kariuki P.C.**, Machio, P.M., Murigi, M.N., and Mariara, J.K., 2017. Poverty Profile of Muthithi Location Murang'a County, Kenya. Technical Report, Partnership for Economic Policy (PEP), Nairobi, Kenya

6. Mwetu, K., Gerard, A., Malesu, M., O'Neill, M., Muriuki, J., Oduor, A., Danga, B., **Kariuki, P.,** Otiende, V. and Baraka, P., (2014). Return on Investment of RWH technologies in dryland areas of Eastern region of Kenya. Technical Report, World Agroforestry Centre.

7. Fumi W, **Kariuki P**., Phiri B, 2010., A new holistic approach to achieve well-being of rural people, ecosystem health, and biodiversity conservation in livestock-wildlife joint land use in dry lands of Kenya: A case study of the Lolldaiga Hills ranch. International Livestock Research Institute Technical Report, Nairobi, Kenya

8. **Kariuki, P**., Ochungo, P, 2010, Normalized Difference Vegetation Index (NDVI) as a Tool for Rift Valley Fever Prediction. International Livestock Research Institute Technical Report, Nairobi, Kenya

9. Makihara D, Mtasiwa B, Kembo J, Bazirake B, Morimoto Y, Maundu P, **Kariuki P** and Wakhu P., 2010., Concept and Process of "Community Empowerment and Networking Program. Technical Report 1, African Institute for Capacity Development (AICAD), Nairobi, Kenya

10. Mizutani F, **Kariuki P.C**, 2009, Evaluating livestock-wildlife joint land use in dry land of Kenya

by monitoring animal distributions and long-term quantitative data on epidemiology: International Livestock Research Institute Technical Report, Nairobi, Kenya

11. Maitima J M, **Kariuki P C**, Mugatha S M, Mariene L W,2009, Adapting East African ecosystems and productive systems to climate change, Report for the Economics of Climate Change Adaptations in Africa

12. Maitima J, **Kariuki P**, Mugatha S, 2008, Environmental Land Use Land Cover Surveys in Lake Victoria Basin, Lake Baringo Catchment and Meru-Mwea Region. International Livestock Research Institute Technical Report, Nairobi, Kenya

13. Okwi, P., **Kariuki. P**, Irungu P. Owuor J, Henninger, N., Landsberg F, Opio J, Muhwezi B, Emwanu T, Rutebarika C., 2008, Incorporating Poverty into Planning and Management of Livestock in Uganda: Examples and Ideas. International Livestock Research Institute Technical Report, Nairobi, Kenya

14. Okwi, P., Ndeng'e, G., Kristjanson, P., Arunga, M.,Notenbaert, A, Omolo, A., Henninger,. N, Benson, T., **Kariuki, P. C**, (2006) Geographic Determinants of Poverty in Rural Kenya: A National, Provincial and Livestock-Based Analysis. Technical Report International Livestock Research Institute, Nairobi, Kenya

15. Okwi, P., Arunga, M., **Kariuki, P.C,** Kristjanson, P., Ndenge, G., Notenbaert, A., Omolo, A. (2006) Poverty among Livestock Keepers in Kenya: Are Spatial Factors Important? International Livestock Research Institute Technical Report, Nairobi, Kenya

16. Okwi, P., Ndenge, G., Kristjanson, P., Arunga, M.O., Notenbaert, A., Omolo, A., Henninger, N., Benson, T., **Kariuki, P**., Owuor, J. (2006) Geographic Determinants of Poverty in Rural Kenya: An ILRI-CBS brief

17. DRSRS, UNEP, 2006, The Impact of Year 2000 Drought in Kenya. Technical Report Department of Resource Surveys and Remote Sensing (DRSRS), Nairobi, Kenya

18. Mizutani F, **Kariuki P.C**, Iiyama M, Matsumoto K, Kariuki PN, Kiprono M, Cherwon K, Kristjanson P. 2005. Kerio Valley Baseline Survey: Advancing capacity of the community through the baseline survey for sustainable rural development in Marakwet and Keiyo Districts. International Livestock Research Institute Technical Report, Nairobi, Kenya

J. Awards, Scholarships and Recognitions

1. 2016: 3rd overall position in Partnership for Economic Policy (PEP) projects for the year at the PEP International Conference in June 2016, Manila Philippines
2. 2009: Special achievement award in GIS applications at the ESRI 2009 user conference in San Diego, California, USA

K. Research

a) **Ongoing/Completed Researches**

1. 2017-2020: Climate Smart Rainwater Harvesting and Conservation Technologies for Improved Food Security in Selected Parts of Kitui County (collaborative project with Machakos University and Kenyatta University): Funded by National Research Fund (NRF)

2. 2017- 2020: Social Capital and Women's Empowerment in Kenya: Case Study of Murang'a County (collaboration with School of Economics University of Nairobi): Funded by IDRC Canada

3. 2016-2019: Mapping geological resources in Kitui County, a collaborative project with Kitui County Government
4. 2015-2017: Focusing Global Technology to Magnify Honey Bee Impacts on the Food System; The East African Model (Collaborative Project between Michigan State University (MSU), USA, International Centre for Insect Physiology and Ecology (ICIPE), and South Eastern Kenya University (SEKU), Kenya): Funded by USAID
5. 2015-2017: Entrepreneurship as a Mechanism to Address Youth Unemployment and Poverty in Kenya: Case Study of Murang'a County, a joint project with the School of Economics, University of Nairobi: Funded by IDRC Canada
6. 2015-Feasibility Study for sand dam water harvesting in Kitui County with a team from Kitui County Government using geoinformation tools to establish optimal locations for dam siting: Funded by Kitui County Government
7. 2014-2020: A Sustainable Approach to Livelihood Improvement (ASALI) through Innovative Agricultural Practices a collaborative project between Vrije Universiteit Amsterdam, Moi University and South Eastern Kenya University, Kenya: Funded through VU University by a Memorial Fund
8. 2013-2014: Water Harvesting and Utilization Project (WHUP) at the South Eastern Kenya University (SEKU) funded by the National Council for Science and Technology (NCST).
9. 2012-2013: Optimizing rainwater harvesting in Kitui for sustainable irrigated agriculture in collaboration with Kenyatta University, Makerere University and Global Knowledge Initiative (GKI) USA, Funded by USAID
10. 2012-2014: Preparation of a Natural Capital Atlas of Kenya in collaboration with a team of experts from various institutions led by African Conservation Centre (ACC): Funded by the ministry of Environment
11. 2007-Mapping livelihood diversification in Keiyo Valley an International Livestock Research project led by Miyuki Iiyama (University of Tokyo): Funded by JICA
12. 2007-Baseline Survey on Impact assessment of Tsetse eradication program in Kenya, an International Livestock Research Insitute project: Funded by the Ministry of Livestock Development
13. 2007-Baseline Survey on advancing capacity of the community through sustainable rural development in Marakwet and Keiyo Districts, an International Livestock Research Insitute. Funded by Japan International Cooperation Agency (JICA).
14. 2006-2009: Poverty Mapping in Kenya and Uganda a collaborative project between International Livestock Research Insitute, Kenya National Bureau of Statistics (KNBS) and Uganda Bureau of Statistics (UBOS)

b) Research funding: (Indicate the Source, Amount & Year)

1. Funding from National Research Fund, KSh. 20,000,000, Year 2017
2. Funding from IDRC Canada: USD. 50,000, Year 2017
3. Funding from IDRC Canada: USD. 50,000, Year 2015

4. Funding from USAID: USD 100,000 Year 2015
5. Funding from Vrei University Memorial Fund: Euros 366,000, Year 2014
6. Funding from University of Twente: Euros 40,000, Year 2011
7. Funding from USAID: USD 100, 000 Year 2010
8. Funding from Ministry of Livestock Development of Kenya: USD 70,000, Year 2007
9. Funding from University of Twente: Euros 36,000, Year 2005

L. Postgraduate Thesis Supervision and Examination (Start with the most current, completed and then ongoing)

i) Doctorate

1. 2017-2022: Supervised Jane Evelyn Mutunga in her PhD. Research at South Eastern Kenya University (SEKU) on: Farmers Vulnerability to Climate Variability and Extreme Events
2. 2017-2022: Supervised Fredrick Tom Otieno in his PhD. Research at South Eastern Kenya University (SEKU) on Environmental and Socio-economic Predictors of the Spatial Distribution of Anthrax in Kenya
3. 2017-2020: Supervised Daniel Mogaka Nyamberi, in his PhD. Research at Kisii University on: Delineation of Groundwater Potential Zones in Arid-Semi Arid Lands Using Integrated Approaches of Remote Sensing, Geophysical Techniques and Borehole Data: Case Study Turkana South Sub-County, Kenya
4. 2016-2019: Supervised Harun Kiruki in his PhD Research at VU University Amsterdam on: Charcoal burning, landcover change and Sustainable Livelihoods
5. 2009-2011: Supervised Vincent Kathumo in his PhD research at the University of Nairobi on: Applications of remote sensing and GIS in semi-arid areas water management

ii) Masters

1. 2022-date: Supervising Benard Limo in his Msc. Research at Dedan Kimathi University of Technology on: Use of Reflectance Spectroscopy and Remote Sensing Studies to Evaluate Bentonite Clays Within Mui Basin Block C
2. 2022-date: Supervising Joyce Moiruku in her Msc. Research at Dedan Kimathi University of Technology on: Comparison Of Kapoeta Geothermal Prospect, South Sudan To The Olkaria System Kenya Using Remote Sensing Method
3. 2022-date: Supervising Phillip Emweki in his Msc. Research at Dedan Kimathi University of Technology on: Structural Controls analysis and its correlation with geothermal occurrence at Barrier Volcanic Complex (BVC), Turkana-Kenya
4. 2017-Present: Supervising Kenneth Ngeny Bii in his Msc. Research at South Eastern Kenya University (SEKU) on: Effects of Land Fragmentation on Food Security and Vegetation Cover in Konza Ranch Makueni County 2021-2023: Supervised Edward James Maarifa in his Msc. Research at Dedan Kimathi University of Technology on: Mapping of surface hydrothermal mineral alterations and geological structures related to geothermal systems in the Songwe region, SW Tanzania
5. 2017-2023: Supervised Alice Kwamboka in her Msc. Research at South Eastern Kenya University

(SEKU) on: Effects of Urban Sprawl on Agricultural Land in Peri-urban Areas of Wote Town, Makueni County

6. 2017-2021: Supervised Gabriel Nyaga Njiru in his M.Sc. Research at Kenyatta University (KU) on: Modelling Soil Erosion for Land Management in un-gauged Golole Catchment in Marsabit County Kenya

7. 2018-2020: Supervised Lincoln Kanyari Githenya in his M.Sc. Research at South Eastern Kenya University (SEKU) on: Application of Remote Sensing in Mapping Hydrothermal Alteration Zones and Geological Structures as Areas of Economic Mineralization in Mwitika-Makongo Area, South Eastern Kenya

8. 2015-2016: Supervised Jane Wangui Mugo in her Msc. Research at South Eastern Kenya University (SEKU) on: Mapping Greengram Suitability Areas in Kitui County by use of Analytical Hierarchical Process (AHP) integrated with a GIS system

9. 2014-2016: Supervised Francesca Mbithi in her Msc. Research at South Eastern Kenya University (SEKU) on: Assessment of the Impact of Groundwater Fluoride on Human Health: A Case Study of Makindu District in Kenya

10. 2006-2007: Supervised Anthony Muhumuza in his Msc at the University of Nairobi on Applications of GIS in Economic Analysis

11.

Thesis examination

i. Doctorate

1. 2021: Tanui Florence Jerotich PhD thesis on: The Hydrogeology of the Lodwar Alluvial Aquifer System, Turkana County, Kenya

2. 2021: Japheth Kanoti PhD thesis on: The Geometry, Hydro-geochemistry and Vulnerability of Aquifers to Pollution in Urban and Rural Settings: A Case Study of Kisumu and Mt. Elgon Aquifers

ii. Masters

1. 2023: Ndiba Joseph Ng'ang'a Msc thesis on: Evaluation of Governance Processes on Nature-Based Solution in Mining Sector for Habitat Restoration in Kwale County, Kenya

2. 2023: Luswata Gladys Nakuya Msc thesis on: An Investigation of The Use of Nano Silica to Improve Sulphate Attack Resistance of Geothermal Well Cement

3. 2022: Nyaga John Njue Msc thesis on: Investigating the Impact of Swelling Clays on Wellbore Permeability in Geothermal Wells: A Case Study of Olkaria Geothermal Field, Kenya

4. 2021: Erique Otienoh Nyawir Msc thesis on: Volcanological, Petrological and Geochemical Evaluation of The Otutu Rift Segment Between Eburru Volcano and Lake Elementaita

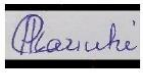
5. 2020: Lucy Karimi Mwaniki Msc thesis on: Investigating the Effect of Lithological Characteristics and Structural Attributes on the Drilling Rate: Case Study of Olkaria Geothermal Field, Kenya

6. 2018: Kennedy Mutati Msc thesis on: Assessment of Influence of Sand Dam Gradation on Site Suitability for Sand Dams: A Case Study of Kitui South, Kenya

7. 2018: James Kingoo Msc thesis on: Assessment of Household Waste Management Practices in Juja Sub County Kiambu County Kenya 8. 2017: Fredrick Tito Mwamati Msc thesis on: Assessment of Groundwater Quality in Yatta Plateau, Kitui County 9. 2017: Rose Mwia Msc thesis on: Assessment of effects of deforestation on spring's water production: A case study of Nuu/Mutaitho Hills Springs in Kitui County 10. 2016: Samuel Kasuni Msc thesis on: Impacts of Extension of Agriculture and Landuse Change on the flow Regime of Thiba River
M. Research Interests
1. Interested in multidisciplinary research in areas of geosciences, climate change, resilience, environment, natural resource management and other areas of geospatial tools application
N. Affiliation/Membership to Professional Bodies
1. Editorial Advisory Board member of the International Journal of Applied Earth Observation and Geo-information 2. Member of Society of Conservation GIS (SCGIS) 3. Member of Geological Society of Kenya (GSK) 4. Member of Environmental Institute of Kenya (EIK) 5. Member of the Network for African Volcanologists

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the Services in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client and/or sanctions by the Bank.

Patrick Chege Kariuki  24/03/2024

Name of Expert Signature Date

PERSONAL DETAILS	
NAME:	LISPER NJERI KAARIA
DATE OF BIRTH:	20TH DECEMBER, 1992
NATIONALITY:	KENYAN.
TEL NUMBER:	0725-730143
ADDRESS:	P. O. Box 702-00517, NAIROBI.
EMAIL:	kaarialisper24@gmail.com

CAREER OBJECTIVES.

- I am an innovative and motivated Advocate of the High Court of Kenya, Commissioner for Oaths and a Certified Professional Mediator who looks forward to working with an organization that will make use of my knowledge and skills in advancing my legal profession.
- I am an ambitious individual seeking the opportunity that will enhance and utilize my legal skills to administer justice and ensure a significant contribution in the field of legal profession.
- I am keen on applying the big-picture thinking while also focusing on the details of implementation when handling various issues.

Key Skills

- Superior verbal, written and communication skills;
- Strong research and analytical skills;
- Excellent negotiation skills;
- Strong interpersonal skills; and
- Good organizing and coordinating skills
- Fluent in spoken and written English and Swahili;
- Excellent writing/ drafting, communication and analytical skills.
- Ability to work under competing priorities with strict deadlines.
- Excellent customer relations skills and ability to deal patiently with all categories of staff.
- Consistently apply openness and honesty in communicating decisions and plans to team members.
- Highly competent and well versed in computer with hands on experience in micro computer operations which include; Ms. Word, Internet/Email, Ms. Excel, Ms. Power Point, Ms. Access, Basic concepts of IT and Windows, good typing and data entry skills.
- Ability to organize, plan and prioritize activities.
- Good time management skills and ability to deliver with minimal supervision.
- Good judgement, tact, analytical and negotiation skills.
- Capacity to work simultaneously, effectively and efficiently on a variety of diverse issues and tasks, both independently and as a team with minimal supervision.
- Ability to organize work and prioritize, commitment, research skills and loyalty.
- Self-confident with an ability to work autonomously, under pressure whilst managing priorities efficiently.
- Possess impeccable integrity and personal and professional values that are consistent with the Organization's high standards and mission.
- High level of trustworthiness, commitment to service and respect for diversity and the organization's core values.

WORK EXPERIENCE

Atonga & Co Advocates;
October 2020 to date: Associate Advocate
Key Responsibilities

- Providing legal advice to clients: taking their briefs.
- Preparing pleadings and legal briefs and Court attendance on behalf of the victims.
- Drafting and reviewing of litigation documents including pleadings, notices, affidavits & correspondence;
- Furnishing legal opinions and advice on any areas of the law.
- Conducting negotiations with a view to settling potentially litigious matters.
- Draw up contracts and other commercial legal documents ensuring attention to detail
- Offering advice on the law, legal procedures and a wide range of associated issues.
- Research on diverse range of assigned issues, documents and case history to ensure accuracy of advice and procedures
- Developing and maintaining good client relationship skills, gaining clients' confidence and that of other professionals.
- Any other duty that may be assigned from time to time to further the vision and mission of the firm.

Diamond Properties Merchant
September 2019-May 2020: Legal Officer
Key Responsibilities

- Supporting the section Head in the provision of legal advice for the company;
- Maintaining data of all legal matters including cases referred to external advocates
- Conducting research and providing legal advice and interpretation of various legal matters;
- Preparing, vetting and negotiating official legal documents to protect the interests of our clients;
- Reviewing and drafting of contract agreements and ensuring that they are in compliance with all statutory and regulatory requirements;
- Conducting searches on titles, drafting transfer documents and ensuring timely registration of the same;
- Reviewing and providing advice on legal risk that the company could face in different situations;
- Participating in reviewing and advising management of our various clients on legal implications concerning internal policies and procedures; and
- Any other duty that may be assigned.

K.Mberia & Partners Advocates;
August 2018 to September 2019: Holding Over and Associate Advocate
Key Responsibilities

- Providing legal advice to clients: taking their briefs while referring distressed clients for counselling and conducting mediation between parties, Preparing pleadings and legal briefs and Court attendance on behalf of the victims.
- Drafting and reviewing of litigation documents including pleadings, notices, affidavits & correspondence;
- Furnishing legal opinions and advice on any areas of the law.
- Reviewing new legislations and precedents to keep updated on the current developments of the law in the various fields.
- Conducting negotiations with a view to settling potentially litigious matters.
- Draw up contracts and other legal documents ensuring attention to detail
- Offering advice on the law, legal procedures and a wide range of associated issues.
- Research on diverse range of assigned issues, documents and case history to ensure accuracy of advice and procedures

- Developing and maintaining good client relationship skills, gaining clients' confidence and that of other professionals
- Any other duty that may be assigned from time to time to further the vision and mission of the firm.

Onyango & Ameyo Advocates
February 2016 to August 2018: **Pupillage Progamme and Holding over.**
Key Responsibilities

- Studying legal files and preparing legal opinions for Advocates
- Attending Court Sessions and updating clients on the developments of the matter.
- Preparing file notes and making reminders of all upcoming matters
- Responding to email communications and forwarding emails to relevant persons handling the matters.
- Drafting well researched legal briefs on variety of legal issues touching on different branches of law.
- Writing analytical summaries of written argument or evidence and assessing the argument in line of academic legal literature and case law.
- Keep abreast of developments in the legal field that could affect the institution and prepare reports on relevant matters for consideration by the management;
- Other duties assigned from time to time.

ACADEMIC QUALIFICATIONS AND TRAINING

2019 September: Mediation Training Institute
Certified Professional Mediator
2019 Admitted to the Bar as an Advocate of the High Court of Kenya
2015 October: Post- graduate Diploma in Law (ATP Programme) at Kenya School of Law
2011 September to 2014 October: Catholic University of Eastern Africa
Bachelor of Laws Degree (LLB) Course
Second Class Honours.
2007 to 2010: Kangubiri Girls High School (K.C.S.E) Certificate

2006: Thorn Tree Primary School (K.C.P.E Certificate.

HOBBIES

Reading books and law journals
Socializing and interacting with colleagues in discussing innovative ideas.
Travelling, visiting children homes, and the less fortunate in the society.

REFEREES

1. **Mr. Kenneth Onyango Odhiambo**
   Onyango & Ameyo Advocates,
   KTDA, Chai House 3rd Floor
   P.O Box 16343-00100 Nairobi
   Mobile No: +254722919456.

2. **Mr. Wilson Marotse Mulei**
   Senior Lecturer, Catholic University of Eastern Africa
   Mulei Marotse & Company Advocates
   Karen Centre Co-op Bank House
   P.O Box 19299-00100 Nairobi
   Mobile No. +254725981989

3. **Mr. Alex Ndiema**
   Office of the Director of Public Prosecutions
   Prosecution Counsel
   P.O Box 9799-00100, Nairobi.
   Mobile No: +254720736932.

CURRICULUM VITAE

PERSONAL DETAILS:

NAME:	APOLLO KARIUKI
DATE OF BIRTH:	26TH MARCH 1961
PROFESSION:	CONSERVATION PLANNING
CONTACTS:	POSTAL ADDRESS -P.O. BOX 105-00511 ONGATA RONGAI TELEPHONE - 0722779293 EMAIL – apollokari26@gmail.com
LANGUAGES:	ENGLISH (FLUENT); KISWAHILI (FLUENT)

EDUCATION

Master of Science (MSc) in Rural and Land Ecology Survey; International Institute for Geo-Information Science and Earth Observation (ITC), a faculty of University of Twente, the Netherlands, 1995.

Post Graduate Diploma in Geographic Information Systems for Rural Applications; International Institute for Geo-Information Science and Earth Observation (ITC), a faculty of University of Twente, the Netherlands, 1991.

Bachelor of Science (BSc Hons) in Zoology and Botany; University of Nairobi, Kenya, 1985.

RELEVANT SHORT TRAINING COURSES

Protected Area Management Planning Training Workshop supported and facilitated by Parks Canada at the Kenya Wildlife Service Training Institute, 2011

A short course on ***Best Practices for Land Tenure and Natural Resource Governance in Africa*** provided by USAID/Kenya at the Holiday Inn, Nairobi, 2009

A training course in Environmental Assessment provided for KWS under the USAID/Kenya Cobra Project at Naro Moru River Lodge, 1997.

A training Course in policy Analysis for Africa. A three-months training course organized by the African Centre for Technology studies (ACTS) Nairobi, 1996.

Computer Training in EIA: A study in Environmental assessment. A course prepared by the Division of Geological Survey of the International Institute for Aerospace Survey and Earth

RECENT WORK EXPERIENCE

I have recently facilitated the following management planning processes as an individual consultant:

Period	Client & Contact Information	Country	Consultancy
June 2023-March 2024	**Client: Lolldaiga Wildlife Conservancy** **Reference Contact:** Abdi Sora Tel: 0728391823 Email: sora@ani-kenya.org	Kenya	Facilitating the development of Lolldaiga Wildlife Conservancy Management Plan
August 2022-March 2023	**Client:** Borana Conservancy **Reference Contact:** Abdi Sora Tel: 0728391823 Email: sora@borana.co.ke	Kenya	Facilitating the development of Borana Conservancy Management Plan
October 2022-February 2023	**Client:** Baringo County Conservancies Association **Reference Contact:** Susan Jepkemboi Tel:0721481467 Email: susan@baringoconservancies.co.ke	Kenya	Facilitating the development of Kiborgoch Community Wetland and Wildlife Conservancy Management Plan
October 2022-February 2023	**Client:** Baringo County Conservancies Association **Reference Contact:** Susan Jepkemboi **Tel**: 0721481467 **Email**: susan@baringoconservancies.co.ke	Kenya	Facilitating the development of Chuine Wildlife Conservancy Management Plan
October 2022-February 2023	**Client:** Baringo County Conservancies Association **Reference Contact:** Susan Jepkemboi **Tel:** 0721481467 **Email:** susan@baringoconservancies.co.ke	Kenya	Facilitating the development of Irong Community Conservancy Management Plan
November 2021-May 2022	**Client:** El Karama Wildlife Conservancy **Reference Contact:** Michael Nicholson **Tel:** 0713549019 **Email**: michael@elkaramaranch.com	Kenya	Facilitating the development of El Karama Wildlife Conservancy Management Plan
June 2021 – March 2023	**Client:** GIZ **Reference Contact:** Simon Chuchu **Tel:** 0788259215 **Email:** simon.chuchu@giz.de	Kenya	Facilitating the development of the Greater Maasai Mara Ecosystem Management Plan
April-June 2021	**Client:** Kenya Wildlife Conservancies Association **Reference Contact:** Dickson Kaelo **Tel:**0722467344 **Email:** dkaelo@kwcakenya.com	Kenya	Facilitating the development of Lake Bogoria Landscape Conservancies Land Use and Business Plan

Period	Client & Contact Information	Country	Consultancy
June 2021-August 2021	**Client:** Ewaso Lions **Reference Contact:** Dr Shivani Bhalla **Tel:** 0719883520 **Email**: shivani@ewasolions.org	Kenya	Facilitating the development of West Gate Conservancy-Core Area Management Plan

I also facilitated the following planning projects while working for KWS:

Lead KWS Planning Consultant in the formulation of the following management plans (NB: KWS offered consultancy services in the development of these plans)

1. South Kitui National Reserve Management Plan (2015-2025)
2. Mwingi National Reserve Management Plan (2015-2025)
3. Aberdare Hills Golf Resort Management plan (2014-2019)
4. Tatu City Open Areas Management Plan (2013-2017)

Planning facilitator in the formulation of the following Conservancies Management Plans

1. Amboseli Land Owners Conservancies Management Plan (2016-2026)
2. Mara Lemek Conservancy Management Plan (2018-2023)
3. Olare-Motorogi Conservancy Management Plan (2018-2023)
4. Ol Kinyei Conservancy Management Plan (2018-2023)

Planning facilitator in the formulation of the following KWS-approved Ecosystem/National Park/National Reserve Management Plans

Ecosystem Plans

1. Amboseli Ecosystem Management Plan (2008-2018)
2. Marsabit Forest Ecosystem Management Plan (2015-2025)
3. Kakamega Forest Ecosystem Management Plan (2013-2023)
4. Mt. Kenya Forest Ecosystem Management Plan (2010-2020)
5. Aberdare Ecosystem Management Plan (2010-2020)
6. Hell's Gate-Longonot Ecosystem Management Plan (2010-2015)

National Park/National Reserve Plans

1. Nairobi National Park Management Plan (2020-2030)
2. Amboseli National Park Management Plan (2020-2030)
3. Kora National Park Management Plan (2018-2028)
4. Lake Turkana National Parks Management Plan (2018-2028)
5. Kisite-Mpunguti Marine Protected Area Management Plan (2015-2025)
6. Watamu Marine Protected Area Management Plan (2016-2026)
7. Malindi Marine Protected Area Management Plan (2016-2026)
8. Ruma National Park Management Plan (2010-2015)
9. Kisumu Impala Sanctuary Management Plan (2010-2015)
10. Lake Bogoria National Reserve Management Plan (2019-2029)
11. Kiunga-Boni-Dodori Conservation Area Management Plan (2013-2023)

Conservancy Management Plans

Masai Mara Ecosystem

1. Olare Motorogi Wildlife Conservancy Management Plan
2. Ol Chorro Oiruwa Wildlife Conservancy Management Plan
3. Ol Kinyei Wildlife Conservancy Management Plan
4. Pardamat Conservation Area Management Plan

Amboseli Ecosystem

5. ALOCA Wildlife Conservancy Management Plan

EMPLOYMENT EXPERIENCE

March 2021-Present: Conservation Planning Consultant

- Planning facilitator in the development of landscape, ecosystem and conservancy management plans

December 2014-March 2021: Head-Planning and Environmental Compliance Department, KWS

Duties included:

- Coordinating protect area planning, ecosystem planning, and environmental assessments conducted by KWS, and providing Geographic Information Systems (GIS) information to enhance ecological integrity in Protected Areas (PA) and their ecosystems
- Formulating and reviewing policies, guidelines and manuals for protected area planning and environmental assessments
- Participating in environmental or planning related task forces or committees (participated in the multiagency committees that prepared the **National Wildlife Strategy 2030** and a report on **Wildlife Migratory Corridors and Dispersal Areas in Kenya**)
- Preparing or coordinating preparation of funding proposals
- Providing advisory services on planning and environmental assessments to internal and external stakeholders
- Collaborating with internal and external stakeholders in protected area planning and environmental assessments

December 2006-November 2014: Senior Resource Planner- Planning and Environmental Compliance Department, KWS

Duties included:

- Coordinating preparation of ecosystem and protected area management plans
- Undertaking planning related public and stakeholder consultations
- Participating in, and leading teams of diverse professionals in biodiversity planning
- Ensuring integration of wildlife conservation into national and local land use plans
- Part-time Lecturer in Land Use Planning at the Kenya Wildlife Service Training Institute (KWSTI) where I taught the Land Use Planning Module to students pursuing Diploma in Environmental Management.

January 2004 to November 2006: Senior Research Scientist/Head of Research Station (Tsavo Research Station and Lake Nakuru Research Station).

Duties included Coordination of:

- All wildlife research activities at the Research Station
- Ecological monitoring
- Development of adaptive participatory wildlife related management plans
- Development of ecological as well as Geographical Information Systems databases to support management
- Environmental Impact Assessment/Environmental Audit studies for facilities in the Park
- Administration of the Research Station

January 2002 to December 2003: Research Scientist, KWS Research and Planning Department

Duties included:

Coordination of and participation in:

- National land use coordination activities including preparation of land use report.
- Development of ecosystem based protected area management plans
- Implementation of activities under two UNESCO programmes: Man and Biosphere programme (MAB) and World Heritage Convention (Coordinated the designation of Mt. Elgon as the sixth Biosphere Reserve in Kenya)
- Designing and implementing research activities at Tana River Primate National Reserve Ecosystem
- Part-time lecturer in Land Use Planning at the Kenya Wildlife Service Training Institute

June 2000- December 2001: Project Scientist – Tana GEF Project

Duties included:

- Coordinating activities in the Research and Monitoring component of the Tana GEF Project. This component was being implemented by the National Museums of Kenya, Department of Resource Survey and Remote Sensing (DRSRS) and Kenya Wildlife Service (KWS).

- Team leader in the preparation of a five- year management plan for Tana River Primate National Reserve and adjacent areas.
- Coordinating Primate Monitoring work in Tana River Primate National Reserve.

1997-2000: Land Use Planner: Research and Planning Department

- Duties included: Coordinating the *'Savanna Land Use Policy Outcomes Project: Serengeti-Mara Ecological Unit Project'.* This was a collaborative project funded by the European Union and implemented by Kenya Wildlife Service, University College London, Catholic University of Louvian (Belgium) and University of Dar- Es- Salaam.
- Designing and participating in studies on Community Knowledge Attitudes and Practices (KAP) Surveys and Participatory Rural Appraisals (PRA) in group ranches adjacent to Maasai Mara National Reserve.
- Development of a GIS database for the Mara ecosystem
- Coordinating protected area planning

1991-1997: Ecologist II: KWS Wildlife Planning Unit

Key assignments included:

- **1991:** - Team Member in the preparation of Amboseli Management Plan.

- **1992-1993:** Team Leader in the preparation of Shimba Hills National Reserve Management Plan.

- **June 1995- February 1996:** Project Coordinator: **Land Use Planning and Coordination Study**, Research and Planning Department, KWS. Duties involved coordinating all activities related to a land use planning and coordination consultancy. The study's aim was to develop feasible land use policies that consider the importance of biodiversity conservation.

- **1996-1998**: Project technical staff for the UNESCO funded project titled "**Biosphere Reserves for Biodiversity Conservation and Sustainable Development in Anglophone Africa (BRAAF)"** This project was implemented in five biosphere reserves, Amboseli National Park (Kenya), Queen Elizabeth National Park (Uganda), Lake Manyara National Park (Tanzania), Omo National Park (Nigeria), and Bia national Park (Ghana).

- **1991- 1994:** Project technical staff for the UNESCO funded project titled "**Geo-information for Environmentally Sound Management of Natural Resources".** Duties in included:

  - Development of a Geographic Information Systems (GIS) database and an Interactive Spatial Modelling (ISM) program for Amboseli Biosphere Reserve.
  - A trainer in two regional GIS training courses organized by UNESCO at the Regional Center for Resource Mapping for Development in 1991 and 1994.
  - Implementing and coordinating research activities.

1985-1990: Assistant Warden I: Wildlife Services Department, Wildlife Conservation and Management Department (WCMD), now KWS.

1981: Untrained Teacher: Kieni Secondary School, Nakuru.

SELECTED REPORTS/PAPERS

1. Muya S., Kamweya A., Muigai A., Kariuki A., and Ngene S., 2013. Using Range Condition Assessment to Optimize Wildlife Stocking in Tindress Wildlife Sanctuary, Nakuru District, Kenya. Rangeland Ecology & Management: July 2013, Vol. 66, No. 4, pp. 410-418.

2. Kariuki A. 2004. A Critical Review of Impacts of Land Use Changes on Wildlife Conservation in Kenya. A Report Prepared for Kenya Wildlife Service.

3. Kariuki A. and Bagine R. 2002. "Unique Natural and Cultural Heritage in Kenya's Great Rift Valley for inscription in the World Heritage List." In proceedings of the Great Rift Valley Expert Meeting. Final Report and Recommendations. The Dead Sea, Israel, 30 September – 4 October 2002.

4. Coast E., Homewood K., Lambin E F., Kariuki A., Kikula I., Kivelia J., Said M., Serneels S., Thompson M., 2001. Long Term Changes in African Savanna Wildlife and land Cover. *Pastoralists or Policies.* Proceedings of the National Academy of Science 98, No. 22. pp 12544-12549

5. Kariuki A. 1997. 'Development of an Interactive Spatial Modeling System and Geographic Information System (GIS) data base for Amboseli Biosphere Reserve" in Conservation and Utilization of Indigenous Medicinal Plants and Wild Relatives of Food Crops. UNESCO.

6. Kariuki A. 1996. "The Role of Fire and Elephants in Modifying a Semi- Arid Environment: Woody Cover Modification in Tsavo East National Park" in *Proceedings of the Conference on the Application of Remotely Sensed Data and Geographic information Systems (GIS) in Environmental and Natural Resources in Africa March 15-22, 1996. Harare Zimbabwe.*

7. Toxopeus A G, Bakker X, and Kariuki A., 1994. An interactive Spatial Modeling (ISM) System for the Management of Amboseli Biosphere Reserve. ITC Journal 1994-4. ITC Enschede, the Netherlands.

8. Toxopeus A G, Bakker X, and Kariuki A., 1994. ISM Handbook Volume III. User Manual (Amboseli Case). KWS.

9. Kariuki A. 1992. Application of GIS in Managing the Wildlife Resource" in Proceedings of the Symposium on GIS Applications in Kenya, held at the Hilton Hotel, Nairobi. February 1992.

COMPUTER SKILLS

I can competently use the following software applications: MS Word, MS Acess, MS Excel, and MS PowerPoint. In the case of GIS software applications, I have experience in ARC/Info, Arc/View and ILWIS. I also have extensive experience in spatial modeling techniques using Geographic Information Systems (GIS).

WRITING SKILLS

- I have strong writing skills as attested by the management plans that I have authored

PROFESSIONAL REGISTRATION

- I am registered with NEMA as a Lead EIA Expert

PROFESSIONAL AFFILIATIONS

- A member of the Environment Institute of Kenya (EIK)

REFEREES:

Dr. Patrick Omondi
Director/CEO
Wildlife Research and Training Institute
Email: pomondi@wrti.go.ke
Telephone: +254 722791718

Dr. Philip Muruthi
Vice President, Species Conservation and Science
African Wildlife Foundation
Email: pmuruthi@awf.org
Telephone: +254 711063219



Date: 24th March 2024 **Apollo Kariuki**

APPENDIX 11: KAJIADO COUNTY LAND SUBDIVISION GUIDELINES

COUNTY GOVERNMENT OF KAJIADO

P.O BOX 11-01100, KAJIADO

MINISTRY OF LANDS, PHYSICAL PLANNING AND URBAN DEVELOPMENT

DEPARTMENT OF PHYSICAL PLANNING

KAJIADO COUNTY LAND SUB-DIVISION GUIDELINES - 2018

	Enkariak-Rongena and Empiron	- Loitokitok Town, Radius of 2 Km	- 0.045	- Mixed Urban Use
		- All other Trading Centres, Confined to original boundaries	- 0.045	- Mixed Urban Use
		- Other Areas	- 0.4	- Agriculture
	Entonet	- All Trading Centres, be confined to original boundaries	- 0.045	- Mixed Urban Use
		- Other Areas	- 1.0	- Agriculture
	Olgulului/Oloolarashi	- All Trading Centres, confined to original boundaries	- 0.045	- Mixed Urban Use
		- Group Ranch Area	- Retain Status quo	- Pastoralism and Conservation
	Eselenkei	- All Trading Centres, confined to original boundaries	- 0.045	- Mixed Urban Use
		- Group Ranch Area	- Retain Status quo	- Pastoralism and Conservation
	Kuku	- All Trading Centres, confined to original boundaries	- 0.045	- Mixed Urban Use
		- Group Ranch Area	- Retain Status quo	- Pastoralism and Conservation
	Mbirikani	- All Trading Centres, confined to original boundaries	- 0.045	- Urban Use
		- Group Ranch Area	- Retain Status quo	- Pastoralism and Conservation
2. Kajiado Central	Mailua, Osilalei, Lorng'osua, Meto, Purko	- Namanga Town, radius of 2 Km - Ilbisil town, radius of 1.5 Km - Other trading centres along Namanga Road, radius of 1 Km	- 0.045	- Mixed Urban Use
		- All Trading Centres, confined to original boundaries	- 0.045	- Mixed urban use
		- 1 Km buffer along Namanga Road (between Kajiado and Namanga town)	- 1.0	- Mixed commercial use
		- 1 – 5 Km from Namanga road (between Kajiado and Namanga town)	- 2.0	- Agricultural

APPENDIX 12: KAJIADO COUNTY SPARTIAL PLAN 2019 – 2029 RECOMMENDED LAND USE FOR OOGR

SUB-COUNTY	REGISTRATION SECTION NAME	AREA/ZONE	MINIMUM PERMITTED SUBDIVISION (in hectares)	PERMISSIBLE USE
		All Trading Centres, be confined to original boundaries	- 0.045	- Mixed Urban Use
		- Other Areas (Adjudicated)	- 2.0	- Agricultural
		- Group Ranch Area	- Retain Status quo	- Pastoralism and Conservation
	Enkariak-Rongena and Empiron	Loitokitok Town	- <0.5 km radius – 0.045 - 0.5 – 1km km radius – 0.10 - 1 – 2 km radius – 0.20	- Mixed Urban Use
		- All other Trading Centres, Confined to original boundaries	- 0.045	- Mixed Urban Use
		- Other Areas	- 0.4	- Agriculture
	Entonet	- All Trading Centres, be confined to original boundaries	- 0.045	- Mixed Urban Use
		- Other Areas	- 2.0	- Agriculture
	Olgulului/Olool arashi	- All Trading Centres, confined to original boundaries	- 0.045	- Mixed Urban Use
		- Group Ranch Area	- Retain Status quo	- Pastoralism and Conservation

APPENDIX 13: A DULLY SIGNED PUBLIC AND STAKEHOLDERS ATTENDANCE LIST OF THE CONSULTATION MEETING OF SEA FOR OOGR LUSP DATED: 11/03/2022

AMBOSELI ECOSYSTEM TRUST

Amboseli Ecosystem Trust, ATGRCA House – Loitokitok Town, P.O.Box 346-00209, Loitokitok, Kenya. Tel: 0712588693 0700 727 499
Email: info@amboseliecosystemtrust.org,
Website: www.amboseliecosystemtrust.org

PROJECT: Securing critical wildlife migratory corridor between Kenya and Tanzania and promote peaceful coexistence between people & wildlife.

Activity: Regular grazing committee Progress review workshop

AET Attendants' list – Date..11/03/2022 **VENUE:**.....Kitirua.....Office.....

No	Name	Gender	Organization/Zone	Telephone	I.D No.	Signature
1.	Metui Kotene	Male	grazing Committee	0714911278	6113239	[signature]
2.	JACKSON KIKON	m	Community Ranger	0727367316	26857098	[signature]
3.	LENKESIA NTUYAI	m	Grazing Committee	0723989435	24958687	[signature]
4.	MAKAROT TONNIO	m	Grazing Committee	0796165382	20462588	[signature]
5.	NCHUMAI OLE KALAMA	m	Grazing Committee	0717152875	26046856	[signature]
6.	NKOSOPU KILOPU LOKOINWA	m	Grazing Committee	0111889389	25668523	[signature]
7.	LONING'O OLE KALAMA	m	Grazing Committee	0713411005	28570459	[signature]
8.	RINKOINE OLE KALAMA	m	Grazing Committee	0724821240	11728094	[signature]
9.	LALAITO MASAA	m	Grazing Committee	0718145073	13085895	[signature]
10.	TIMAYO OLOIPUTA	m	Grazing Committee	0713261492	11727944	[signature]
11.	NKOONE KIYIAPI	m	Grazing Committee	0706080134	31074288	[signature]
12.	NAITIAMIENGISHU PENETI	m	Grazing Committee	0703652551	20283104	[signature]
13.	KETEKO NAIGANYA	m	Grazing Committee	0729756087	28796647	[signature]
14.	Jackson Sitonik	M	Community Ranger	0727518250	27165735	[signature]
15.	PATRICK SAYIALEL	m	Conservancy Manager	0702614640	24460987	[signature]

PREPARED BY:.....Patrick.....Sayialel.SIGN:.....[signature].....DATE:...11/03/2022.....

CHECKED BY:.....SIGN:.....DATE:.....

AMBOSELI ECOSYSTEM TRUST

Amboseli Ecosystem Trust, ATGRCA House – Loitokitok Town, P.O.Box 346-00209, Loitokitok, Kenya. Tel: 0712588693 0700 727 499
Email: info@amboseliecosystemtrust.org,
Website: www.amboseliecosystemtrust.org

PROJECT: Conducting a legal analysis and identified recommendation of land tenure options for the OOGR that will promote and support communal land use, management and governance.

Activity: Regular grazing committee Progress review workshop

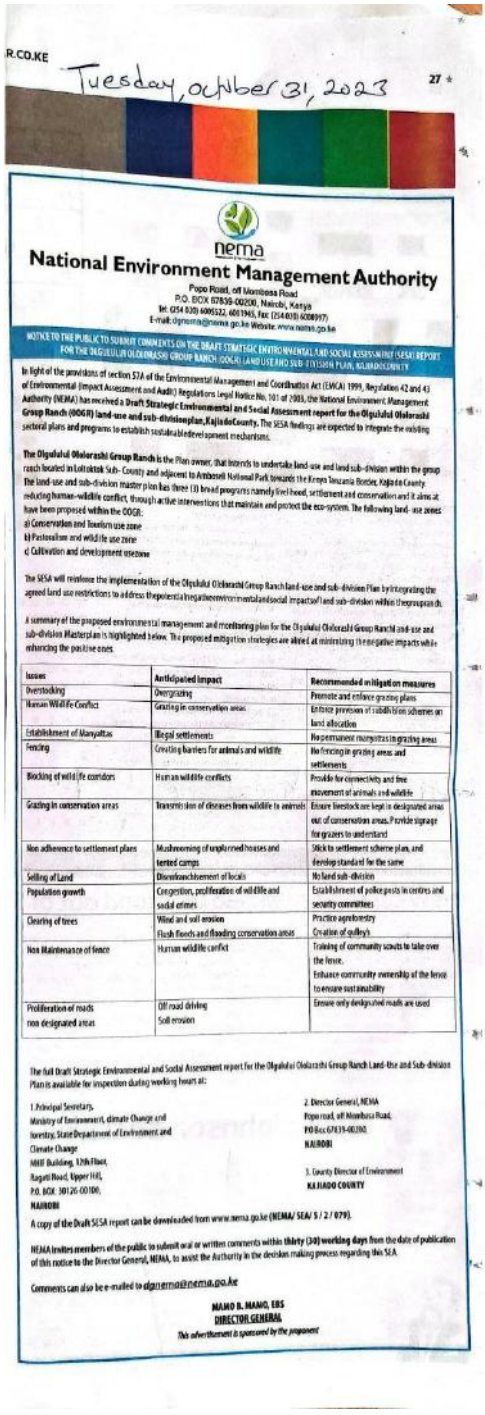
Payment schedule – Date....11/03/2022....**VENUE:**....KITIIQUA OFFICE....

No.	Name	No. of Nights	Allowances & Reimbursement			Total	I.D No.	Signature
			Meals	Allowance	Transport			
1.	Metui Kotene					2000 KSh	6113239	[signature]
2.	JACKSON KIKON			Allowance		2000/=	26857098	[signature]
3.	LENKESIA NTUYAI			Allowance		2000/=	24958687	[signature]
4.	MAKAROT TONINIO			Allowance		2000/=	20462588	[signature]
5.	NCHUMAI OLE KALAMA			Allowance		2000/=	26046856	[signature]
6.	NKOSOPU KILOPU LOKOINWA			Allowance		2000/=	25668523	[signature]
7.	LONING'O OLE KALAMA			Allowance		2000/=	28570459	[signature]
8.	RINKOINE OLE KALAMA			Allowance		2000/=	11728094	[signature]
9.	LALAITO MASAA			Allowance		2000/=	13085895	[signature]
10.	TIMAYO OLOIPUTA			Allowance		2000/=	11727944	[signature]
11.	NKOONE KIYIAPI			Allowance		2000/=	310724288	[signature]
12.	NAITIAMIENGISHU PENETI			Allowance		2000/=	20283104	[signature]
13.	KETEKO NAIGANYA			Allowance		2000/=	28796647	[signature]
14.	Jackson Sitonik			Allowance		2000/=	27165735	[signature]
15.	PATRICK SAXIALEL			Allowance		2000/=	24460987	[signature]

PREPARED BY:....PATRICK SAXIALEL....SIGN:....[signature]....DATE:....11/03/2022....

CHECKED BY:.....SIGN:.....DATE:.....

APPENDIX 14: SECOND ADVERT OF THE PUBLIC ADVERT NOTICE ON THE NEWSPAPER SEEKING A WIDER PUBLIC AND STAKEHOLDER CONSULTATION



R.CO.KE Tuesday, October 31, 2023 27

nema

National Environment Management Authority

Popo Road, off Mombasa Road
P.O. BOX 67839-00200, Nairobi, Kenya
Tel: (254 020) 6005522, 6001945, Fax: (254 020) 6008997
E-mail: dgnema@nema.go.ke Website: www.nema.go.ke

NOTICE TO THE PUBLIC TO SUBMIT COMMENTS ON THE DRAFT STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) REPORT FOR THE OLGULULUL OLOLORASHI GROUP RANCH (OOGR) LAND USE AND SUB-DIVISION PLAN, KAJIADO COUNTY

In light of the provisions of section 57A of the Environmental Management and Coordination Act (EMCA) 1999, Regulation 42 and 43 of Environmental Impact Assessment and Audit Regulations Legal Notice No. 101 of 2003, the National Environment Management Authority (NEMA) has received a **Draft Strategic Environmental and Social Assessment report for the Olgulului Ololorashi Group Ranch (OOGR) land-use and sub-divisionplan, Kajiado County.** The SESA findings are expected to integrate the existing sectoral plans and programs to establish sustainable development mechanisms.

The Olgulului Ololorashi Group Ranch is the Plan owner, that intends to undertake land-use and land sub-division within the group ranch located in Loitoktok Sub- County and adjacent to Amboseli National Park towards the Kenya Tanzania Border, Kajiado County. The land-use and sub-division master plan has three (3) broad programs namely livelihood, settlement and conservation and it aims at reducing human-wildlife conflict, through active interventions that maintain and protect the eco-system. The following land -use zones have been proposed within the OOGR.

a) Conservation and Tourism use zone
b) Pastoralism and wildlife use zone
c) Cultivation and development usezone

The SESA will reinforce the implementation of the Olgulului Ololorashi Group Ranch land-use and sub-division Plan by integrating the agreed land use restrictions to address the potential negative environmental and social impacts of land sub-division within the program ch.

A summary of the proposed environmental management and monitoring plan for the Olgulului Ololorashi Group Ranch land-use and sub-division Masterplan is highlighted below. The proposed mitigation strategies are aimed at minimizing the negative impacts while enhancing the positive ones.

Issues	Anticipated Impact	Recommended mitigation measures
Overstocking	Overgrazing	Promote and enforce grazing plans
Human Wildlife Conflict	Grazing in conservation areas	Enforce provision of rehabilitation schemes on land allocation
Establishment of Manyattas	Illegal settlements	No permanent manyattas in grazing areas
Fencing	Creating barriers for animals and wildlife	No fencing in grazing areas and settlements
Blocking of wildlife corridors	Human wildlife conflicts	Provide for connectivity and free movement of animals and wildlife
Grazing in conservation areas	Transmission of diseases from wildlife to animals	Ensure livestock are kept in designated areas out of conservation areas. Provide signage for grazers to understand
Non adherence to settlement plans	Mushrooming of unplanned houses and kented camps	Stick to settlement scheme plan, and develop standard for the same
Selling of Land	Disenfranchisement of locals	No land sub-division
Population growth	Congestion, proliferation of wildlife and social crimes	Establishment of police posts in centres and security committees
Clearing of trees	Wind and soil erosion Flash floods and flooding conservation areas	Practice agroforestry Creation of gulleys
Non Maintenance of fence	Human wildlife conflict	Training of community scouts to take over the fence. Enhance community ownership of the fence to ensure sustainability
Proliferation of roads non designated areas	Off road driving Soil erosion	Ensure only designated roads are used

The full Draft Strategic Environmental and Social Assessment report for the Olgulului Ololorashi Group Ranch Land-Use and Sub-division Plan is available for inspection during working hours at:

1. Principal Secretary,
Ministry of Environment, climate Change and forestry, State Department of Environment and Climate Change
MMF Building, 12th Floor,
Ragati Road, Upper Hill,
P.O. BOX 30126-00100,
NAIROBI

2. Director General, NEMA
Popo road, off Mombasa Road,
P.O Box 67839-00200
NAIROBI

3. County Director of Environment
KAJIADO COUNTY

A copy of the Draft SESA report can be downloaded from www.nema.go.ke **(NEMA/ SEA/ S / 2 / 079).**

NEMA invites members of the public to submit oral or written comments within thirty (30) working days from the date of publication of this notice to the Director General, NEMA, to assist the Authority in the decision making process regarding this SEA.

Comments can also be e-mailed to dgnema@nema.go.ke

MAMO B. MAMO, EBS
DIRECTOR GENERAL
This advertisement is sponsored by the proponent

THE STAR

Quotation Summary

Customer :

Star Special Classifieds
Nairobi
Kenya

Space Order Reference#SO24239

Customer Contact	Star Special Classifieds, Management	**Order Date**	30/Oct/2023
Advertiser	Star Special Classifieds	**Sales Executive**	Winnierose Wainaina
Advertiser Contact	Star Special Classifieds, Management	**Payment Terms**	Immediate Payment
Customer Reference	2 NEMA AD		

Brand	Product	Publication Date	Subtotal
The Star	[PC0113] Classifieds - Auction - PSCC	2023-10-31	70,052.40 Ksh
The Star	[PC0113] Classifieds - Auction - PSCC	2023-10-31	70,052.40 Ksh

Untaxed Amount	120,780.00 Ksh
Taxes	19,324.80 Ksh
Total	140,104.80 Ksh

AMBOSELI ECOSYSTEM TRUST
30 OCT 2023
P.O. Box [illegible] LOITOKITOK

Advertiser's Signature **Date** 30/10/2023

Sales Executive's Signature **Date**

Page: 1 / 3

THE STAR

Print/Digital Order

Brand	Product	Quantity	Rate	Target Audience	Dimension	Page No.	Publication Dates	Taxes	Subtotal
The Star	[PC0113] Classifieds - Auction - PSCC	1.0	0.0				2023-10-31	Output VAT@16%	70,052.40 Ksh
The Star	[PC0113] Classifieds - Auction - PSCC	1.0	0.0				2023-10-31	Output VAT@16%	70,052.40 Ksh

Untaxed Amount	120780.0
Taxes	19324.8
Total	140104.8

AMBOSELI ECOSYSTEM TRUST
30 OCT 2023
P. O. Box 346 - 00209 LOITOKITOK

Advertiser's Signature **Date**

30/10/2023

Sales Executive's Signature **Date**

Page: 2 / 3

THE STAR

Terms & Conditions :

1. In the event of cancellation of a signed order, the advertiser must inform in writing at least 48 hours before the due to run. If the advertiser cancels in the middle of an advertising schedule the cancellation takes effect 48 hours after receipt of the written instructions. Verbal cancellations are not acceptable. Advertisers will be responsible for paying all spots aired upto the effective time of cancellation plus a 40% cancellation fee based on total contract value. This applies to the advertising spot buys only.
2. The advertiser warrants that the advertisement does not contain any tortuous or criminal matter, and does not infringe any copyright, trademark or other intellectual property, and does not otherwise contravene the law.
3. The advert accepts full liability, whether civil or criminal, if the advertisement contravenes clause 2 above and shall fully indemnify and its servants and agents for any such liability to any third party whatsoever.
4. This clause shall remain in force even after the after the advertising contract has come to an end until has been fully indemnified in accordance with clause 3 above.
5. If is unable to broadcast an advert for whatever reason, the station reserves the right to reschedule that advert within 48 hours in an equivalent advertising block.
6. Any make good or refund for non performance by must be claimed within 30 days of the airing date of the advertisement or promotional material.
7. Credit beyond 45 days from date of invoice will carry 2% interest per month.
8. Produces spot adverts for its clients at a special price so long as that spot is only aired on. I f the advertiser airs the spot on another radio station, then the advertiser agrees to pay the difference between the special and the standard price of spot production.
9. Sponsored programmes require a minimum 90 day cancellation notice.

AMBOSELI ECOSYSTEM TRUST
30 OCT 2023

Advertiser's Signature **Date** 30/10/2023

Sales Executive's Signature **Date**

Page: 3 / 3

Ref: KBC/SOP/MKTG & ADVG/500/F-08

Kenya (KBC YOUR NATIONAL BROADCASTER

Serial No. 54707

P.O. Box 30456,00100
NAIROBI
KENYA

Tel: 318823/223757 Fax: 223566
Email: marketing@kbc.co.ke
Offices: Broadcasting House
Harry Thuku Road

AIR-TIME ORDER

Client Order Number.....

DATE 30/10/2023 SERVICE NO. RADIO TAIFA

CLIENT AMBOSELI ECOSYSTEM TRUST PRODUCT NEMA ANNOUNCEMENT ADV

AGENCY DIRECT DURATION 2 min SOURCE.....

START DATE 1/11/2023 END DATE 6/11/2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	TIMES PER WEEK
			1X2min 1 Dec Nov		1X2min 3 Nov	——	2
	1X2min 6 Nov					——	1
	Note! To provide recording for the Client						

Rate Per Broadcast.....Total Broadcasts 3 days Rate Card No. Package

Additional Charges.....Total Gross Charges Ksh 148,500 VAT Inclusive

Commercial Materials To be Produced.

Instructions To the Nema advert @8am-9am

Marketing Executive
Name Sarah Manbee
Signatures..... Date 30/10/2023

Cashier
Cash /Cheque
Receipt No.....
Signatures..... Date.....

Credit Control
Approved / Not Approved.....
(Finance Manager)
Signatures..... Date.....

Operations
Name..... Signature.....
Signatures..... Date.....
Approved by: ADM/Sales Manager James Mwaniki Date 28/10/23 Signature.....

I have read the terms and conditions overleaf and I accept to be bound thereby.

Client
Name Jackson Mwato
Designation Executive Director
Signatures..... Date 31/10/2023
Postal Address.....
Physical Address.....
Rubber Stamp /Seal

AMBOSELI ECOSYSTEM TRUST
AET MAIN OFFICE-AMBOSELI NOONKOTIAK
P.O. Box 346-00209, LOITOKITOK, KENYA
Tel: +254 746 139 004
WWW.AMBOSELIECOSYSTEM.ORG

APPENDIX 15: DULLY SIGNED MINUTES OF THE CONSULTATION MEETING OF SEA FOR OOGR LUSP NEMA COMMENTS

Amboseli Ecosystem trust, ATGRCA House – Loitoktok Town

P.O. Box 346 – 00209 Loitoktok, Kenya.

Tel. 0712 588 693 – 0700 727 499

Email: info@amboseliecosystem.org

Website: www.amboseliecosystem.org

Consultation meeting minutes of SEA for Olgulului Ololarashi Group Ranch (OOGR) Land use and Subdivision Plan (LUSP)

The consultant presented the draft Strategic Environmental and Social Assessment (SESA) for OOGR LUSP for input on response to National Environmental Management Authority (NEMA) comments on 09th November 2023 at Kitirwa office, Loitoktok Sub County.

Members Present

Patrick Sayailel – Conservancy Manager

Jackson Sitonik – Community Ranger

Jackson Kikon – Community Ranger

Lenkesia Ntuyuai – Committee Member

Nkoone Kiyapi – Committee Member

Keteko Naiguanya – Committee Member

Dr. Bernard Kaaria Irigia – Lead Consultant

God'swill Baraka – GIS/ Tourism and wildlife Expert

Min 1/09/11/2023: Overview on the comments

The consultant went through the comments as numbered in NEMA letter REF: NEMA/SEA/5/2/079 dated 02nd October 2023 and received the comments as compiled on the response matrix

Min 2/09/11/2023: Endorsement of the changes made to the SEA for OOGR LUSP

The amendments on the SEA for OOGR were made through a participatory process and were backed up by the land owners and the Committee members.

Min 3/09/11/2023: AOB

There was no AOB

Min 4/09/11/2023: Vote of thanks and closure of the meeting

The meeting was adjourned at 05:00pm with a word of prayer from Patrick Sayailel

Prepared by: **Patrick Sayailel - Secretary**

Signature: _____

APPENDIX 16: Letter from NEMA with issues of concern raised on validation workshop

nema
mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Telcom Wireless: 020-2183718, 020-2101370
Mobile Line: 0724 253 398, 0723 363 010, 0735 013 046
Incident Line: 0786 101 100, 0741 101 100

P.O. Box 67839 - 00200
Popo Road, Nairobi, Kenya
Email: dgnema@nema.go.ke
Website: www.nema.go.ke

NEMA/SEA/5/2/079 **13th February 2024**

The Director
Olgulului Ololorashi Group Ranch
P.O Box 346-00209
LOITOKTOK

RE: VALIDATION WORKSHOP FOR THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) REPORT FOR THE PROPOSED OLGULULUI OLOLORASHI GROUPN RANCH (OOGR) LAND USE AND SUBDIVISION PLAN,KAJIADO COUNTY.

In light of the provisions of the Environment Management and Coordination Act (EMCA) 1999, the Environmental (Impact Assessment and Audit) Regulations, 2003 and the National Guidelines for Strategic Environmental Assessment 2012. The draft Strategic Environmental Assessment (SEA) Study report for the Proposed Proposed Olgulului Ololorashi Group Ranch (OOGR) Land Use and Subdivision Plan, Kajiado County was submitted to the Authority on 04th July 2023.

The draft SEA study was then subjected to the public disclosure period through advertisement in the print media, Kenya gazette and over the radio. The advertisements appeared on the Star newspaper on the 31st October 2023, the Daily Nation newspaper on 21st July 2023, the Kenya Gazette on the 28th July 2023 and over the Citizen radio on the 1st November 2023 to 6th November 2023

In view of the above and noting the expiry of the Public disclosure period as well as responses made to the issues raised, the Plan owner in coordination with NEMA will hold a validation workshop at an appropriate venue to engage the public/stakeholders in reviewing and validating the SEA Report.

As you plan for the validation workshop, kindly ensure that the concerns by Nature Kenya *(copy attached)* and the issues raised vide our letter dated 02nd October 2023 regarding the OOGR Land Use and Subdivision Plan are well incorporated and taken into consideration to inform the final SEA process.

Please get in touch with Reagan Awino on rawino@nema.go.ke/0726989293 as you initiate the preparation for the validation workshop.

MARGARET NJUKI.
FOR: DIRECTOR GENERAL

NatureKenya
THE EAST AFRICA NATURAL HISTORY SOCIETY

National Museums of Kenya, Museum Hill
P.O. Box 44486, 00100 GPO Nairobi
Tel: +254 (0)20 3537568
Cell: +254 (0)771 343138, (0)780 149200
Email: office@naturekenya.org
www.naturekenya.org



The Director General
National Environment Management Authority
P.O. Box 67839 – 00200, Nairobi

28th November 2023

Dear Sir,

RE: Nature Kenya comments on Strategic Environment and Social Assessment Report for Olgulului Ololarrashi group ranch land use subdivision scheme plan, Kajiado County

Nature Kenya - the East Africa Natural History Society – having studied the Strategic Environment and Social Assessment for Olgulului Ololarrashi group ranch land use subdivision scheme plan, is concerned that the subdivision is going to lead to irreversible negative impacts not only on wildlife but also the livelihood systems of the local people that is largely dependent on livestock and tourism. It will greatly affect Amboseli National Park.

It is very unfortunate that group ranches have to be subdivided. Group ranches are critical for wildlife. Sub-division will likely lead to a loss of key opportunities to use group ranches as wildlife areas that generate income to the local people through tourism. This area is arid and semi-arid and is best used for ranching of livestock and wildlife. Nature Kenya encourages the group ranches to ensure that with or without sub-division, these ranches do not lose their value as wildlife and livestock grazing areas. It is critical to **set aside conservancies** for wildlife which could also be used as grazing reserves at times of extreme need.

We note with concern the findings in section 7.3.3 that, "*the land subdivision did not take into consideration scientific evidence on wildlife connectivity from one park to another and although there is provision for corridors in certain areas, the land is still sub-divided under 21-acre parcels*".

Nature Kenya concerns and recommendations:

Overall recommendations:

1. **Recommend a policy on the percentage of total land allocated that one can dispose of** to the community-led land banking trust that will be buying any land for sale in the Amboseli ecosystem. Control of land sales among the members issued with title deeds is not easy. Land will be disposed of, Maasai becoming squatters will increase and poverty levels will rise.
2. **Recognize and protect biodiversity.** The SEA report does not cover all biodiversity taxa and does not indicate findings of baseline studies. Such data is key in guiding Biodiversity Action Plans in the Environmental Management and Monitoring Plan (EMMP). Biodiversity data will inform comprehensive biodiversity protection strategies, continuous monitoring and long term reporting plans, ensure maximization of all potential nature-based opportunities and guarantee adherence to biodiversity best practices.
    - There is not a single mention of insects, butterflies, beetles and other arthropods. With the increasing awareness of catastrophic insect declines, it needs to be addressed. Include the creation of butterfly

Specific recommendations:

Environmental and Wildlife Conservation Zone:

3. **Establish a multiple use wildlife conservation area, migratory corridor, and controlled grazing reserve** that links up with surrounding ecosystems such as Chyulu and Tsavo. Require alignment of subdivision scheme plan with data on wildlife movement to set aside suitable corridors and dispersal areas before the plan is gazetted to ensure set up conservancies serve the purpose.

Pastoral Zone Scheme:

4. **Keep the area under the current tested livestock breeds** with better management to ensure carrying capacity is not exceeded.

Irrigation Zone:

5. **Clearly map areas suitable for cultivation.** Traditionally, the local people are not crop famers. The areas that are to be put under food production should be clearly mapped or zoned based on their agricultural potential.
   - Areas zoned for cultivation should not be used for any form of mono-culture for example avocado, biodiesel crops and any form of commercial food production outside the current undertaking.
   - Recognize and emphasize the use of **climate smart agricultural approaches** in the cultivation zones. Promote cultivation of high value crops.
   - Prohibit tree felling for charcoal production or fuelwood sale and encourage selective vegetation clearing in the cultivation zone.

Strategic Environmental Management and Monitoring Plan (SEMMP):

The verifiable indicators for each programme (*pastoral, conservation, settlement areas, irrigation areas*) and key issues need to be revised to enrich them. In particular, list all key issues under each programme and all the monitoring indicators (*pages 65,66 and 67*).

1. Lack of connectivity within the conservation areas will not only lead to Human-Wildlife Conflict, but also impacts on gene pool, population declines, susceptibility to diseases, among others, that require monitoring to inform management decisions.
2. Monitoring the number of farmers practicing boundary planting and tree nurseries is not enough in irrigation zones. Information and data on the number of farmers adopting particular climate sm approaches and technologies need to be included.

Yours Sincerely,

Dr. Paul Matiku,
Executive Director, Nature Kenya

Background information about Nature Kenya

Nature Kenya—the East Africa Natural History Society (EANHS)—is Africa's oldest environmental Society, established in 1909 to promote the study and conservation of nature in eastern Africa. We remain a non-political and not for profit membership Society. Our mission is connecting nature and people. Our work is firmly based on partnership, science and action. We use the best available science to inspire positive action for biodiversity by and for partners—Government, local communities and private sector.

Nature Kenya takes practical action. We work with and for people – to improve their quality of life alongside, and as a result of, nature conservation. We collaborate with others wherever possible, at local, national, regional or global levels, linking with community groups, governments, businesses, universities and civil society groups to increase the impacts of our efforts.

Some of our achievements include:

- Founded the National Museums of Kenya, now a world-renowned institution for research and education.
- Published, since 1910, the *Journal of East African Natural History*, a respected scientific journal now jointly produced with the National Museums.
- Established and maintained, with the National Museums of Kenya, a comprehensive natural history library.
- Engaged its members in the study, enjoyment and conservation of nature in Eastern Africa, through field trips, lectures, publications, and opportunities to take part in research activities since 1909.
- Identified and designated Important Bird Areas (IBAs) for Kenya, in collaboration with the National Museums; and documented the plants, animals and other biodiversity of Eastern Africa as a contribution to expanding the taxonomic scope of priority setting from IBAs to Key Biodiversity Areas (KBAs). Since IBAs are KBAs based on birds, they are today referred to as Important Bird and Biodiversity Areas.
- Encouraged and supported community-based organizations to become Site Support Groups (SSGs) promoting conservation and alternative livelihoods at Important Bird Areas, especially those without official protection status.
- Developed partnerships among Government and non-government organizations for sustainable conservation action at IBAs through the Important Bird Areas National Liaison Committee (IBA-NLC). We work with others in the development of policies, legislation and institutional frameworks that safeguard the ecological sustainability of IBAs in Kenya
- Mobilized resources to connect nature and people to take action for biodiversity conservation through development and implementation of donor funded projects at priority IBAs in Kenya.
- Work globally through the BirdLife International Partnership and its network of like-minded organizations in Eastern Africa and beyond in 117 countries and territories.

APPENDIX 18: OOGR validation meeting minutues submission letter to NEMA

OLGULULUI –OLOLARASHI GROUP RANCH
ECO-TOURISM, FARMING AND NATURAL RESOURCE MANAGEMENT
P.O. BOX 388, 00209 LOITOKITOK
TEL: 0721 392 256, 0728 975 304, 0723 856 113

28th March, 2024

THE DIRECTOR GENERAL,
NEMA,
P.O.BOX 67839 – 00200
POPO ROAD, NAIROBI, KENYA

ATTENTION. : HEAD SEA DIVISION

RE: MINUTES FOR STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) FOR OLGULULUI OLOLARASHI GROUP RANCH (OOGR) LAND USE AND SUBDIVISION PLAN (LUSSP) HELD ON 21ST MARCH, 2024 AT NGONG NAROK

Dear Sir,

Please find attached the minutes of the Strategic Environmental and Social Assessment (SESA) for the Olgulului Olrarashi Group Ranch (OOGR) Management Plan Validation Meeting held on 21st March , 2024

The meeting provided a valuable opportunity for stakeholders to review the SEA report and provide feedback on its adequacy and completeness. The key discussion points and resulting action items are summarized in the attached minutes.

We appreciate the participation of all stakeholders in the validation process and in particular continued guidance by your dedicated officers to ensure a successful process.
We look forward to your timely response and continued guidance in this SESA and other related processes.

DANIEL LETURESH
CHAIRMAN
OOGR

Daniel Kiria Leturesh
Chairman
0721 392 256

Joseph Kipaipai Ntaani
Secretary
0728 975 304

Lenkai ole Leyian
Treasurer
0723 856 113

APPENDIX 19: Minutes for Strategic Environmental and Social Assessment for OOGR LUSP Validation Meeting held on 21st March, 2024 at Olgulului Ololarashi Group Ranch, Ngong Narok, Amboseli Ecosystem.

Minutes for Strategic Environmental and Social Assessment (SESA) for Olgulului Ololarashi Group Ranch (OOGR) Land use and sub division scheme plan (LUSSP) Validation Meeting held on 21st March, 2024 at Olgulului Ololarashi Group Ranch, Ngong Narok, Amboseli Ecosystem, Kajiado County

Meeting Details:

Meeting Title: Strategic Environmental Assessment (SEA) for Olgulului Ololoaashi Group Ranch (OOGR) Land use and subdivision scheme plan Validation Meeting

Date: 21st March 2024

Location: Olgulului Ololarashi Group Ranch, Ngong Narok, Amboseli Ecosystem, Kajiado County.

Attendance

The validation Workshop was attended by all key stakeholders and community members of Olgulului Ololarashi Group Ranch as in A*nnex 1*

MIN 1/21/03/24- Opening remarks.

The meeting was held in open ground under trees and commenced with a word of prayer from the one of the OOGR land owners.

Mr Koikai Oloitiptip of Amboseli Ecosystem Trust, was the master of the ceremony (MC) and he ensured smooth, timely and focused deliberations. He informally invited all participants to the venue and requested the AET Chief Executive to officially welcome participants.

Mr. Jackson Mwato, the Chief Executive Officer of Amboseli Ecosystem Trust thanked everyone who joined and gave his support for the OOGR LUSSP. He also outlined the key role of AET as an institution that facilitates, guides and enables communities to benefit from their natural resources in a sustainable, structured and planned manner, using conservancies as the vehicle for this.

Mr, Joel Nyika, the Kajiado County Director Culture, Tourism & Wildlife who represented the Kajiado County Governor in his opening remarks welcomed participants to the County and emphasized that the County Government of Kajiado is committed to supporting conservation both in the park and on group ranches which are in the process of converting to conservancies. Mr Ole Nyika also informed participants that the President of the Republic of Kenya issued a moratorium on Environmental Imp act Assessments (EIAs) of projects proposed in all key wildlife conservation areas in the country to give way for proper land use guidelines in the affected areas, stating that Kajiado County is one of the affected areas. He also briefly mentioned that there is a directive for the transitioning of Amboseli National Park to the Kajiado County Government and a task force to execute the transition has been gazetted.

Mr. Reagan Awino on behalf of the Director General NEMA, thanked all the stakeholders for their involvement in the SEA process. He stated that The Strategic Environmental Assessment aims at integrating environmental considerations into planning and decision-making processes. He urged all stakeholders and public to work closely with NEMA in their respective areas in order to propel the environment Agenda to greater heights.

MIN 2/21/03/24- Introduction and history of the Ogulului Ololarrashi Group Ranch.

The Chairman OOGR, Mr. Daniel K. Leturesh welcomed and acknowledged everyone present. He went on and discussed the need for subdivision which started in the year

2006 where he was in dispute until taken through to understand the legality of sub division process. He went on and advised that the process wasn't easy since the group ranch forms over 90% dispersal area for Amboseli National Park. Many of the conservation partners and NGO's were not supportive of subdivision and threatened to impeach the chairman but he wanted to guide the process of sub division in a sustainable way, since majority of the land owners feared that if they don't subdivide, government would take over their land. The chairman also highlighted issues on land set aside for conservation, and reported that Six (6) conservancies were formed and the seventh one was to be formed on 22nd March 2024, and every community member actively participates in the conservancy formation process.
The Chairman of OOGR reported that through the Land Acquisition Committee they have acquired 200 acres of land (48pcs of 21 acres of land) and will acquire more than 1000 acres to expand space for wildlife and conservation.
Mr Leturesh thanked all the partners for their support and invited Dr David western to give a brief history about OOGR and the bordering Amboseli National Park as per Annex 2

MIN 3/21/03/24: The SEA Process

Mr. Reagan Awino from the National Environment Management Authority (NEMA) took the podium where he gave his apologies on behalf of the Director general. He explained the SEA process as outlined: Introduction to SEA, what makes a Good SEA, and Steps in the SEA process undertaken, including key stages and methodologies as per *annex 3. Participants commended Mr Awino for presenting a very elaborate process.*

MIN 4/20/03/24: SEA Findings and Recommendations

The SESA Lead Consultant Dr. Bernard Kaaria acknowledged all stakeholders present in the validation meeting. He presented the key findings of the SEA using the outline below:

- Social and Environmental issues of concern identified by the OOGR LUSSP
- Impact analysis and alternative options
- Identifying environmental and social impacts (positive and negative).
- OOGR identified Land uses
- OOGR Management programmes
- Mitigation measures proposed to address potential negative impacts.
- Recommendations for enhancing environmental and social considerations in the management plan and implementation.

The full presentation by the consultant is in *Annex 4*

MIN 5/21/03/24: Plenary Session

At 12:45 hrs. Mr Koikai Oloitiptip who was the master of ceremony Opened the floor for discussion among attendees. Encourage questions, comments, and feedback on the presented SEA findings.
Key areas for discussion we're are as stated in the matrix below:

Name/Agency	Comment/Question	Remarks/Responses

Joel Nyika (County Government of Kajiado	Went through comments and concerns raised from nature Kenya's letter.	The suggestions were captured and concerns solved. The stakeholders observed that new conservancies had been established and the subdivided lands had been bought back by the OOGR Land Acquisition Committee which was a concern from the letter by Nature Kenya.
Daniel Kiria Leturesh (OOGR)	How to fast-track the processing of the SESA report and approval of the OOGR Plan to ensure that communities benefit from the willing investors, since right now investors cannot sign agreements when the issue of EIAs is not clear.	Mr. Reagan Awino from NEMA and Joel Nyika from County Government of Kajiado responded by stating that they will fast track the processing of the documents and avail to Director General of NEMA to be able to guide on how to allow EIAs in the Amboseli Ecosystem.
Daniel Kiria Leturesh (OOGR	Why is it that Nature Kenya Gave their comments on OOGR LUSSP while they don't Operate in the area?	Mr. Reagan From NEMA Responded that the SEA process is a participatory process which involves the public. The main reason of the public participation/stakeholders' engagement was to get public opinion on every aspect.

MIN 6/20/03/24: Closing Remarks and Prayers

The OOGR Chairman, Mr Daniel Leturesh in his closing remarks thanked and appreciated NEMA, Kajiado County Government, the SEA consultants, the NGOs present and all the OOGR land owners as well as other stakeholders. He finally invited then invited the Community Pastor to close the meeting with a word of prayer.

Annex 1: List of Participants

OOGR

OLGULULUI-OLOLARASHI GROUP RANCH

OLGULULUI –OLOLARASHI GROUP RANCH
ECO-TOURISM, FARMING AND NATURAL RESOURCE MANAGEMENT
P.O. BOX 388, 00209 LOITOKITOK
TEL: 0721 392 256, 0728 975 304, 0115 342 990

LIST OF PARTICIPANTS. MEETING VENUE Enkongu-Marok, Amboseli DATE 21st March 2024

S/N	NAME	ID.NO	PHONE NO	AMOUNT	SIGNATURE
1.	Koikai Oloitiptip	1063466	0700727499	N/A	
2.	EVAN M. MKALA	8946504	0722623771	N/A	
3.	David K Maitumo	0498707	0725831662	N/A	
4.	DAVID WESTERN	6896496	0722747227	N/A	
5.	Lucy Waruingi	8822918	0708849977		
6.	Joel Nyika	13610485	0723317794	N/A	
7.	Nancy Osugo	30496134	0706115031	N/A	
8.	Reayom Awino	24589710	0726989293	N/A	
9.	Dr. Bernard Kaaria	1241632	0722773951	N/A	
10.	God'swill Baraka Sewe	32555661	0714-834-992	N/A	
11.	Samuel Nkonyoyo	29274495	0701576904		
12.	Ntawuasa Orpakua	24483857	0728141346		
13.	Wilson Tikwa	24034850	0724605444		
14.	Saimbolo Kiletu	8336173	0706386043		
15.	Somoine Mokoria	34539481	0704580019		
16.	Parmuya Olebakuli		0704577604		
17.	Matindi Sempeta		0799712699		
18.	Leepa Memiri	20313001	0758626596		
19.	William LEMAROW	30055179	0704333766		
20.	Mpayo Kuresoi	32029052	0768021749		
21.	Jacob LiLayon	37390285	0746591964		
22.	LAKANA LEMPATIAN	11727506	0101319328		

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S/N	NAME	ID.NO	PHONE # AMOUNT	SIGNATURE
1. 23	Sakimpa Kiuro	30115828	0708779365	
2. 24	SOLOMON MARIKA	39410203	0751378908	
3. 25	John Nkaderi	28556448	0114735282	
4. 26	Sampenke Oyia	27217551	0703519068	
5. 27	Leshan Moshekis	24958836	0703615050	
6. 28	DANIEL KANCHORA	24616501	0726533088	
7. 29	TUMERI LEPOSO	9655639	0796475911	
8. 30	John mpute	24681247	0728918298	
9. 31	JACKSON MWATO	23369978	0712588693	
10. 32	JAMES SIIANKEI	25666783	0729753030	
11. 33	Pst MNEYIEKI	27711490	0721695899	
12. 34	Luke Mamaai	25634354	0726546839	
13. 35	John Kasaine	31923367	0700177347	
14. 36	Loningo Sereka	22460901	0727759703	
15. 37	Daniel Leturesh	3929575	0721392256	
16. 38	Lenkai Leyian	11727915	0723856113	
17. 39	Kitosisio Teketi	11385142	071950991	
18. 40	John Supukei	22357833	0713233862	
19. 41	Noah Nkuren	6113577	0712134534	
20. 42	Kimi Kenneth	20333975	0726832103	
21. 43	Tisike arpakwa	8336155		
22. 44	Saningo Soope Solonka	25686947	0720336889	
23. 45	Paraiteri Ntimpai	24893375	0702415219	
24. 46	Yianga's Nteteu	24893426	0715438335	
25. 47	Silet lemalon	28597096	0114098919	
26. 48	Lenkina Sempenta	20329254	0700379693	
27.				

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Annex 2-History of Amboseli National Park by Dr David Western

Having played a central role in the conservation of Amboseli since the 1960s, I have been asked from many quarters to comment on the handing back of Amboseli National Park to the Kajiado County and Maasai community. Let me start at the beginning to show why I support the move, and the conditions needed to ensure the future of Amboseli not only as a national park, but an ecosystem ten times the size of the park.
The first colonial administrators of the East African Protectorate fully recognized the pastoral communities in northern and southern Kenya as having conserved the richest wildlife lands on earth. Following the prohibition on sport hunting in both areas, a 10,696 square mile Southern Reserve was set aside in 1906 to protect wildlife in what would later become Kajiado District. Wildlife continued to thrive in the Southern Reserve under traditional Maasai land and husbandry management. Concerned over destruction of wildlife by colonial farmers and ranchers, the administration carved out Nairobi National Park from Maasailand in 1946, followed shortly after by Tsavo, Aberdare and Mt Kenya National Parks.
Efforts by the newly established autonomous Kenya National Parks authority to create national parks in Amboseli and Maasai Mara, the two richest wildlife areas in southern Kenya, were thwarted by Maasai resistance. Instead, a 1,269 square mile Amboseli National Reserve was established around Amboseli in 1948, administered by the Kenya National Park Trustees on behalf of the Kajiado County Council. In 1961 the national reserve was handed over to the Kajiado County Council to manage as the Amboseli Game Reserve. The Kajiado Council set aside a 30 square mile livestock free area around the Ol Tukai swamps to protect wildlife and foster tourism.
When I began my research in Amboseli in 1967, the warden Daniel Sindiyo, a Maasai himself, was seconded from the Game Department to administer the game reserve on behalf of the Kajiado County Council. We both recognized the unique role the Maasai had played in conserving the wealth of wildlife in Amboseli and across southern Kenya. My research showed the pastoral way of life and the parallel seasonal migrations of livestock and wildlife across the 4,000 square kilometer ecosystem explained the wealth of Amboseli's wildlife and its coexistence with the Maasai community.
By then pressures were mounting to create a national park around the Amboseli swamps, a move which would alienate the Maasai, deprive them of late season grazing and sever the wildlife migrations. We proposed instead an Amboseli Maasai Park which would ensure local participation in the benefits of wildlife and protect the integrity of the ecosystem.
Despite initially being accepted by the Kajiado County Council, the Maasai Park was ultimately rejected due to opposition politicians fueling suspicions of a government takeover. The Game Department pulled out and the county failed to invest in the conservation and management of Amboseli, leading to a rundown reserve, mounting conservation concerns and, in July 1974, President Jomo Kenyatta declaring Amboseli a National Park.
The Maasai considered the declaration illegal and showed their anger by spearing scores of elephants, lions and other wildlife. A compromise was reached after government was persuaded to cede the land and lodge revenues at Ol Tukai to the Kajiado County, pay the Maasai community a fee for supporting the wildlife

migrations, and agreeing to future lodges being on community land to prevent overcrowding the park and earning the community direct tourism revenues.

Community-based conservation and an ecosystem approach to conserving wildlife was pioneered in Amboseli and adopted as national policy in 1977. In 2004 community leaders convened a meeting of conservation organizations, the Kenya Wildlife Service and county representatives to develop a ten-year ecosystem management plan. The plan, followed by an enlarged 2020-2030 plan, has seen wildlife numbers increase due to the deployment of some seven hundred community scouts, tourism enterprises, conservancies and the oversight of the Amboseli Ecosystem Trust constituted by the landowners and partners.

Having played a strong role in Amboseli's community and ecosystem approach to wildlife conservation and promoted similar approaches nationally and internationally, I fully support the return of Amboseli to its traditional custodians. It does correct a historical injustice and vested wildlife in the community which has conserved it down the ages.

I do, however, caution the need to correct the injustice of Amboseli's seizure through legal channels, not by presidential decree–as important as this is in setting the ball rolling. I took a similar position when President Kibaki decreed Amboseli be handed back to the Kajiado County Council in 2005. The decree led to an outcry, not only among conservationists, but also a Suswa Declaration by Maasai leaders rejecting the illegal declaration as an effort to buy Maasai votes. The Kibaki decree was halted by a court injunction, leading to angry tussles between government and Maasai leaders ever since.

The gazetting and degazetting of a national park must be done through the legal provisions of the Wildlife Act and the approval by the National Assembly. Amboseli could otherwise be taken back from the Maasai by a future presidential decree. The return to the Maasai should also be seen as the correction of an historical injustice, not an election gift. Other counties will otherwise press for a similar gift of national parks, and this is retrogressive.

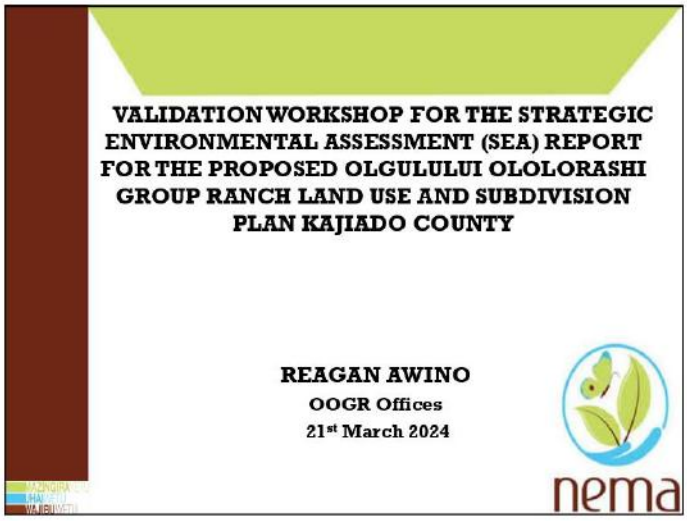
The handing back of Amboseli to the Maasai comes at a critical juncture. Frustrations are mounting among community members over rising conflict with wildlife and paltry revenues from the park. The frustrations, lack of returns from wildlife and the ongoing subdivision of the surrounding group ranches pose a grave threat to the future of the national park, migrations and ecosystem.

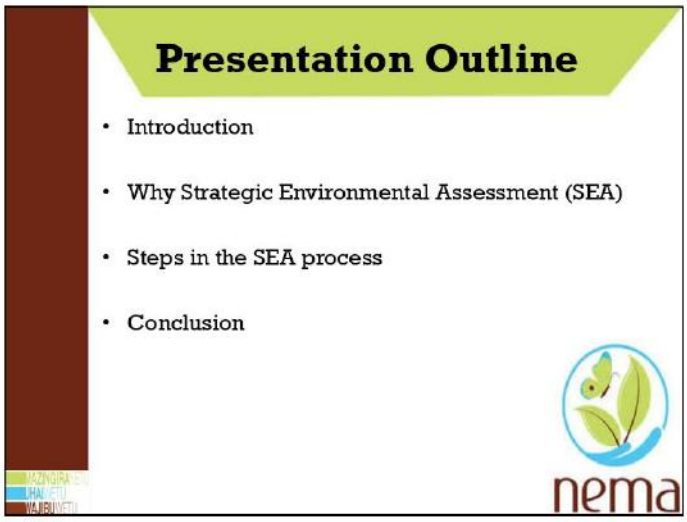
Under Maasai custodianship, Amboseli's wildlife must find an enduring place in their future as it has in the past. The Kajiado County must also show it can manage Amboseli to the standards KWS has set. The county inherits a well-run park with regulations which have curbed the uncontrolled tourism crush harrying predators in many national reserves and sullying Kenya's reputation as a premier wildlife destination.

The resumption of Amboseli management by the Kajiado County also offers an opportunity to secure the future of the ecosystem in the face of subdivision. With the County Assembly prepared to share a significant portion of the park revenues with the community, the payment for their ecological services could secure the ecosystem needed for wildlife migrations and the future of livestock herders. Conservation trust

funds being set up by government and conservation organizations, along with payments for carbon and biodiversity credits and nature enterprises, could provide additional income to the Maasai community to keep their rangelands open.
With these caveats and the potential to secure the future of the entire ecosystem, I see a promising future for Amboseli National Park vested in the Maasai community. The government must and has given assurances that it will take bold steps to reform existing punitive wildlife policies to ensure our national parks are embedded within the ecosystems on which they depend, and embrace community engagement. The Parks Beyond Parks movement which I launched at KWS in 1997 has seen conservancies flourish and cover more land than all national parks and reserves combined. The combination of such community conservation efforts and national parks is a winning combination which augers well for conserving Kenya's wealth of wildlife.

Annex 3: SEA Process


VALIDATION WORKSHOP FOR THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) REPORT FOR THE PROPOSED OLGULULUI OLOLORASHI GROUP RANCH LAND USE AND SUBDIVISION PLAN KAJIADO COUNTY
REAGAN AWINO
OOGR Offices
21st March 2024
nema

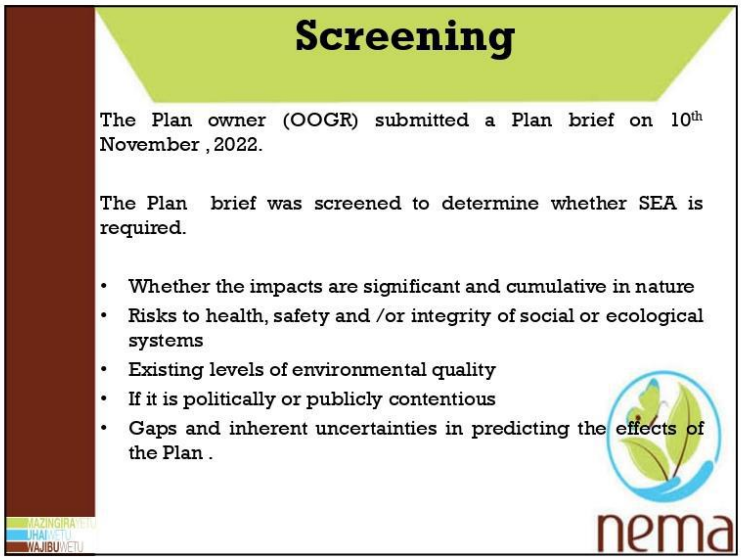

Presentation Outline
• Introduction
• Why Strategic Environmental Assessment (SEA)
• Steps in the SEA process
• Conclusion
nema

1


Introduction
Strategic Environmental Assessment (SEA) - A decision making tool that is used to integrate environmental and social considerations into policies, plans and programmes (PPP) thereby contributing to sustainable development.
SEA informs the interested and affected parties on the sustainability of strategic decisions, identifies best alternatives and ensures democratic decision making.
A good SEA must be:- Integrated, lead to sustainability, focused, accountable, participatory and iterative.
nema


Steps in the SEA process
• Screening
• Scoping
• Detailed SEA study
• SEA review
• SEA validation
• Decision Making
• Monitoring and Evaluation
nema

2


Screening
The Plan owner (OOGR) submitted a Plan brief on 10th November , 2022.
The Plan brief was screened to determine whether SEA is required.
• Whether the impacts are significant and cumulative in nature
• Risks to health, safety and /or integrity of social or ecological systems
• Existing levels of environmental quality
• If it is politically or publicly contentious
• Gaps and inherent uncertainties in predicting the effects of the Plan .
nema


Screening Cont.....
The Plan brief was approved 07th December, 2022.
The Plan owner was advised to prepare and submit a SEA Scoping Report.
nema

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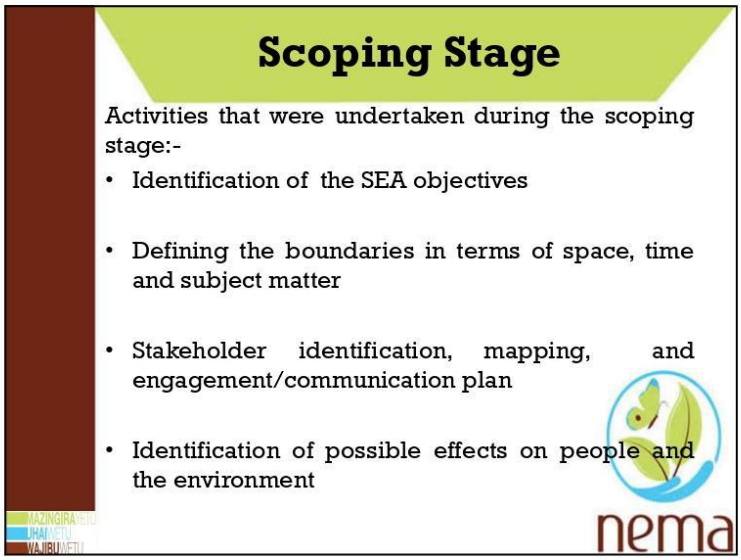
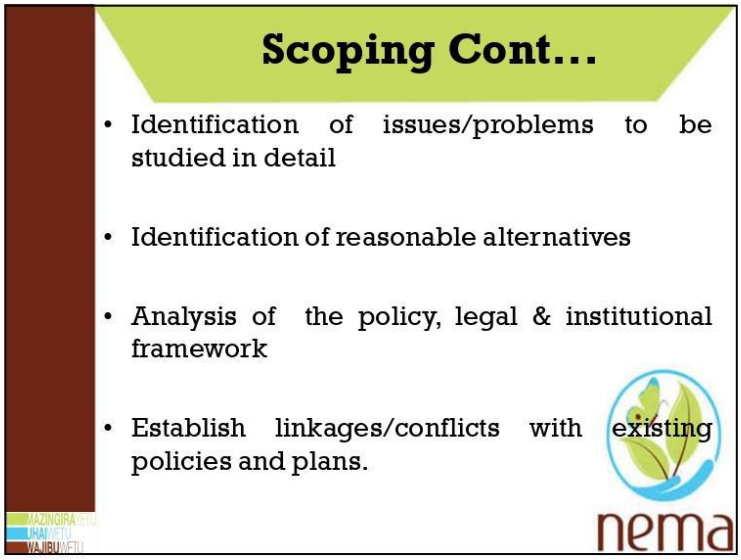

Scoping Stage
Activities that were undertaken during the scoping stage:-
• Identification of the SEA objectives
• Defining the boundaries in terms of space, time and subject matter
• Stakeholder identification, mapping, and engagement/communication plan
• Identification of possible effects on people and the environment
nema


Scoping Cont...
• Identification of issues/problems to be studied in detail
• Identification of reasonable alternatives
• Analysis of the policy, legal & institutional framework
• Establish linkages/conflicts with existing policies and plans.
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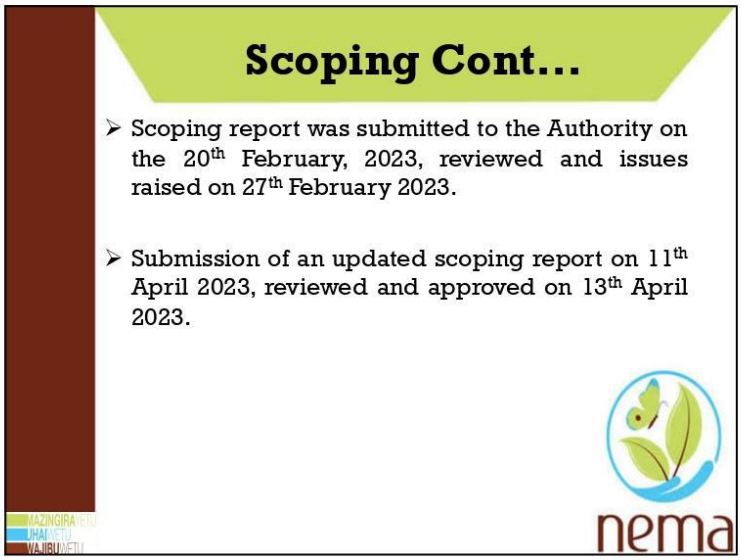
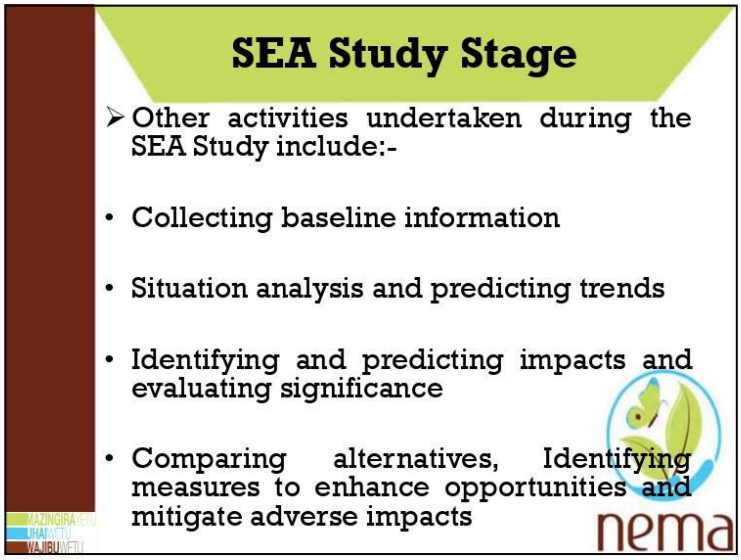

Scoping Cont...
Scoping report was submitted to the Authority on the 20th February, 2023, reviewed and issues raised on 27th February 2023.
Submission of an updated scoping report on 11th April 2023, reviewed and approved on 13th April 2023.
nema


SEA Study Stage
Other activities undertaken during the SEA Study include:-
Collecting baseline information
Situation analysis and predicting trends
Identifying and predicting impacts and evaluating significance
Comparing alternatives, Identifying measures to enhance opportunities and mitigate adverse impacts
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SEA Review
Draft SEA report was submitted on 04th July, 2023
Draft SEA report was then subjected to different reviews:
• Administrative review by NEMA – 02nd October 2023
• Stakeholder review – 07th July 2023
• Public Review – 06th July 2023
• Updated Draft submission 04th December 2023
• Validation workshop – 21st March 2024
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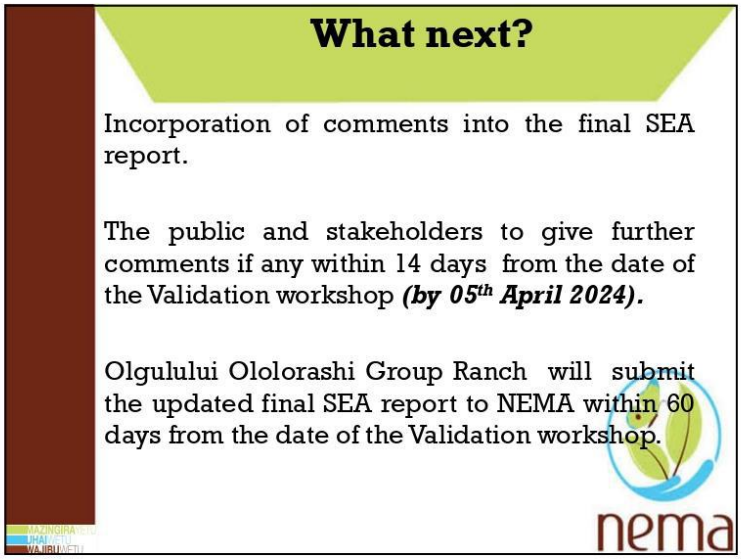
What next?
Incorporation of comments into the final SEA report.
The public and stakeholders to give further comments if any within 14 days from the date of the Validation workshop (by 05th April 2024).
Olgulului Ololorashi Group Ranch will submit the updated final SEA report to NEMA within 60 days from the date of the Validation workshop.
nema

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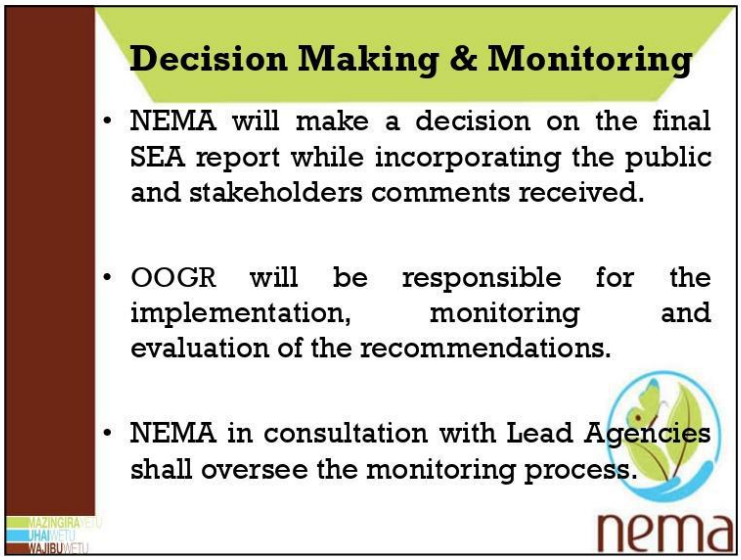
Decision Making & Monitoring
• NEMA will make a decision on the final SEA report while incorporating the public and stakeholders comments received.
• OOGR will be responsible for the implementation, monitoring and evaluation of the recommendations.
• NEMA in consultation with Lead Agencies shall oversee the monitoring process.
nema


Key take away
• The SEA process should ensure that the OOGR Plan will lead to sustainable development while meeting the economic and social needs within the environmental capacity.
• The prime concern of Environmental Regulation should be the prevention of environmental and social/public harm and not regulation for its own sake.
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Annex 4: SEA Findings and Recommendations

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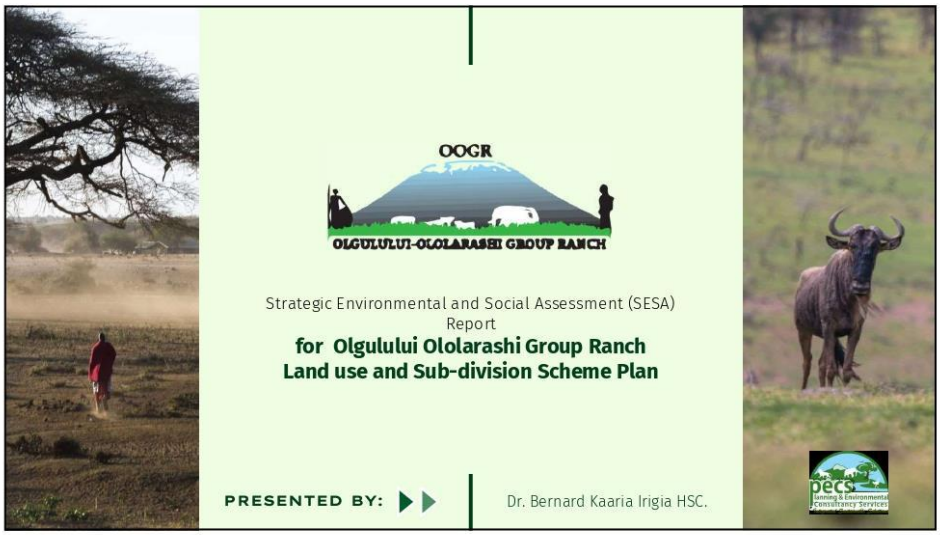



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ACKNOWLEDGEMENT

JUSTDIGGIT

pecs Planning & Environmental Consultancy Services

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01 OOGR LUSP FINDINGS INTRODUCTION

02 OPPORTUNITIES AND THREATS

03 OOGR ENVIRONMENTAL AND REGULATORY FRAMEWORK

04 OOGR SUB DIVISION SCHEME PLAN, IMPACTS AND MITIGATION MEASURES

05 CONCLUSION AND RECOMMENDATIONS

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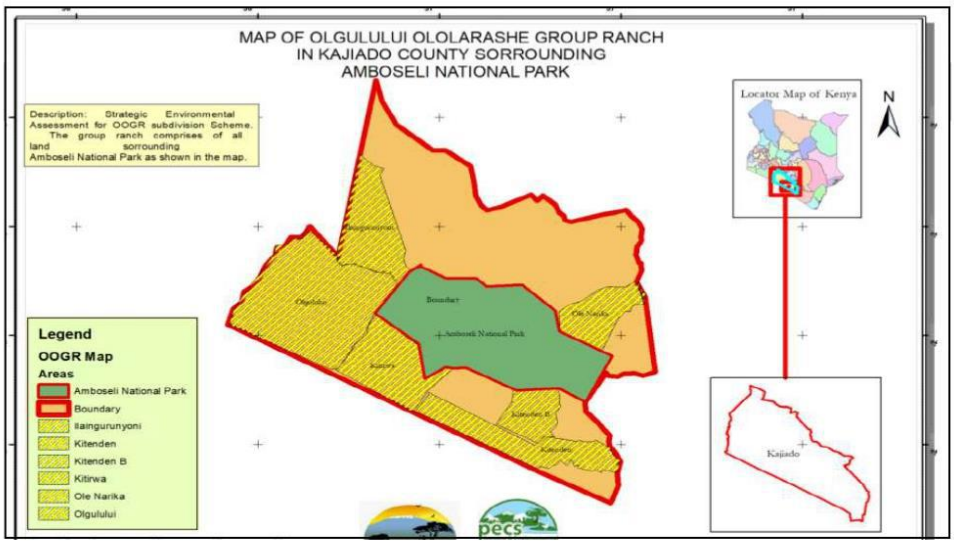
DESCRIPTION OF OOGR LUSP

- The Olgulului Ololarrashi Group Ranch (OOGR) is approximately **one hundred and thirty-three thousand, three hundred and thirty-eight hectares (133,338)** of land, and is one of the largest landowners in the greater Amboseli Ecosystem.
- The ranch is located in Kajiado County, Loitokitok Sub County and adjacent to Amboseli National Park towards the Kenya Tanzania border. It engulfs the Amboseli National Park in the northern, western and southern directions. Proportionately, the group ranch is **3.5 times the size of Amboseli National Park (ANP).**
- OOGR land is held under communal land tenure by **11,485 (eleven thousand, four hundred and eighty-five thousand**) registered members except for approximately **50 (fifty) parcels** that are held under public and private land tenure system.
- OOGR is now managed and governed by **Olgulului Land Trust** which was registered on 28th September 2023 and is made up of **eight (8) registered Trustees**.
- **OOGR Sub-division Scheme Plan Approved 18th June 2019**



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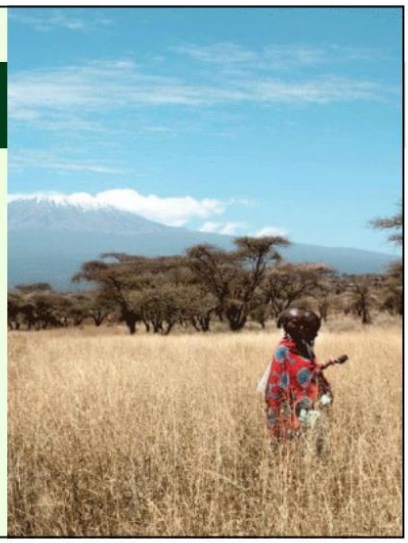
METHODOLOGY

- Literature Reviews
- Legal options Report
- Amboseli Management Plan
- OOGR Conservation Development Plan
- Strategic Assessment of Amboseli Management Plan
- State of Conservancies Report 2020
- Wildlife Dispersal Areas Report, Vision 2030
- Environmental Management and Coordination Act (EMCA) 2015
- Physical Planning and Land Use Act 2019 (GoK, 2019)
- Wildlife Management Act 2016
- Forest Conservation and Management Act 2016



PROGRAMMES

After resolving on subdividing and promoting sustainable development as a theme, OOGR Stakeholders agreed on three broad programs on their Land Title No: Kajiado/ Olgulului-Ololarashi/647.



Programme 1

Community Livelihoods Programme



Programme 2

Settlement Programme



Progrmme 3

Conservation Programme

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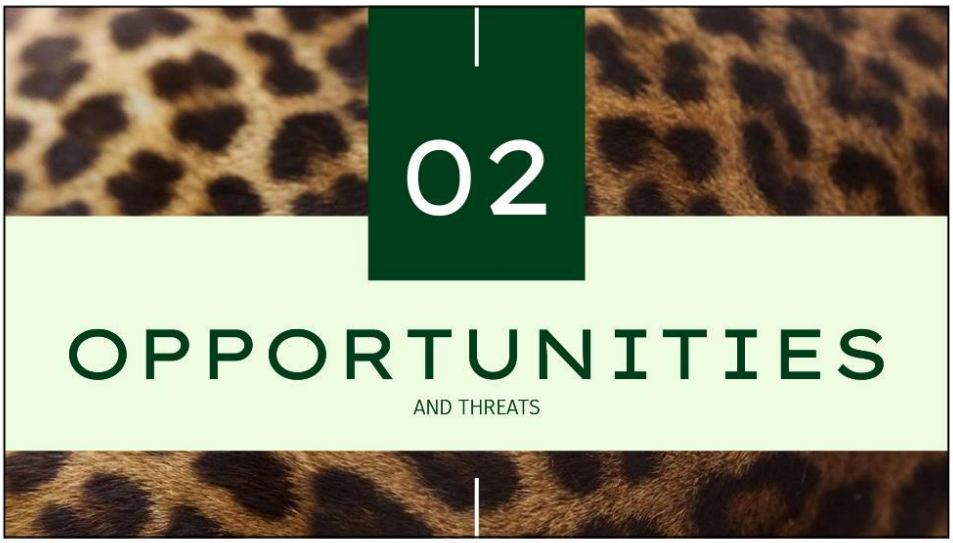

LOCAL RESOURCES OPPORTUNITIES AND THREATS

No.	Local Resources and Opportunities	Existing and anticipated key issues
1.	Amboseli National Park is an iconic tourist destination and wildlife habitat	Sharing of benefits accruing from the park
2	Presence of wildlife including the big five	Enhanced tourism experience and repeat clients
3	Scenic beauty of the whole ecosystem including Mt. Kilimanjaro, Lake Amboseli and Chyulu Hills	
4	Culture including Maasai traditional practices such as pastoralism, artifacts, immaterial culture, traditional homes and bomas. Dressing, cuisine and bead works.	Compatible livelihood lifestyle with wildlife management and tourism enterprises
	Threats	
1	Rapidly increasing population	Demand for land rights
		Shrinking livelihood options
		Unregulated development including haphazard location of human settlement
2	Increase in livestock population	Demand for grazing land
3	Unregulated land use planning	Human wildlife conflicts
4	Climate Change	Decline in food security

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03
OOGR LUSP
ENVIRONENTAL REGULATORY FRAMEWORK AND PPP
ANALYSIS


A ENVIRONMENTAL REGULATORY FRAMEWORK
This SEA for OOGR LUSP was screened against the Environmental and Social obligations in relevant frameworks at local, county, National and international levels as Highlighted below:

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A ENVIRONMENTAL REGULATORY FRAMEWORK

Framework Level	Relevant Frameworks
Local	• OOGR Management Plan 2020 – 2030 • OOGR Land use and Sub-division plan • Amboseli Ecosystem Management Plan 2020 - 2030
County	• Kajiado County Land sub-Division Guidelines 2018 • Kajiado County Spatial Plan 2019 - 2029

A ENVIRONMENTAL REGULATORY FRAMEWORK

Framework Level	Relevant Frameworks
National	• National Constitution • National Environment Policy, 2014 • National Landuse Policy, 2017 • Integrated National Landuse Guidelines, 2011 • National Wildlife Policy, 2020 • WCMA 2013 • National Climate Change Framework Policy, 2016

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A ENVIRONMENTAL REGULATORY FRAMEWORK

Framework Level	Relevant Frameworks
National	• Kenya Vision 2030 • Kenya National Spatial Plan 2015-2045 • National Water Master Plan 2030 • National Biodiversity Strategy and Action Plan (NBSAP 2021-2030) • National Climate Change Response Strategy (NCCRS) 2010
Regional & Global	• EAC Protocol on Environment and Natural Resources • Convention on Migratory Species (CMS) • UNESCO's Programme on Man and the Biosphere (MAB)



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ZONATION

The programmes led into dividing the land into four zones as shown in the map where part of it hosts four community Wildlife Conservancies, namely, **Kitirwa, Kitendeni**, **Ole-Narika** and **Ilaingarunyoni** as the attached in the map.

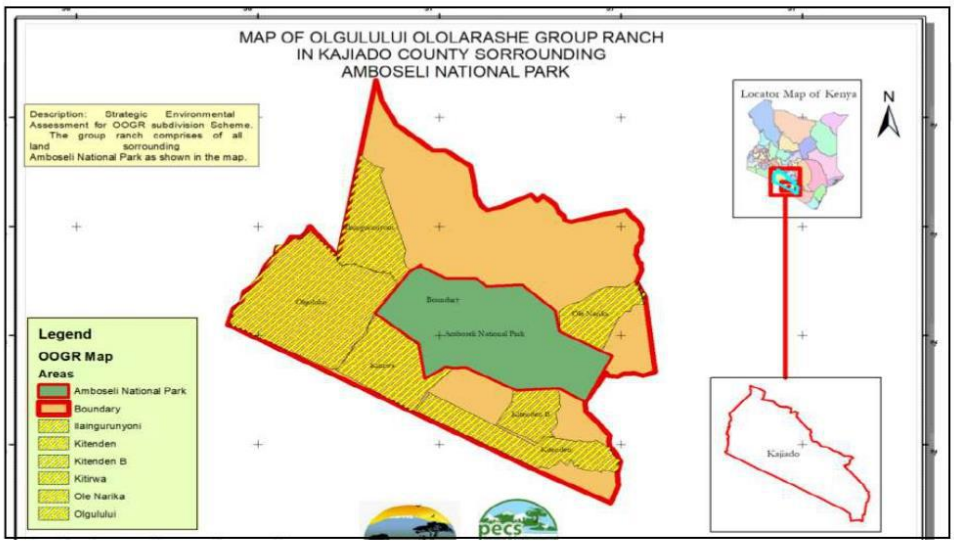


Zone 1
Conservation Zone

Zone 2
Tourism, Pastoralism and Wildlife Zone

Zone 3
Cultivation Development Zone

Zone 4
Settlement Zone



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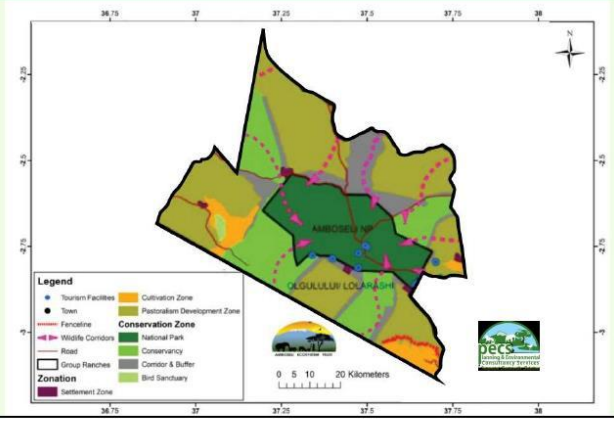
ZONATION LAND SIZES

No.	Zoning Scheme	Hectares	Percent (%) of Total land
1	Pastoral areas	79,848.02	58
2	Environmental conservation: Wildlife habitat, corridor and dispersal areas, Bird sanctuary, natural resources and drainage	46,019.45	34
3	Irrigation Area	5227.02	4
4	Transport infrastructure	3,783.26	3
5	Social and Physical Infrastructure	1,678.04	1
	Total	136,555.79	100

OOGR ZONATION MAP



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CONSERVATION ZONE



The primary focus of this zone is on the achievement of the OOGRs conservation goals.

The zone is characterized by the conservancies as depicted in the map below.

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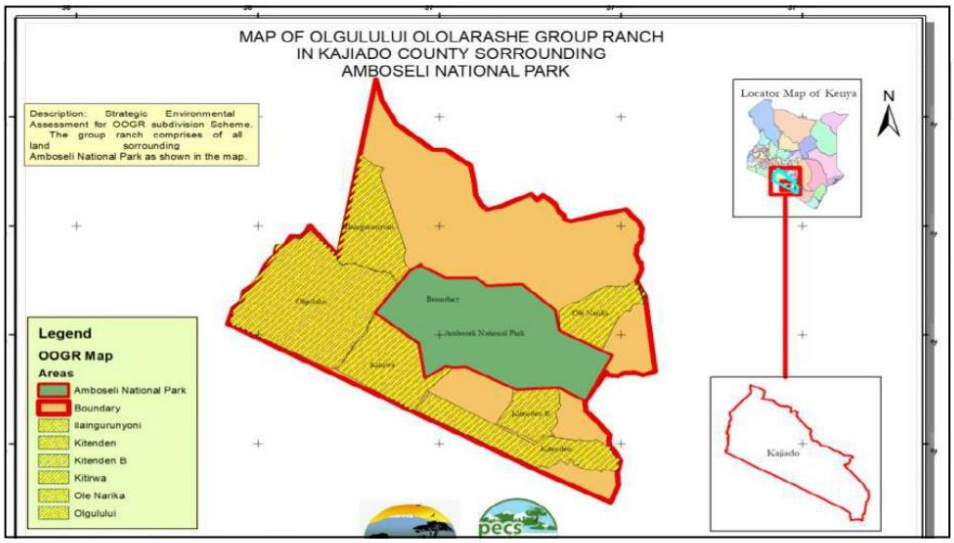

CONSERVATION ZONE

Designated landuse zones, permitted activities and restrictions in the SEA For OOGR LUSP

Land use Zoning Scheme	Permitted Landuse Activities	Restricted Landuse Activities	Management Standards
Environmental and wildlife conservation zone	• Wildlife habitats. • Game viewing. • Bird watching. • Ecological research. • Controlled Photography. • Filming. • Drawing water from the rivers. • Controlled construction of tented camps in the riverine environment. • Controlled construction of cultural 'manyattas' in the buffer zone. • Controlled grazing of livestock. • Controlled establishment of tented camps. • Laying of underground infrastructure. • Construction of water pans.	• Location of tented camps restricted. • Bed capacity of tented camp restricted. • Human settlement or building in any form prohibited • Road construction prohibited. • Prohibit construction of dam and weirs. • Restriction of the number of traditional livestock in the 'manyattas'. • Fencing prohibited. • Exotic tree species prohibited. • Change of user and subdivision prohibited.	• Bed capacity for each camp shall fall in the range between 6to 10 beds per camp. • Location of tented camps to be determined through consultation, between OOGR management committee, conservation experts and investors and the county government. • The cultural 'manyatta' be based on masaai traditional 'manyatta' concept. • Game viewing to be done by four wheel drive vehicles to forestall the need for permanent road construction. • Filming rights to be granted by OOGR committee for purpose of revenue generation for the community. • Only buffering roads to the conservancies may be opened and graded to serve as a delimitation of conservancy blocks. • The number and location of cultural 'manyatta' to be determined by OOGR trustee board and County Government. Prior to establishing the tented camps development approval shall have to be granted by the competent planning authority.

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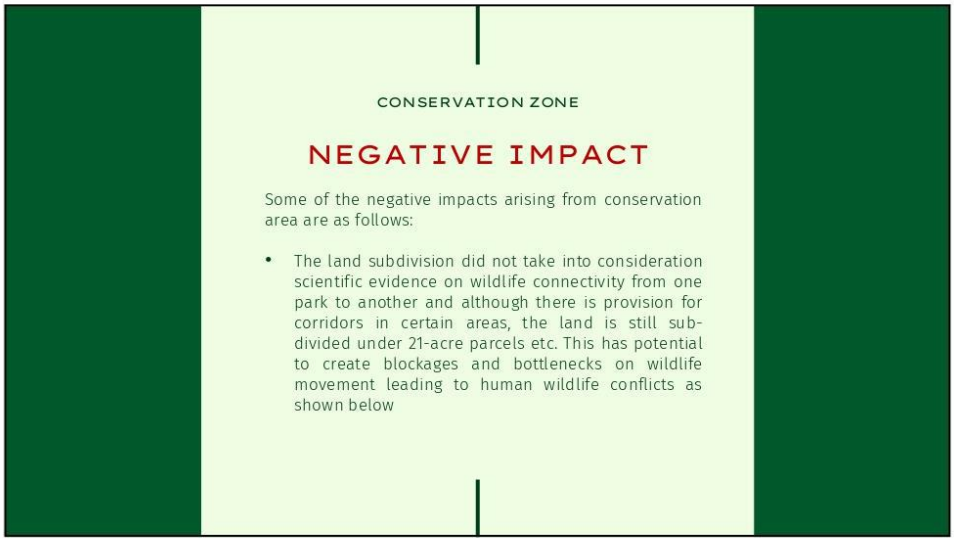
CONSERVATION ZONE
POSITIVE IMPACT
The proposed sub-division is in favor of conservation of natural resources and wildlife. Great efforts have been made to ensure that significant and strategic land has been identified and set aside for conservation. Positive impacts identified are as follows:
• It will enhance co-existence between the local people and wildlife.
• These conservancies will also secure wildlife habitats and protection as the establishment of ranger posts will improve on protection and compliment KWS rangers in Amboseli Ecosystem.
• Livelihoods improvement, as beneficiaries will earn a living from bed nights and leasing of land, and establishment of cultural manyattas.


CONSERVATION ZONE
NEGATIVE IMPACT
Some of the negative impacts arising from conservation area are as follows:
• The land subdivision did not take into consideration scientific evidence on wildlife connectivity from one park to another and although there is provision for corridors in certain areas, the land is still sub-divided under 21-acre parcels etc. This has potential to create blockages and bottlenecks on wildlife movement leading to human wildlife conflicts as shown below

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CONSERVATION ZONE

NEGATIVE IMPACT

- There is no clear distinction on where the boundary for grazing and conservancies begins and end when it comes to implementation as animals graze freely as leading to conflict.
- The likelihood for disease transmission from wildlife to livestock and vice versa is very high. Malignant Catarrh, bovine tuberculosis, par tuberculosis, brucellosis, and avian influenza, rabies, and cattle fever tick (vector control)—have a wildlife reservoir that is a recognized impediment to eradication in domestic populations.

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CONSERVATION ZONE

NEGATIVE IMPACT

- Lack of strategic dry and wet season grazing areas will interfere with visitor experience during dry seasons as animals will migrate to wetlands in the park or other areas in the ecosystem.
- Proliferation and mushrooming of campsites in undesignated areas which will enhance accommodation facilities lowering costs thus impacting on Amboseli as high value tourism destination.

CONSERVATION ZONE

MITIGATION MEASURES

The following mitigation measures are proposed in order to reduce negative environmental impacts in OOGR and Amboseli Ecosystem

- Align subdivision scheme with data on wildlife movement, to set aside corridors and dispersal areas in accordance with Wildlife Migratory Corridors and Dispersal Areas Report 2017 (See Migratory Corridor map below) These dispersal areas can be leased out to potential conservationists to protect wildlife and carbon offsetting projects.
- Demarcate and put clear signage on boundaries for grazing and conservancies.
- Establish guidelines, Regulations, enhance enforcements, ranger patrols, education and awareness on land use limitations among others.

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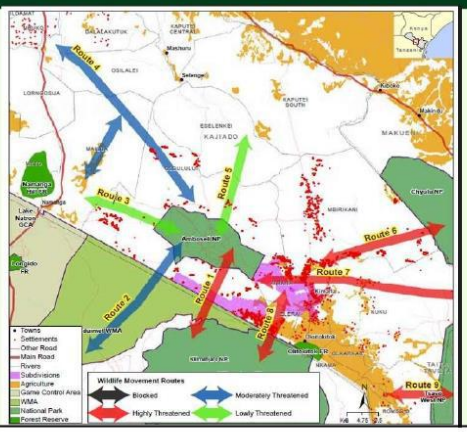
MIGRATORY ROUTES IN AE



CONSERVATION ZONE

IMPACT MITIGATION GUIDELINE

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
1.	Conservation Programme	Overstocking	Overgrazing	Promote and enforce grazing plans	Grazing committee	Daily	Number of livestock per grazing area Number of grass banks established
		Human wildlife conflict	Grazing in conservation areas	Enforce provisions of subdivision schemes on land allocation	OOGR committee/Grazing committee	Daily	Number of incidences reported
		Establishment of manyattas	Illegal settlements	No permanent manyattas in grazing areas	OOGR Committee/Grazing committee	Daily	No Manyattas in grazing zones
		Fencing	Creating barriers for animals and wildlife	No fencing in grazing areas and in settlements	OOGR Committee	Daily	No incidence of fencing

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TOURISM, PASTORALISM AND WILDLIFE ZONE

Tourism, Pastoralism and wildlife zone is where the pastoralism land use will be actively promoted and developed. This zone is divided into eight areas represented by eight elders namely; **Kitirwa Namelok, Ormoti**, **Olgulului**, **Meshanane**, **Loolakef**, **Lengisen**, **Lisanjalt** and **Enkong-Narok.**

However, the zone is also of crucial importance to wildlife and contains key **wildlife dispersal areas** and **migration routes** that need to be actively managed and protected.

The prescriptions established for this zone are therefore designed to promote both pastoralism and wildlife conservation.



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TOURISM, PASTORALISM AND WILDLIFE ZONE

Designated landuse zones, permitted activities and restrictions in the SEA For OOGR LUSP

Land use Zoning Scheme	Permitted Landuse Activities	Restricted Landuse Activities	Management Standards
Pastoral Zoning Scheme	• Grazing of livestock. • Building of traditional 'manyatta's and livestock 'bomas'. • Animal watering points. • Cattle dips. • Fodder storage stores.	• Construction of permanent 'bomas' or building. • Fencing. • Further subdivision of land. • Change of user. • Change of ownership. • Road construction.	• Controlled grazing to be encouraged. • Establishment of communal grass banks. • Sensitization on carrying capacities and modern livestock husbandry practices.

TOURISM, PASTORALISM AND WILDLIFE ZONE

POSITIVE IMPACT

In OOGR, raising livestock is essential for the well-being of local communities. Large grazing areas allow them to raise bigger herds, which translates to better income for things like school fees and family needs. As herds grow, there will be a greater demand for water.

This study highlights the importance of improving existing water sources and incorporating smart water management. For instance, Enkong Narok has boreholes serving both people and livestock. One borehole even features a separate watering point for elephants, keeping them away from the livestock's water source. This is a great example that other communities can learn from.

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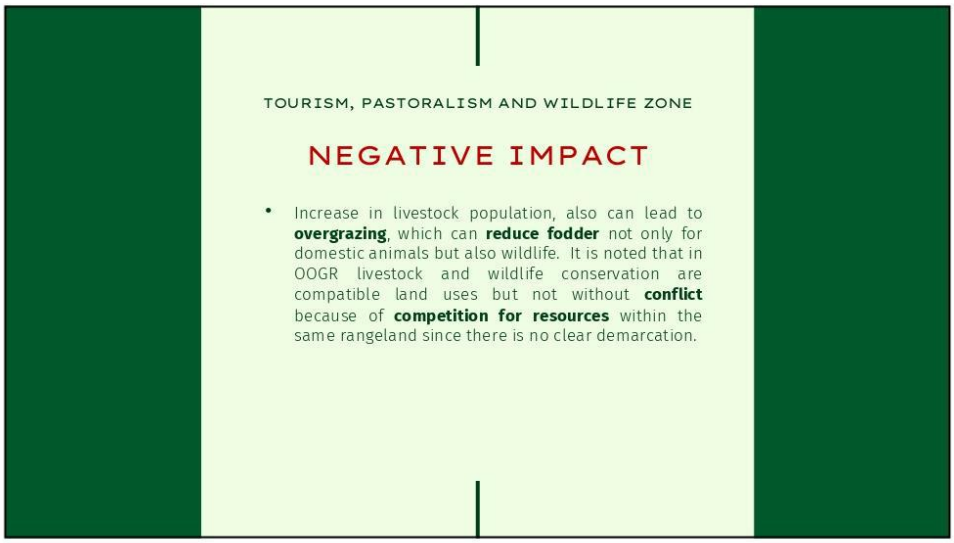
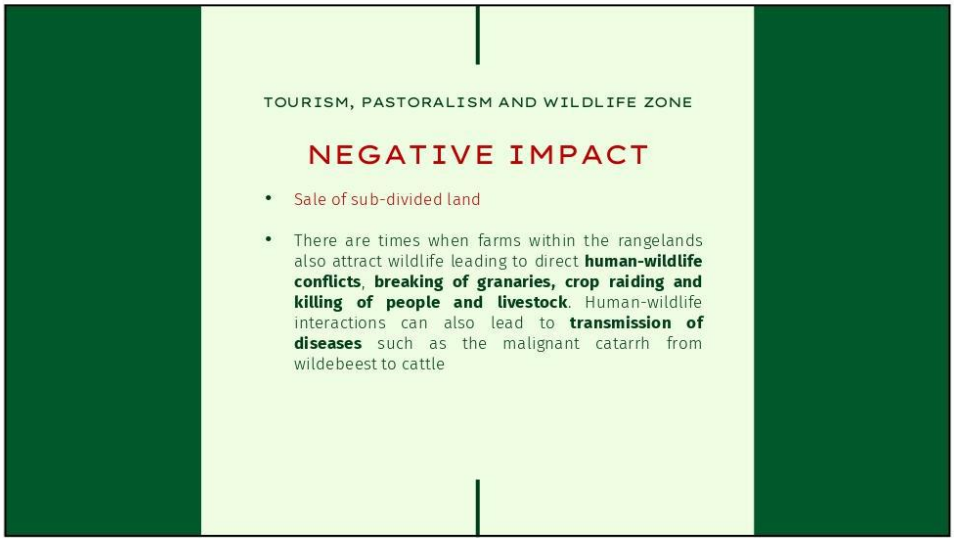

TOURISM, PASTORALISM AND WILDLIFE ZONE
NEGATIVE IMPACT
• Increase in livestock population, also can lead to **overgrazing**, which can **reduce fodder** not only for domestic animals but also wildlife. It is noted that in OOGR livestock and wildlife conservation are compatible land uses but not without **conflict** because of **competition for resources** within the same rangeland since there is no clear demarcation.


TOURISM, PASTORALISM AND WILDLIFE ZONE
NEGATIVE IMPACT
• Sale of sub-divided land
• There are times when farms within the rangelands also attract wildlife leading to direct **human-wildlife conflicts**, **breaking of granaries, crop raiding and killing of people and livestock**. Human-wildlife interactions can also lead to **transmission of diseases** such as the malignant catarrh from wildebeest to cattle

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TOURISM, PASTORALISM AND WILDLIFE ZONE

MITIGATION MEASURES

Mitigation measure include:

- Establishing a clear boundary on livestock areas, and wildlife zones
- Enforce grazing plans, and demarcate designated areas to ensure everyone is aware and adheres to the rules.
- Develop education materials to promote and enhance awareness,
- Ensure continual auditing and monitoring.
- Enhance formation of grazing banks in all pastoralism zones
- No fencing of land to allow animal and wildlife movement
- Construction of permanent Bomas not allowed
- Further subdivision of the area not allowed
- Develop guidelines, rules and ensure enforcement by the relevant stakeholders
- Encourage OOGR To form a land Acquisition committee to repossess the sold out land parcels for For conservation and pastoralism purposes

TOURISM, PASTORALISM AND WILDLIFE ZONE

IMPACT MITIGATION GUIDELINE

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
1.	Conservation Programme	Overstocking	Overgrazing	Promote and enforce grazing plans	Grazing committee	Daily	Number of livestock per grazing area Number of grass banks established
		Human wildlife conflict	Grazing in conservation areas	Enforce provisions of subdivision schemes on land allocation	OOGR committee/Grazing committee	Daily	Number of incidences reported
		Establishment of manyattas	Illegal settlements	No permanent manyattas in grazing areas	OOGR Committee/Grazing committee	Daily	No Manyattas in grazing zones
		Sale of Subdivided land	Loss of land for conservation and pastoralism	Repossess the sold out parcels of land	Land Acquisition committee	Annually	No. of land parcels repossessed
		Fencing	Creating barriers for animals and wildlife	No fencing in grazing areas and in settlements	OOGR Committee	Daily	No incidence of fencing

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TOURISM, PASTORALISM AND WILDLIFE ZONE

IMPACT MITIGATION GUIDELINE

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
2.	Conservation Programme	Climate Change	Food Security	• Promote drought resistance livestock breeds • Set aside special grazing areas • Establish grass banks	Grazing committee	Quaterly	• Number of livestock per grazing area • Number of grass banks established



CULTIVATION DEVELOPMENT ZONE

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CULTIVATION DEVELOPMENT ZONE



Namelok and Ilmisigeiyo are two designated areas for irrigation which form a major breadbasket in Kimana and Loitokitok. These areas are very fertile and are a major source of tomatoes and onions.

In order to reduce human wildlife conflict in these areas, **Big life has supported** erection of **100.72km short fence**, of which **25km is in the new irrigated area in Ilmisigeiyo**. **Members of OOGR have been allocated 10 acres each** in this area and majority of the land owners have leased to external people for farming.

Land in Kitirwa conservancy frontiers has been leased to IFAW for conservation purposes

CULTIVATION DEVELOPMENT ZONE

Designated landuse zones, permitted activities and restrictions in the SEA For OOGR LUSP

Land use Zoning Scheme	Permitted Landuse Activities	Restricted Landuse Activities	Management Standards
Cultivation Development Zone	• Cultivation of high value crops e.g tomatoes, onions, capsicum, coriander, herbs among others. • Farming and bulking of fodder. • Perimeter fencing of the irrigation block.	• Settlement is prohibited. • Change of user is prohibited. • Construction of permanent 'bomas' or building is prohibited. • Fencing of individual parcels prohibited. • Further subdivision of land prohibited. • Change of ownership restricted. • Tree felling for charcoal production prohibited • Commercial food production outside the current undertaking	• Control of soil erosion and water conservation to be prioritized. • Ministry of agriculture to establish and create awareness on the importance of crop rotation and discourage leases to maximize on profits.

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CULTIVATION DEVELOPMENT ZONE

POSITIVE IMPACT

The positive impacts arising from **converting land** for agriculture use are as follows;

- It will enhance **food security** in the area that is predominantly pastoralist zone.
- It will create **employment** for farmers and locals
- It will improve food and **nutrition** in the area
- It will provide **alternative livelihood** option, especially in an area where drought impacts on livestock
- Irrigation on farm is one way of **climate change adaption strategy** for the community as the area is vulnerable and at the time of this study it was evident livestock was dying due to drought. Hence engaging in agriculture is positive for the communities.

CULTIVATION DEVELOPMENT ZONE

NEGATIVE IMPACT

The negative impact arising from irrigated farms lies on **unsustainable land use practices**. It was noted that some members are leasing out the land for farming, and tenants are **cutting down trees** and **not engaging in any agroforestry practices**. The land around Ilmisigeiyo primary school is an example of unsustainable land use practice.

Leases' as it has been seen in other parts of the country, **focus on their profits** and have no interest in conserving the environment as has been seen in Narok. This in effect leads to **flush floods and creation of huge gulley's** as was evident at the time of this study and shown below.

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Gulley erosion in the irrigation zone in Ilmisigeiyo

CULTIVATION DEVELOPMENT ZONE

MITIGATION MEASURES

In order to ensure that the land use in irrigated areas is well utilized the following mitigation measures are proposed:

- Those converting land for agriculture and cutting trees, should **engage in agroforestry** by undertaking boundary tree planting. This will act as windbreak, and prevent wind erosion. It will also support soil structures that are subject to erosion if not well protected.
- **Agrochemical wastes and containers should be disposed properly** to prevent contamination of water sources, that affects wildlife
- Farmers should be **trained on Sustainable Land use and Management (SLUM) practices**
- Train farmers on short electric fence maintenance to ensure its effectiveness.
- As per the SEA For OOGR sub-division scheme **prohibit construction of permanent bomas or buildings**
- No change of users or further subdivision of land

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CULTIVATION DEVELOPMENT ZONE

IMPACT MITIGATION GUIDELINE

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
	Community Livelihood Programme	Clearing of trees	• Wind and soil erosion, • Creation of gulley's, • Flush floods, and flooding of conservation areas	Practice agroforestry	OOGR irrigation committee	Quarterly	• No. of farmers planting trees on boundaries, • No. of tree nurseries established in the area
		Non-maintenance of fences	• Human wildlife conflict	Training of community scouts to take over the fence, enhance community ownership of the fence to ensure sustainability	OOGR committee/BIG Life	Quarterly	• No. of scouts trained, • no of community members involved in fence maintenance

CULTIVATION DEVELOPMENT ZONE

IMPACT MITIGATION GUIDELINE

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
	Community Livelihood Programme	Climate Change	Food Security	• Introduce Drought resistance crops • Adopt Climate smart approaches and technologies in agriculture	OOGR irrigation committee Ministry of Agriculture and Livestock Development	During cultivation seasons	• Increase in crop yield. • Number of trained farmers in climate smart farming

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SETTLEMENT ZONE

These areas will entail establishment of residential and commercial houses, social amenities such as health and educational facilities, community halls, churches, open air market, game fence to surround nucleated establishment, and burial sites.

These clustered settlements have already started taking shape around Enkong Narok near Serena Hotel, as it has a school, health center, borehole, and scattered residential areas.



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SETTLEMENT ZONE

Designated landuse zones, permitted activities and restrictions in the SEA For OOGR LUSP

Land use Zoning Scheme	Permitted Landuse Activities	Restricted Landuse Activities	Management Standards
Clustered Settlement Zone	• Commercial. • Residential. • Light industrial. • Social amenities; educational, health, community halls, play grounds, administration, churches, shops, hotels, open air markets etc. • Permanent buildings by OOGR members. • Burial. • Semidetached bungalows and flats shall be encouraged. • Road construction. • Street lighting. • Greening the residential areas and road reserves is encouraged. • The game fence around nucleated must be constructed. • Urban agriculture; Kitchen gardening, small scale poultry industry. ***Prior to undertaking any of the above activities, development approval shall have to be granted by the competent planning authority.*** ***Development applications seeking for approval or development permission shall be sought from the competent planning authority in a manner prescribed by the law.***	• Rearing of livestock prohibited. • Further subdivision and change of user is prohibited. • Row housing shall be prohibited. • Burial will be undertaken only in the designated areas.	• Management standards for urban agriculture in terms of type, location and management of wastes of activity to be provided as development conditions prior to approval. • Conformity to eco-friendly standards: iron sheets, rain water harvesting, use of solar panels/renewable energy and eco-friendly waste disposal using oxidation ponds among others. • Setbacks. Front3m, side 2m, back 2mfor residential areas. • Plot ratio of ground to first floor for all users. • Plot coverage of 50% for residential. • Setbacks.Front2m, for commercial. • Plot coverage of 75 % for commercial. • Plot ratio ground to first floor for all users. • Site Master Plans should be prepared for education, health, recreation and other social infrastructure prior to construction taking into account current and future population needs including environmental considerations to forestall haphazard development and sprawling of the nucleated settlement. • The use of green energy i.e solar and wind is recommended. • Adequate Water provision and reticulation is recommended for nucleated settlement. ***The management committee for each of the nucleated settlement shall be established including a resident association.***

SETTLEMENT ZONE

POSITIVE IMPACT

The establishment of the above social amenities will lead to **livelihood improvement and diversification of enterprises** and other **small and medium businesses**.

It will also bring essential services such as **improved road network**, **health services, and access to electricity**, close to the people, and **improve their quality of life**.

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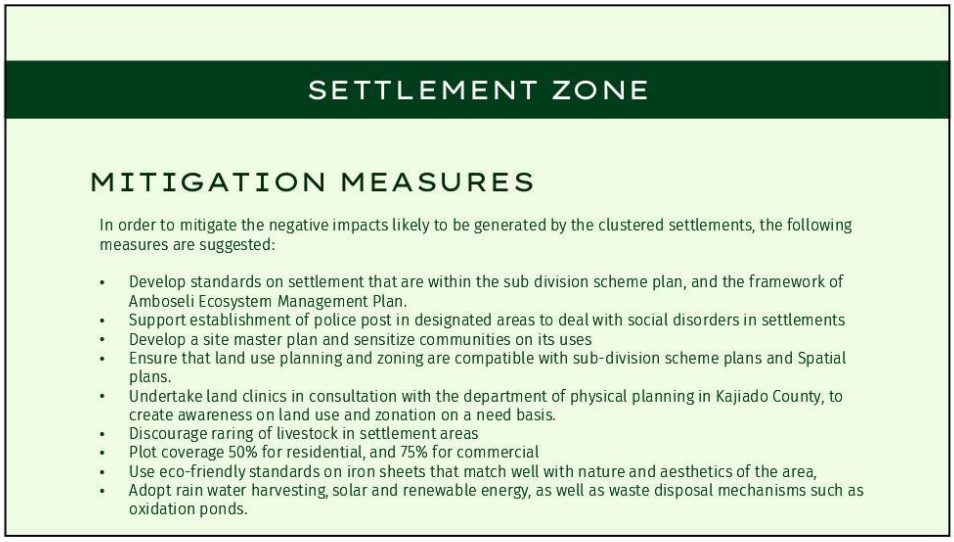
SETTLEMENT ZONE
NEGATIVE IMPACT
One of the key challenges with clustered settlement developments include:
• Lack of standards and mushrooming of settlements in non-designated areas.
• Establishment of settlements without provision for essential services such as water, health and sanitation, infrastructure, and security.
• The establishment of settlements may trigger influx of people and may lead to proliferations of social and wildlife crimes such as poaching.
• Poor land use practices that are not inline with tourism


SETTLEMENT ZONE
MITIGATION MEASURES
In order to mitigate the negative impacts likely to be generated by the clustered settlements, the following measures are suggested:
• Develop standards on settlement that are within the sub division scheme plan, and the framework of Amboseli Ecosystem Management Plan.
• Support establishment of police post in designated areas to deal with social disorders in settlements
• Develop a site master plan and sensitize communities on its uses
• Ensure that land use planning and zoning are compatible with sub-division scheme plans and Spatial plans.
• Undertake land clinics in consultation with the department of physical planning in Kajiado County, to create awareness on land use and zonation on a need basis.
• Discourage raring of livestock in settlement areas
• Plot coverage 50% for residential, and 75% for commercial
• Use eco-friendly standards on iron sheets that match well with nature and aesthetics of the area,
• Adopt rain water harvesting, solar and renewable energy, as well as waste disposal mechanisms such as oxidation ponds.

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ZONATION

ASSESSMENT OF ALTERNATIVES

No Land Use and Subdivision Plan Option

- Maintaining status quo means pastoralism and conservation remains
- Land remains communal and is leased out for conservation.
- No livelihood improvement and diversification.
- Community discontent on the current land use will continues to pile up and it may be counterproductive.

ZONATION

ASSESSMENT OF ALTERNATIVES

Land use plan only

- Allocation done for grazing, conservation and transport infrastructure.
- Pastoralism, and conservation continues to thrive, benefiting a few, creating dissenting voices and this may not be preferable.

Subdivision Plan Only

- Land for settlements and centres and utilities is subdivided.
- This option is not wholesome and will leave out critical value of the land which supports pastoralism and conservation.

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ZONATION

ASSESSMENT OF ALTERNATIVES

Integrated Land subdivision scheme plan

This entails undertaking a land subdivision scheme plan and subjecting it to a Strategic Environmental Assessment to ensure that it takes into consideration environmental concerns, and integrate them into the plan. This will ensure positive environmental impacts are enhanced, negative ones are mitigated, and taken into account through the project period, and reviewed as is required. The option will also ensure holistic and sustainable land use by all stakeholders. It is clearly understood that the objective of land sub-division is to optimize and improve the use of land and land-based resources in OOGR for the benefit of the local community and to ensure sustainable land use management.

This is the preferred option for OOGR

SETTLEMENT ZONE

IMPACT MITIGATION GUIDELINE

No.	Programme	Key issues	Potential Impacts	Mitigation measures	Responsibility	Frequency	Verifiable indicators
	Settlement Programme	Non-adherence to settlement plans	Mushrooming of unplanned houses and tented camps	Stick to settlement scheme plan, and develop standards for the same	OOGR committee	Daily	No of settlements and tented camps approved and within approved standards
		Selling of land	Disenfranchisement of locals	No land sub-division	OOGR Committee	Daily	No of plots sold or taken up by the proposed Trust
		Population growth	Congestion, proliferation of wildlife and social crimes	Establishment of police posts in centers, and security committees.	OOGR committee	Once	No. of police posts established; No. of security committees formed

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CONCLUSION
AND RECOMMENDATIONS
05


CONCLUSION AND RECOMMENDATION
A review of the Subdivision scheme plan, stakeholder consultations, field visits, and analysis resulted in several remarks and recommendations.
01
Relevance and Responsiveness:
The plan addresses community needs, and aligns with the requirements of pastoralism and wildlife conservation
02
Sustainability and Connectivity:
To enhance sustainability, it is important to consider key elements such as maintaining connectivity within the Amboseli Ecosystem.
03
Grazing Plans and Sensitization
There is a need to raise awareness and conduct sensitization on existing grazing plans

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CONCLUSION AND RECOMMENDATION

04 **Land Clinics**

It is recommended to organize land clinics to educate and engage the community in adhering to the conditions of the plan

05 **Zoning Guidelines and Enforcement**

Developing guidelines for zoning schemes, will contribute to maintaining aesthetics and preserving the tourism characteristics of the area.

06 **Gazettement of the plan**

The fact that this is an Ex-post SESA, it is recommended that the plan be gazetted as it is with this SESA report annexed for ease of reference during plan implementation and review.



CONCLUSION AND RECOMMENDATION

07 **Undertake a Biodiversity Baseline Survey (BBS) and animal Census:**

Data is key in guiding Biodiversity Action plan. BBS and animal census will inform comprehensive biodiversity protection strategies, continuous monitoring and long term reporting plans, ensuring maximization of all potential nature based opportunities and guarantee adherence to biodiversity best practices.

08 **Monitoring and evaluation**

Ensure Monitoring and evaluation for enforcement and compliance with the mitigation measures



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Annex 5: Pictorials









APPENDIX 20: Submission Letter of the final Strategic Environmental and Social Assessment (SESA) report for OOGR LUSP

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mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Lines: 0724-253 398, 0723-363 010, 0735-013 046
Telkom Wireless: 020-2101370, 020-2183718
Incident Lines: 0786-101100, 0741-101100

P.O. Box 67839, 00200
Popo Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
Website: www.nema.go.ke

NEMA/SEA/5/2/079 **16TH April 2024**

The Director
Olgulului Ololorashi Group Ranch
P. O. Box 346-00209
LOITOKTOK

RE: SUBMISSION OF THE FINAL STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) REPORT FOR THE OLGULULUI OLOLORASHI GROUP RANCH (OOGR) LAND USE AND SUBDIVISION PLAN, KAJIADO COUNTY

The above subject here refers,

The National Environment Management Authority (NEMA) commends the Olgulului Ololorashi Group Ranch (OOGR) for successfully holding a validation workshop for the Strategic Environmental and Social Assessment (SESA) for the Olgulului Ololarashi Group Ranch (OOGR) Land Use and Subdivision Plan. It is noted that NEMA was well represented in the said forum.

The Authority made observations and hereby makes recommendations that need to be included in the final SEA report;

1. **Wildlife corridors and buffer zones: -** It was noted that the issue of wildlife corridor and buffer zone needs to be well elaborated on so as to prevent future conflicts. This is by providing clearly demarcated areas and route plan for the wildlife corridors and buffer zones. The Plan owner to liaise with Kenya Wildlife Service (KWS), Kajiado County Government and other sector players within the OOGR and come up with a harmonized wildlife corridor and buffer zone to inform further decision making during the Plan implementation process.

2. **Integrated land use planning and wildlife conservation: -** The OOGR should ensure that the set out land uses within the ecosystem are adhered to by collaborating and linking with the relevant government agencies. This will ensure that the various assigned uses and zones are safeguarded to enable proper land use planning and wildlife conservation with minimal disruptions to the social livelihoods of the people and protection of the sensitive environment.

3. **Climate Change risk and vulnerability assessment mainstreaming:** The OOGR is vulnerable to climate change and climate change risk and vulnerability assessments should be undertaken to inform on potential areas of opportunities to leverage on. OOGR to ensure that the SESA has a chapter that clearly highlights and

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discusses the relevant aspects of climate change risk and vulnerability assessment including the best practical aspects of mitigation, adaptation and resilience for sustainability.

4. **Collaboration with other Ministry's, Counties, Departments, Agencies (MCDAs):** The OOGR being within the larger Amboseli Ecosystem which is an environmentally sensitive area with cross cutting issues and of strategic national importance area, it is critical that a collaborative and working engagement modality be put in place to ensure that any area of concerns and or any emerging issues are factored in and synergize with the relevant MCDAs undertaken to ensure safeguarding of the environment and wildlife in the ecosystem.

5. **Submission of the final SESA Report –** You will be required to submit 10 hard copies of the final SESA report for the OOGR. This will enable the Authority dispatch the same to key lead agencies that will be involved in the monitoring of the implementation of the OOGR land use and sub-division plan.

6. **Recommendations from the SESA process: -** It was noted that the SESA report has some recommendations based on the SESA findings that can be used to help in informed decision making. The Plan Owner (OOGR) and the SESA Consultants to comprehensively analyze the SESA findings and indicate how they assisted/will assist in making informed decisions regarding the OOGR land use and sub-division plan formulation and redesigning where necessary. The SESA recommendations should be linked to specific areas of interventions to address the identified gaps therein.

The Plan Owner is therefore required to take into consideration the observations and recommendations made herein and those made during the validation workshop and include them in the final SESA report to enable fruitful conclusion of the process.

The Authority is committed to ensure that appropriate environmental and social safeguards are put in place for a safe, clean, healthy and sustainable development of the Olgulului Ololarashi Group Ranch (OOGR).

Yours, Sincerely

DAVID ONGARE
FOR: DIRECTOR GENERAL

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