ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY REPORT

FOR

THE PROPOSED PROPERTY DEVELOPMENT (COMMERCIAL MALL, HOTEL, LOGISTICS CENTRE, PETROL STATION, RECREATION CENTRE, OFFICE BLOCK, KINDERGARTEN AND 6No. APARTMENT BLOCKS) ON PLOT LR.NO. NAKURU/MUNICIPALITY BLOCK 7/554 LOCATED, ALONG NAKURU –KISUMU ROAD,

NAKURU COUNTY.

Submitted To:
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY
HEAD OFFICE
P.O. BOX 67839- 00200 Nairobi

Submitted on Behalf of:

LAPFUND
Secured Retirement

Submitted By:
ERIC MWENDA
(Registered Lead expert – NEMA Reg. No. 7048)
P.O BOX 49141-00100
NAIROBI.

May 2022

NEMA/TOR/5/2/408

SUBMISSION OF DOCUMENTATION

I **ERIC MWENDA**, on behalf of the EIA Team of Experts submit the following Environmental and social impact assessment study report (ESIA) for **THE PROPOSED PROPERTY DEVELOPMENT ON PLOT LR.NO. NAKURU/MUNICIPALITY BLOCK 7/554 LOCATED, ALONG NAKURU –KISUMU ROAD, NAKURU COUNTY.**

I hereby confirm that to my knowledge, all information contained in this report is an accurate and truthful representation of all findings as relating to the proposed project as per project information provided by the proponent and contractor to the EIA consultants.

Signed in NAIROBI on this ……

Signature and stamp:

Designation : **LEAD CONSULTANT AND TEAM LEADER (NEMA Reg. No. 7048)**

SUBMISSION OF DOCUMENTATION

I, ……....., on behalf of **LAPFUND** (**PROPONENT**) submit Environmental and social impact assessment study report (ESIA) for **THE PROPOSED PROPERTY DEVELOPMENT ON PLOT LR.NO. NAKURU/MUNICIPALITY BLOCK 7/554 LOCATED, ALONG NAKURU –KISUMU ROAD, NAKURU COUNTY.**

To my knowledge, all information contained in this report is an accurate and truthful representation of all findings as relating to the proposed project and as per the project description provided to the EIA consultant.

Signed in NAIROBI on this ……..

Signature and stamp ……

EIA TEAM

Core EIA Team

Name	Position	Tasks
1. Eric Mwenda MA in Environmental Management & Planning, Bachelor of Arts (Geography & Environmental Studies), University of Nairobi – NEMA Reg. No. 7048	Stakeholder engagement specialist	Stakeholder engagement, landuse zoning, site baseline survey, impact analysis and mitigation plans, report writing (Team leader)
2. Francis Mwaura PhD, M.Sc., B.Sc. (Geography), University of Nairobi & McGill University (Canada) NEMA Reg No.0077	Environmentalist	Environmental policies and regulations, Environmental safeguards, site baseline assessment, impact analysis and mitigation plans, report writing
3. Grace Ndanu; M.A, B.A, Gender & Development studies - NEMA Reg No.7909	Social environmentalist	Stakeholder mapping, data collection, public baraza facilitator
4. Nicholas Ngece PhD, Energy, Sustainability, Environment and Development Specialist,	Economists	Research economic issues, Conduct surveys and collect data, Present research results in reports, tables, and charts
Joan Watetu, Masters in Sustainable Urban Development – Jomo Kenyatta University of Agriculture and Technology. Bachelor of Arts (Urban and Regional planning) – University of Nairobi	Physical planner, environmentalist	Advise on area zonation Policies governing construction of various designs
5. Kelvin Mworia, Msc. Civil engineering, Bsc. Civil engineering, IEK-G8983	Civil engineer/ environmental engineer	Advise on hydrology, soil stabilization, structural integrity, highway geometrics, interprete structural & civil drawings

EIA Support Team

Name	Position	Tasks
Beatrice Njoroge (BSc.), University of Nairobi	Office Assistant	➢ Office support services ➢ Document preparation
Joy Nkirote: M.A Environmental Planning & Mgt, B.A Bio-Technology	Office Assistant	➢ Document compilation and submission
Mohamed Abdikadir: B.A Geography & Political science	Field assistant	➢ Baseline data collection and analysis

ACRONYMS

BAU	Business-as-Usual
CEC	County Environment Committee
CIDP	County Integrated Development Plan
CO_2	Carbon Dioxide
CSR	Corporate Social Responsibility
EAC	East African Community
EE	Energy Efficiency
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EMCA	Environment Management Coordination Act
EMS	Environmental Management System
EPRA	Energy & Petroleum Regulatory Agency
ETP	Effluent Treatment Plant
GDP	Gross Domestic Product
GHG	Green House Gasses
GoK	Government of Kenya
GPS	Global Positioning System
KeBs	Kenya Bureau of Standards
KNBS	Kenya National Bureau of statistics
KPLC	Kenya Power and Lighting Company
KRA	Kenya Revenue Authority
LN	Legal Notice
LR	Land Registration
NARUWASCO	Nakuru Rural Water and Sanitation Company Ltd
NCCRS	National Climate Change Response Strategy
NEMA	National Environment Management Authority
OSHA	Occupational Safety and Health Administration
PLC	Programmable Logic Controller
PM	Particulate Matter
PPE	Personal Protective Equipment
PSR	Project Study Report
SDGs	Sustainable Development Goals
ToR	Terms of Reference

ACKNOWLEDGEMENT

The Environmental Consultants Team is very grateful to the proponent LAPFUND for their great support during the ESIA process. Special thanks to the Chief Executive Officer and the entire Board of Directors, for offering the job and Maestro Architects Ltd for providing all the necessary directions and support in a very professional way. Many thanks also to the rest of the team at technical team consultants, for their tireless support throughout the ESIA process.

We are grateful to all the local people and local Administration (DCC, ACC, area Assistant chief, area chief and ward rep) who offered their precious time to share their views on the LAPFUND project in Nakuru. The excellent office and field support provided by Beatrice Njoroge is greatly appreciated.

TABLE OF CONTENT

NON-TECHNICAL SUMMARY

1. Background

Local Authorities Provident Fund (LAPFUND) is a state corporation established in 1960 by an Act of Parliament Cap 272, Laws of Kenya and is registered and regulated by the Retirement Benefits Act of 1997 and subsequent regulations. LAPFUND operates in accordance with the County Government Act 2012 (section 132) and caters for all employees of County Governments and water companies, where members contribute 12% while the sponsors contribute 15% of the member's gross salary (basic salary plus house allowance).Currently, LAPFUND, enjoys a membership of over 52,000 members spread over all the county governments and water & sewerage companies in Kenya. The project is located at their parcel of land in London ward, viwanda sub-location, viwanda location, Nakuru west sub-county in Nakuru County off Nakuru-Kisumu road.

The Kenyan Government policy requires that an Environmental Impact Assessment (EIA) should be carried out before implementing development projects of the nature specified under the Second Schedule of EMCA (2015), in order to ensure that significant impacts on the environment are taken into consideration during the planning stage. This project proposal falls in the category of projects that require EIA. The project is therefore subject to guidelines provided in the Environment (Impact Assessment and Audit) (Amendment) Regulations of 2019, under the Kenya Gazette Supplement No. 62 of 30th April 2019.

The EIA consultants examined the potential impacts of the project on the immediate surroundings, with due regard to all the phases of the project. The assessment involved all aspects relating to the physical, ecological, socio-cultural, health and safety conditions at the site and its environs; during and after the project operations. Reference was made to relevant laws and regulations, as well as past EIA reports of projects of similar nature.

Where relevant, this Environmental & Social Impact Assessment (ESIA) has provided annexes, including land ownership documents, project layout/site plans and the proponent's KRA PIN certificate among others to support the findings and show the depth of its investigations. The report has also provided photos of the proposed site.

The proponent's decision to undertake this EIA demonstrates their commitment to comply with both national and international environmental management regulations, standards and laws, as stipulated by the relevant authorities.

2. Summary Description of the Proposed Project

The project proponent Local Authorities Provident Fund (LAPFUND) intends to construct a commercial mall, a hotel, a modern warehouse block, an office block, petrol station, kindergarten and residential apartments and an amusement park within its parcel of land on plot

L.R Nakuru Municipality Block 7/554 located along Nakuru-Kisumu Road in Nakuru County. The proposed commercial mall will consist of two basement floors, a ground floor and one-to-three floors plus terrace at the roof top. The office block will comprise of two basement parking, ground floor, mezzanine, floor one-to- eighth and a roof terrace. The hotel will comprise of basement, ground floor, first floor-to-eighth floor and a roof terrace. The apartment blocks will have one-to-eight floors each. Warehouse will have six floors. The magnitude of the project is of **high-Risk-Project Category** according to the classification provided in the Environmental Management and Coordination (Strategic Assessment, Integrated Impact Assessment and Audit) Regulations, 2003 LN 101 (Revision 2018) and Supplementary LN 31 & 32 of 2019. *(See section 2.2)* The proponent is required to submit Terms of reference **(ToR**) to NEMA headquarters for approval upon which a study report will be submitted to enable NEMA issue a license for the proposed project. The ToR was submitted to the authority, NEMA/TOR/5/2/408.

3. Proposed Operations

The proposed operations will entail construction of the five star hotel, office block, recreation center, petrol station, kindergarten, commercial mall and a six block of residential apartment, parking lots

4. Project Justification

High economic growth and the ever rising population of Nakuru has led to rapid increase in demand for residential units and other social amenities. Nakuru having been upscaled into a city status, will undergo numerous infrastructure development and this project by itself is one of a kind with mixed use development within Nakuru Municipality.

5. Estimated Project Investment and Implementation Period

The total estimated cost for the project is approximately Kenya Shillings ten billion. The project upon approval will be divided into phases. The duration of these phases will be determined depending on the priority of installations to be put up.

6. EIA Terms of Reference (ToR)

The ESIA will therefore be carried out at the planning stages of the LAPFUND project in order to ensure that significant impacts on the environment are taken into consideration during the design, installation, operation and decommissioning of such projects, programmes or activities. The aim of the EIA study was to:

a) Carry out environmental impact assessment of the proposed development.
b) Undertake a comprehensive environmental baseline assessment of the proposed development in Nakuru County.
c) Undertake a comprehensive analysis of project alternative options.

d) Evaluation of the legislations that govern and control environmental impact assessment and audits and advise the proponent on preferred mitigation measures.
e) Identify all areas of potential environmental challenges that may require monitoring and evaluation thereafter in line with unfolding social changes.
f) Recommend enhancement measures to encourage positive aspects and mitigation/improve measures against negative aspects.
g) Prepare a comprehensive Environmental Management Plan.
h) Submit the report to NEMA and provide an acknowledgement letter.
i) Follow-up on the review of the ESIA up to the issuance of the EIA license.

7. EIA Process Approach and Methodology

The EIA approach and methodology is undertaken in accordance with the Environment Management and Coordination Act (EMCA) Cap 387 (No. 8 of 1999) (s 58 (1), Amendment 2015, Legal Notice No. 101 of 2003, Gazette Notice Dated 16 June, 2016), Environmental Management and Coordination (Strategic Assessment, Integrated Impact Assessment and Audit) Regulations, 2003 LN 101 (Revision 2018) and Supplementary LN 31 & 32 of 2019. The EIA cycle will comprise of the following chain of activities:

a) Project screening
b) EIA scoping
c) Baseline data collection
d) Analysis of project alternative options
e) Impact prediction
f) Stakeholder engagement and consultation
g) Formulation of mitigation measures
h) Environment Management Plan
i) Preparation of project report

8. Key Environmental Issues and Potential Impacts

a) Positive impacts

- Optimal use of land
- Employment opportunities for locals
- Provision of affordable housing and office spaces
- Revenue generation to the local government
- Improvement of the infrastructure

b) Key potential negative impacts and recommended mitigation strategies

The key potential negative impacts and proposed mitigation measures for the proposed project are summarized below:-

Possible Impacts	Recommended mitigation measures
Occupational safety risks during construction phase and subsequent maintenance activities- - Injury from height-related falls - Injury from moving and falling objects - Injury associated with installation materials handling (bruises, punctures) - Work related slips and tripping (broken limbs or death) - Burns and inhalation of cement	The proponent will implement an appropriate Health & Safety Strategy for the proposed project which will consider the following among other interventions:- • Safety strategy • Emergency action plan, education and awareness • Use of harness to avoid falls • Identification, training and mobilization of safety marshals including First Aid Personnel and Fire Marshals • Use of goggles while working with welding equipment. • Use of heavy duty gloves

9. Proposed Environmental Management Plan (EMP)

An elaborate EMP is provided in this report for purposes of the proposed development project, and covers the entire project life cycle including the planning stage, installation, operation and decommissioning. It also includes a comprehensive environmental monitoring plan.

10. Key Environmental Issues and Potential Impacts

a) Positive impacts

- Direct and indirect employment opportunities in line with SDG-8,
- Gains in the county and national economy,
- Introduction of Constituency Industrial Development Centres (CIDCs) in Nakuru County,
- National expansion of affordable housing within housing sector in line with Kenya Vision 2030
- Wealth creation through employment during operation and construction phase
- Improved aesthetic value of the land since it has been abandoned.

b) Key potential negative impacts and recommended mitigation strategies

Possible Impacts	Recommended mitigation measures
Air pollution	Emission control by ensuring minimal idling of vehicles, servicing of machinery

	regularly to reduce emissions
Dust	Appropriate dust control measures including road improvement and water spraying to reduce the discomfort caused by dust emissions
Noise and vibration	Proper housing of equipment and machinery on strong non-vibrating foundation and fitted by proper shunting and rubber padding to minimize noise and vibration. Use of low noise generation TFHs and other machineries will be used
Road accidents	Provision of a pedestrian sidewalk along Nakuru-Kisumu road and put signage near the round about that is near the main gate to the site
Hazardous waste	The Proponent will provide double walled tank made of SS-316 jacketed with MS which is the best in class storage facility to prevent accidental release of hazardous waste
Heavy water use	The roof top area for the property development shall be designed for maximum harvesting of rainwater
Health and safety	Comprehensive risk assessment shall also be conducted after commissioning of crater city and necessary safety measures shall be implemented.
Influx of workers during construction and operation phase	Employment priority will be given to the local people within the viwanda area including milimani and Shabab area.

11. Conclusion and Recommendation

The findings based on the disclosed project details and the baseline site assessment indicated that the proposal by LAPFUND is a viable project and will improve the status of the Nakuru County. The project is desirable and will support the realization of national and county development goals as outlined in a number of national strategies such as Vision 2030, National Climate Change Response Strategy (2009) and the Nakuru City County Integrated Development Plan (CIDP 2018-2022).

In view of the findings, the proposed project design is by far more suitable and environmentally sound than the No Project Option or base alternative of Business-as-Usual (BAU). On the basis of these findings, it is recommended that the proposed proposal by LAPFUND to develop within their property in Nakuru County be approved based on the willingness by the proponent to implement the proposed project in strict adherence to the Environmental Management Plan (EMP) and Environmental Monitoring Plan. Further, NEMA should issue the proponent with an EIA license as required by Kenya's environmental laws. But due to the magnitude of the project submission of the Terms of Reference for the said project was necessary for NEMA approval before commencement of the full study report.

1. INTRODUCTION

1.1: Background

Local Authorities Provident Fund (LAPFUND) is a state corporation established in 1960 by an Act of Parliament Cap 272, Laws of Kenya and is registered and regulated by the Retirement Benefits Act of 1997 and subsequent regulations. LAPFUND operates in accordance with the County Government Act 2012 (section 132) and caters for all employees of County Governments and water companies, where members contribute 12% while the sponsors contribute 15% of the member's gross salary (basic salary plus house allowance). Currently, LAPFUND, enjoys a membership of over 52,000 members spread over all the county governments and water & sewerage companies in Kenya.

1.2: LAPFUND project

The Local Authority Provident Fund (LAPFUND) intends to construct **a *five star hotel, office block, recreation center, petrol station, kindergarten, commercial mall, logistic centre and a six block of residential apartment, parking lots.*** The main objective of the project is to develop the land owned by LAPFUND with an aim of generating income for the organization.

1.3: Environmental Impact Assessment

Sessional Paper No. 10 of 2014 on the National Environment Policy in Kenya requires all development interventions around the country to integrate environmental conservation and socio-economic considerations in the development process. This is supported by Section 68 of the Environment Management and Coordination Act (EMCA) Cap 387 (No. 8 of 1999) (s 58 (1), Amendment 2015, Gazette Notice Dated 16 June, 2016) and Regulation 31 of Environmental (Impact Assessment and Audit) Regulations Legal Notice No. 101 of 2003 requires the project proponent (LAPFUND) to prepare and submit ToR upon approval by National Environment management authority prepare an Environmental and Social Impact Assessment (ESIA) report. The approval will enable the proponent to secure an EIA license.

The proposed project under the second schedule falls under High-Risk-Project Category according to the classification provided in the Environmental Management and Coordination (Strategic Assessment, Integrated Impact Assessment and Audit) Regulations, 2003 LN 101 (Revision 2018) and Supplementary LN 31 & 32 of 2019. The proponent is therefore required to submit an Environmental & Social Impact Assessment report (ESIA).

1.4: LAPFUND project EIA Terms of Reference (ToR)

The LAPFUND project will have submission of ESIA as part of the activities in Schedule 2 of the EMCA 1999 and revision 2015 (CAP 387) and Regulation 10 of the Environmental (Impact Assessment and Audit) Regulations, 2003, Legal Notice No. 101. The aim of the EIA study was to:

a) Carry out environmental impact assessment for the development
b) Undertake a comprehensive environmental baseline assessment of the proposed project in Nakuru.
c) Undertake a comprehensive analysis of project alternative options.
d) Evaluation of the legislations that govern and control environmental impact assessment and audits and advise the proponent on preferred mitigation measures.
e) Identify all areas of potential environmental challenges that may require monitoring and evaluation thereafter in line with unfolding social changes.
f) Recommend enhancement measures to encourage positive aspects and mitigation/improve measures against negative aspects.
g) Prepare a comprehensive Environmental Management Plan.
h) Submit the report to NEMA and provide an acknowledgement letter.
i) Follow-up on the review of the ESIA up to the issuance of EIA license.

1.5: Purpose of the EIA Report

The ESIA is part of the EIA implementation framework in Kenya and is expected to assist NEMA in decision making concerning the project. Highlighting the impacts and mitigation measures of the proposed project through the project cycle.

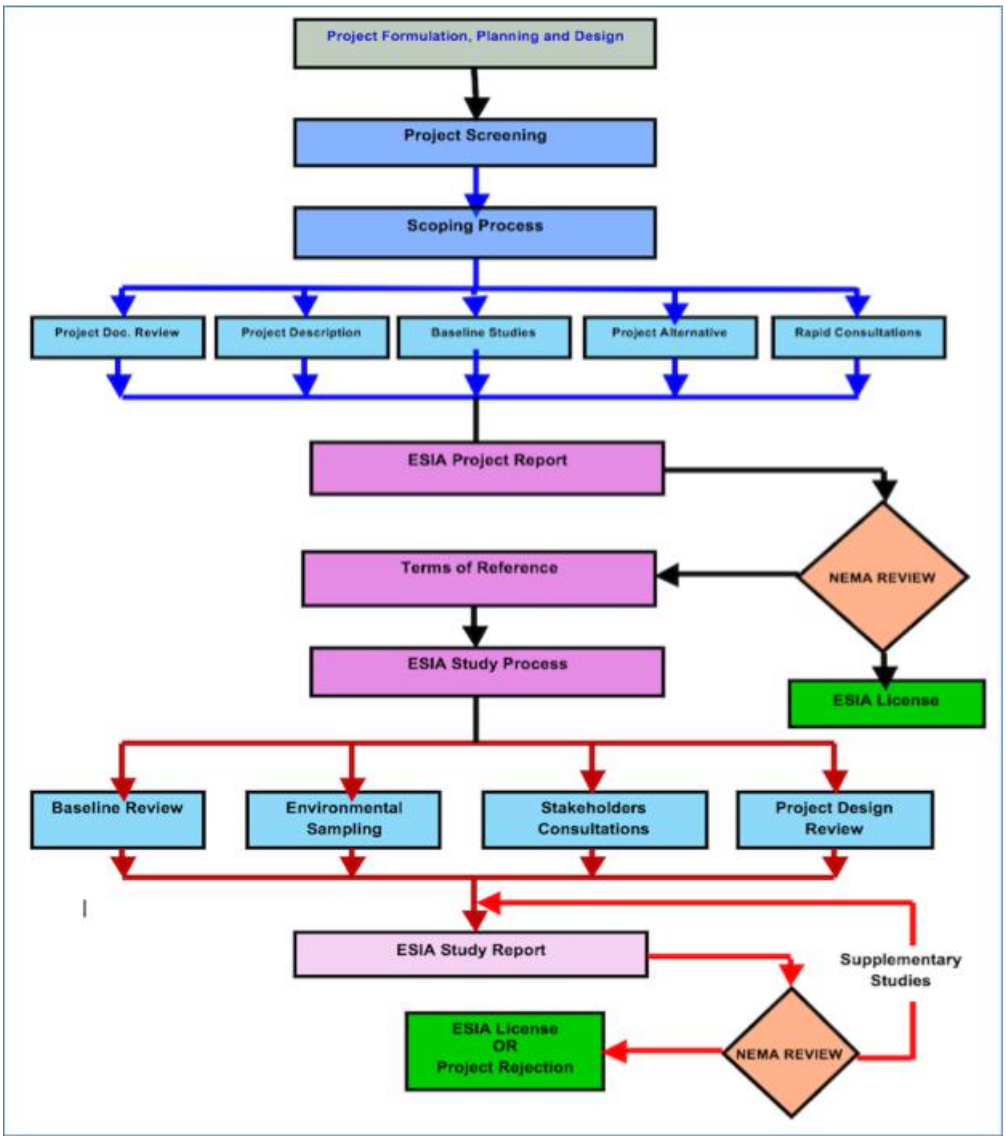

Figure 1- 2: The EIA implementation in Kenya

The key purpose of the EIA is to ensure that the key environmental and social issues associated with the project are identified early enough so that the necessary mitigation measures are noted and integrated in the final project design. The ESIA report is part of the EIA implementation framework in Kenya and is expected to assist NEMA in the issuances of an operational EIA license for the project in accordance with usual practice.

1.6 Scope of the EIA

1.6.1 General

The study was conducted to evaluate the potential and foreseeable impacts of the proposed project. The physical scope was limited to the proposed site and the immediate environment as may be affected by or may affect the proposed project. Any potential impacts, (localized or delocalized) are also evaluated as guided by EMCA 1999 (Amendment 2015) and the Environmental (Impact assessment and Audit) Regulations 2003 (Amendment 2019). This report includes an assessment of impacts of the proposed site and its environs with reference to the following:

1.6.2 A review of policy, legal and administrative framework

Several policies, legal and administrative arrangements, and protocols - both local and international - that have a direct bearing on the proposed development were reviewed. This was in an attempt to establish the frameworks within which the significance of the various impacts expected from the proposed development could be evaluated.

A lot of emphasis has been placed on those frameworks and protocols that have a direct bearing on building and construction projects. These include EMCA 1999 (Amendment 2015), EIA/EA Regulations (2003) amended in 2019, OSHA (2007), Water Quality Regulations (2006), Air Quality Regulations (2014) and Public Health Act Cap 242, Laws of Kenya, among others. Relevant international policies and laws were also considered.

1.6.3 Description of the proposed project

The proposed project was described in terms of location and physical characteristics of the project area, the proposed project design, construction material input, waste and waste management methods to be put in place. This approach was important because it made it possible to know the likely sources of impacts, and suggest appropriate mitigation measures for their effective management.

1.6.4 Review of the baseline information

Baseline information gives the conditions of the environment in terms of resources and impacts, before a particular project is implemented. The EIA team collected baseline information of the area to enable them predict likely impacts that the project would have on the biophysical and social aspects. This data is also useful for monitoring environmental changes that will occur after the project is implemented.

1.6.5 Assessment of the potential impacts

This is the very reason why any EIA study is done. Environmental aspects associated with any project are normally felt on natural or human elements. It is the direction, magnitude and extent of impacts on these elements that make the impact either positive or negative. These are the various social and physical parameters that are in continuous interplay within the general

environment of any project and it is how the project will affect or will be affected by these parameters that will eventually lead to positive or negative perception in environmental terms.

1.6.6 Assessment of project alternatives

Any planning activity must strive to give practical alternatives with regard to resources allocation. EIA as a planning tool must therefore give options that can be pursued in order to get sustainable results. Project alternatives were assessed in terms of site, technology and design, implementation schedule and waste management. These alternatives were compared with the proposed project, in order to determine the most feasible project option.

1.6.7 Development of mitigation measures

Mitigation and management measures are meant to limit the extent of negative impacts that may arise as a result of a particular development alternative. It is important to note that potentially negative environmental impacts of a project may be bearable both to the environmental elements and the community, where sensible mitigation measures are suggested.

1.7 EIA Approach and Methodology

1.7.1 Approach

The EIA study largely involved an understanding of the project's background, its' design and implementation plan. The approach to this EIA comprised of seven steps as outlined below:

Step 1: Screening

Environmental screening is undertaken to help determine whether or not a proposed project falls within a category that requires an EIA prior to commencement. In addition, other considerations during the screening process include the determination of physical location of the proposed project, environmental sensitivity of the areas surrounding the project site, nature of community and social activities in the project area. In this case, the EIA consultants determined that the proponent was required to submit an EIA project report to NEMA, in order to obtain clearance for the proposed project construction project.

Step 2: Scoping

Scoping is considered the backbone of an EIA process, and is ideally undertaken at the project planning stage. The main objective of the scoping process is to establish the environmental and social priorities, set the boundaries for the study and define the ToR. Systematic and well-planned scoping forms the basis of an effective and efficient EIA process. It also helps avoid unfocused and voluminous reports. The scoping exercise enabled the EIA team to determine 3 key issues: - site alternatives, design alternatives and justification of the project.

Step 3: Desktop studies

Documentation review is a continuous exercise that involves a review of available documents on the project, including project set-up plans and architect's statement, land ownership documents, environmental legislation and regulations, and location maps, among others.

Step 4: Site visit and assessment

Site assessment was conducted on the 4th day of April 2022, 13th day of April 2022 and 28th April 2022 to establish: land ownership, usage and conflicts; flora and fauna found on the site; landscape; surface water bodies within the project area; and, the general environmental conditions of the project area and its environs. Two approaches were used for the public consultation process: key informant interviews and administration of questionnaires.

Step 6: Identification of project impacts and mitigation measures

The characteristics of potential impacts were identified, evaluated and predicted using the baseline information on one hand, and the features of the project on the other (cause-effect relationship). Sensible preventive and remedial measures for each negative impact are outlined in the EMP.

Step 7: Reporting

The final ESIA was written in accordance with the Environmental (Impact Assessment and Audit) Regulations of 2003 (Amendment 2019).

1.7.2 Methodology

Information on baseline conditions of the project area was obtained through site visits and physical investigations, desktop studies, public consultations with local communities residing in the project areas, survey, photography, and discussions with key informants.

The main activities undertaken during the EIA study included:

a) Consultations with the key project stakeholders, who included members of the local community residing within the project area, property owners and the project proponent. These consultations were based on the proposed project, site planning and the project implementation plan;
b) Physical inspections of the proposed project area which included observation of available land marks, and evaluation of the activities being undertaken around the project site;
c) Review of available project documents;
d) Documentation of findings, data analysis and reporting; and
e) Submission of final report to NEMA, for review and decision making.

2. PROJECT DESCRIPTION

2.1: Introduction

Local Authorities Provident Fund (LAPFUND) is a state corporation established in 1960 by an Act of Parliament Cap 272, Laws of Kenya and is registered and regulated by the Retirement Benefits Act of 1997 and subsequent regulations. LAPFUND operates in accordance with the County Government Act 2012 (section 132) and caters for all employees of County Governments and water companies, where members contribute 12% while the sponsors contribute 15% of the member's gross salary (basic salary plus house allowance). Currently, LAPFUND, enjoys a membership of over 52,000 members spread over all the county governments and water & sewerage companies in Kenya. The project is located at their parcel of land in Viwanda ward, viwanda sub-location, Nakuru west sub-county in Nakuru County off Nakuru-Kisumu road

2.2: Site description

The project site is within the LAPFUND parcel of land. The project proponent intends to construct a commercial mall, a hotel, a warehouse block, an office block, petrol station, kindergarten and residential apartments within its premises on plot L.R Nakuru Municipality Block 7/554 located along Nakuru-Kisumu Road in Nakuru County. Latitude 0°17'06.3"S and Longitude: 36°02'37.8"E. The site neighbors brookside dairy, Nakuru rural water & sanitation, NCPB, Viwanda health center, wonder feeds ltd, Bidco, Zakayo, crater automobile, Spin Knit Ltd, Shell Nakuru service station and Menengai oils. The proposed site is occupied by the former eveready go downs that will be decommissioned and proper disposal of asbestos after approvals are issued for the said activities. The proposed **commercial mall** will consist of: 2No. Basement floors, a ground floor and one-three floors plus terrace at the roof top. The **office block** will comprise of two basement parking, ground floor, mezzanine, floor one- eighth and a roof terrace. The **hotel** will comprise of basement, ground floor, first floor-eighth floor and a roof terrace. **Logistics Centre**-Ground floor and 1st -6th floor. The **apartment blocks** will have one-eight floors each. **Petrol station** 6No. Pumps along the Nakuru-Kisumu highway, **kindergarten**, **amusement park, parking lots.**

<u>Kindergarten</u>

Ground floor plus 2No. Floors
Daycare Classrooms 3No.
PP1 classroom 1No.
PP2 classroom 1No.
Playgroup classrooms 2No.
Staffroom for Teaching and Non-teaching staff 2No.
Storage area 4No. Stores
Multipurpose hall 1No.
Parking lot 20No.
Area coverage: Playground 1,029.097M2 and Kindergarten 3,702.4m^2

Soft landscaping 1,167.8m^2
Hard landscaping 1,512.1m^2
Other amenities: Kitchen, pantry, dining area, playground, Terrace, courtyard and Administration block, bathroom for each floor for staff and children.

Residential apartments

There are six blocks and each comprises: Ground, basement floor and 1-to-9th floor plus terrace for solar and tank installations. Area coverage per block: 139,470m^2
Ground surface parking 280No.
Basement parking 255No.
Block surround parking 121No.
Total number of units of all blocks:
Studio – 84No.
Penthouse- 60No.
1bdrm – 84No.
2bdrm – 378No.
3bdrm – 336No.
Soft landscaping 2,245m^2
Hard landscaping 5,240m^2

Recreational center

Area coverage: 3,825m^2
Social amenities: Train track, ferries wheel, race car track, merry-go-round, painball range, swings, playhouse slides, heated swimming pool, and washrooms.

5 star Hotel

This will comprise of 8 level floor covering an area of 27,175m^2
Number of rooms will be 210No. Hotel rooms from 3rd-7th floor.
Other amenities: heated swimming pool, casino, bar and restaurant and a club on 8th floor.
It will host, presidential suites, governor's suites, standard and duplex rooms
Soft landscaping 1,620m^2
Hard landscaping 3,525m^2

Commercial mall

This will comprise of: 3 level Floors covering an area of 69,009m^2 and shops will occupy 1450m^2
Ground floor parking spaces will be 97No. and basement level 257No.
(Basement 1&2, ground floor, 1-3rd floor, roof terrace)

Office block

This will comprise of 8 level floors. The basement will comprise of 48No. Parking lots and area coverage for the office block is 24,880m^2
Basement 1&2, mezzanine, typical 1st -8th floor plus a terrace.

Petrol station

This will be at the mall outdoor area along the Nakuru-Kisumu highway covering an area of 7,182m^2. The area covers the on surface parking (hard), green (soft)

Plate 1- 1: Location of the LAPFUND proposed project in Nakuru County

Artistic impression of the proposed LAPFUND project development

2.3: The LAPFUND

Local Authorities Provident Fund (LAPFUND) is a state corporation established in 1960 by an Act of Parliament Cap 272, Laws of Kenya and is registered and regulated by the Retirement Benefits Act of 1997 and subsequent regulations. LAPFUND operates in accordance with the County Government Act 2012 (section 132) and caters for all employees of County Governments and water companies, where members contribute 12% while the sponsors contribute 15% of the member's gross salary (basic salary plus house allowance).Currently, LAPFUND, enjoys a membership of over 52,000 members spread over all the county governments and water & sewerage companies in Kenya.

2.4 Preparation of the proposed project

The parcel of land will be prepared by excavations and demarcation to pave way for the proposed development. Demolition of the existing structures will be done by notifying the authority and getting approvals for decommissioning of the facility and asbestos removal.

2.5: Land-use zone

The LAPFUND project will take place at their parcel of land within Nakuru County which is within the commercial development zone as shown in **Figure 2-1**.

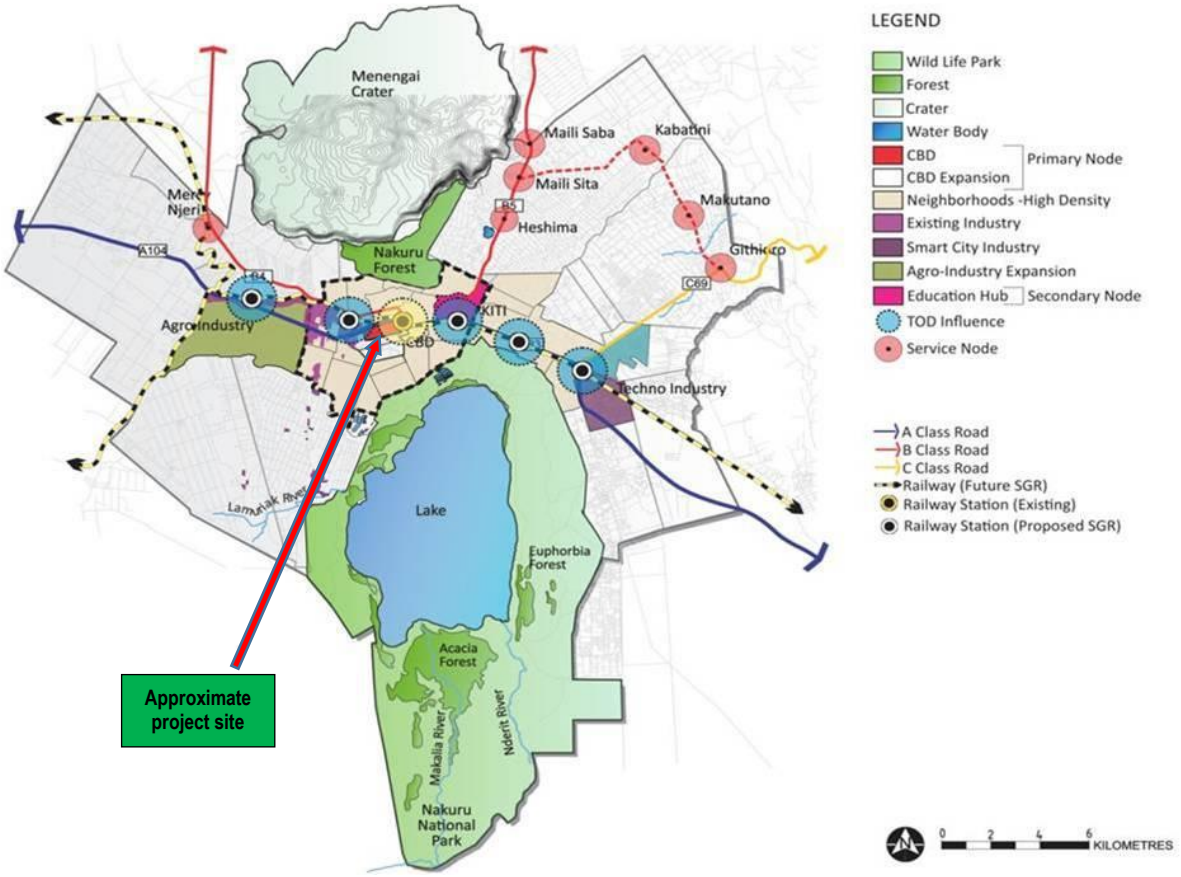

Figure 2- 1: Landuse zones in Nakuru County (Nakuru ISUDP 2016-2036)

2.6: Proposed Operations

The proposed project will comprise of a petrol station, kindergarten, residential apartment, warehouse, office block, commercial mall and a hotel. These facilities will be constructed in phases depending on the priorities of fast income generation.

2.7: Water Supply

The proposed project will be connected to water provider Nakuru Water and Sanitation Services Company Ltd (NAWASCO) and NARUWASCO for use during construction and operation phases. There will be also water harvesting and recycling within the facility to increase water capacity for use within the facility. The other source of water will be a borehole.

2.8: Solid Waste Management

The waste generated during construction and operation phase should be disposed by a NEMA licensed solid waste service provider. The debris and solid waste generated during construction phase should be designated to approved dumpsites.

2.8: Effluent

This will be connected to available county trunk sewer line that is few meters away from the proposed site. The client might consult the county government to ensure expansion of the existing sewer trunk to enable it carry the increased effluent once the proposed development has been fully occupied. Though the trunk had already been expanded by the county.

2.9: Workforce

The contractor will employ various workers at different capacities. It is also advised that he or she gets the workforce from the local community so that they can as well benefit and be part of the project. Through this, the community will feel that they own the project.

2.10: Project Justification

High economic growth and increased population in Nakuru has led to rapid increase in demand for residential apartments. Nakuru area is known to be home to a number of institutions, commercial and mixed use developments that require working spaces for their staff members. The needs of these people can only be taken care of through the construction of facilities, such as the proposed project.

2.11: Estimated Project Investment and Installation Duration

The total estimated cost for the project is approximately Kenya Shillings ten billion.

2.12: Analysis of Project Alternative Options

The main purpose of comparing environmental impacts of the project alternatives is to provide the decision makers with the complete environmental and socio-economic background

information to be able to make an informed decision on what project alternative to proceed with. **Table 2-1** shows the alternative project options which will be considered in the ESIA.

Table 2- 1: Summary of project alternative options

#	Options	Characteristics
1	Preferred project option	Relocation of the proposed project
2	Alternative project option	Relocation of the proposed project in a different location.
3	No-project option	No relocation of the project and proceeding with the current development.

For each of these options, the positive and negative impacts were compared in **Table 2-2** below.

Table 2- 2: Analysis of Environmental Impacts

No.	Options	Positive impacts	Negative impacts
1	Preferred project option	•Contribution to the local economic growth through the creation of employment during the construction and operational phase of the project. •Contribution to the global and national agendas on education and social inclusiveness	• Increase of traffic and generation of noise and vibration during the construction phase.
2	Alternative project option	•See above.	• Increase of traffic and generation of noise and vibration during construction
3	No-project option	•No increase in traffic and no generation of noise and vibration during construction phase. •No alternation of the existing environment.	•Loss of opportunities for workers •Loss of potential employment and opportunities for local economic growth. •No contribution to the global and national agendas •No increase in the awareness regarding the importance of social inclusiveness of workers among the neighboring communities.

3. EIA APPROACH AND METHODOLOGY

The EIA approach and methodology will be undertaken in accordance with the Environment Management and Coordination Act (EMCA) Cap 387 (No. 8 of 1999) (s 58 (1), Amendment 2015, Legal Notice No. 101 of 2003, Gazette Notice Dated 16 June, 2016), Environmental Management and Coordination (Strategic Assessment, Integrated Impact Assessment and Audit) Regulations, 2003 LN 101 (Revision 2018) and Supplementary LN 31 & 32 of 2019. The EIA cycle will comprise of the following chain of activities:

- Project screening
- EIA scoping
- Baseline data collection
- Analysis of project alternative options
- Impact prediction
- Stakeholder engagement and consultation
- Formulation of mitigation measures
- Environment Management Plan
- Preparation of project report

Environmental Screening

Environmental screening was carried out to determine whether an EIA study is necessary for this project and at what level of evaluation. This took into consideration the requirements of the Environmental Management and Coordination Act (EMCA), Cap 387 and specifically the second schedule of the same act. From the screening process, it was understood that this project will cause significant impacts on the environment.

Environmental Scoping

In scoping, focus was on environmental impacts of great concern. Environmental issues were categorized into physical, natural/ecological and social, economic and cultural aspects. Impacts were also classified as immediate and long-term impacts. This will include assessment of the proposed project in respect of but not limited to:

- Project Background: this will give the brief history of the proposed project site, the parties involved and justification of the project in terms of demand or lack of the same, the project area, relevant policy and legislation, identification of any associated project, or any planned projects including products within the region which may compete for the same resources; the project including products, by-products, processes both at

implementation and operational level, resources required for successful implementation and operation of the project and the different options considered.

- The proposed project objectives; both in the short and long run; and how they are linked to the overall objectives.
- Present environmental conditions; description of the project site, ecological zoning as well as the state of the environment and its surroundings. Attempts will state if it is already suffering from degradation, causes of the original degradation if any established.
- Identification of Environmental Impacts; the report will distinguish between significant positive and negative impacts, direct and indirect impacts and immediate and long term
- Community/ Stakeholder Consultations: these will be undertaken to determine how the project will affect the local people / various stakeholders.
- Cost- Benefit Analysis; to evaluate the economics of the project and establish its viability in terms of the expected environmental concerns and measures.
- Development of an Environmental Management Plan (EMP); to mitigate negative impacts, recommending feasible and cost effective measures to prevent or reduce significant negative impacts to acceptable levels,
- Development of a Monitoring Plan; this will be used in monitoring the implementation of the mitigation measures and the impacts of the project during construction and operational phases, including an estimate of capital and operational costs, and Make necessary recommendations pertaining to the proposed development.

Desktop Study

This involved review of project documents, architectural drawings, past EIA, relevant policy, legal and institutional frameworks. Documents containing climatic, demographic and geotechnical survey data for Nakuru County were also relied upon.

Site Visits and Public Participation

Field visits were meant for physical inspections of the project site in order to gather information on the state of environment. Several photos of the project site were taken for inclusion in this report. The study also sought public opinion/views through Consultation and Public Participation (CPP) exercise. Questionnaires were administered to the public and interviews held with neighbors. The questionnaires have been included in this report (annexed).

Reporting

In the entire exercise, the proponent and EIA experts contacted each other on the progress of the study and signing of various documents. The proponent will have to submit 10 copies of this report alongside a CD to the National Environment Management Authority for review and issuance of an EIA license. All the materials and workmanship used in the execution of the work shall be of the best quality and description. Any material condemned by the architect shall be removed from the site at the contractors cost. Environmental concerns need to be part of the planning and development process and not an afterthought. It is therefore advisable to avoid land use conflicts with the surrounding area through the implementation of the ESMMP.

3.1: Baseline environmental assessment for the proposed project.

A baseline field mission was carried out before commencement of the project for detailed physical inspection of the proposed site and on-site analysis which included risk analysis, and climate change scenario analysis. The social-economic considerations included analysis of neighbourhood, land tenure, land-use zone analysis as highlighted on **fig 2.1**, and EIA stakeholder mapping. The site inspection was done on 04.04.2022 and 13.04.2022 in order to have a clear understanding of the environmental status as a requirement for determining the anticipated impacts during construction and operation phase of the project. The area is situated around industrial area. However, the area is fast going with offices and high-rise buildings coming up. The Nakuru area is also prone to earth tremors but geotechnical survey was done and showed that the fault line is not within the proposed site, but measures shall be put in place for all structures to be constructed. Backfill and shear walls shall be considered during construction and other new technologies shall be applied in such areas of earth tremors. Public meetings were carried out same day with key stakeholders on 4th April, 13th April at the Assistant County Commissioner's office and on 28th April 2022 at the proposed site. The assessment was undertaken by the consultants jointly with the project proponent's representatives. The approach and methodologies that were adopted for the various thematic assessments of the proposed ESIA are highlighted below.

3.1.1: Physical environment

3.1.1.1 – Noise & vibration

A baseline environmental noise survey will be undertaken at the proposed site using a portable Benetech Digital Sound Level Meter Model No. GM 1357 with capability of recording A-weighted equivalent sound level (LAeq,T), statistical indicators (e.g. LAF90,T, LAF10,T), maxima/minima (i.e. LAFmin,T, LAFmax,T) and 1/3-octave band data (**Table 3.1**). The noise measurements will be interpreted using the Environmental Management and Coordination (Noise & Excessive vibration Pollution) Regulations 2009, and Noise Risk Reduction Rules, 2007 under the Occupational Safety and Health Act of 2007.

Location	GPS	Baseline Noise (dBA) Readings										Min	Max	Ave
		1	2	3	4	5	6	7	8	9	10			
1. Parking area (bordering main gate)	E 36^0, 02' 38.3" S 00^0, 17'25.0"	63	61	60	62	63	66	62	61	63	60	60	66	63
2. Near main road (Round about area)	E 36^0, 01' 36.3" S 00^0, 16'22.0"	69	65	66	63	62	65	66	69	68	67	62	69	65.5
3. Near Main road (Boda boda stage)	E 36^0, 00' 37.8" S 00^0, 17'06.3"	70	68	69	68	69	72	71	70	71	68	68	72	70
4. Borehole section	E 036^0, 02'39.3" S 00^0, 17'07.3"	66	67	68	69	68	65	64	66	64	67	64	69	66.5
5. Main workstation (bordering power house)	E 36^0, 02' 39.8" S 00^0, 17'00.3"	63	64	60	61	64	63	61	59	58	57	57	64	60.5
6. Near Zakayo timber yard	E 36^0, 02' 44.8" S 00^0, 16'43.3"	57	55	56	55	56	55	58	61	63	60	55	63	59
7. Main workstation (main entrace)	E 36^0, 02' 39.8" S 00^0, 17'03.3"	67	54	77	71	53	56	57	67	66	58	53	77	65
8. Near airtel premises	E 36^0, 02' 37.7" S 00^0, 17'00.3"	59	60	65	59	53	52	46	49	48	57	46	65	55.5

9. Former canteen section	E 36^0, 02' 35.6" S 00^0, 17'01.2"	69	66	67	75	77	80	77	70	69	80	66	80	73
10. Garage area	E 36^0, 02' 36.5" S 00^0, 17' 05.3"	67	70	63	60	61	66	65	67	60	65	60	70	65

Baseline Noise levels for the proposed LAPFUND SITE, NAKURU COUNTY

Table 3.1 Noise level measurements

Table 3.2: Ambient noise limits in Kenya

Zone		**Sound Level Limits dB(A)**		**Noise Rating Levels (NR)**	
		(Leq, 14h)		**(Leq, 14h)**	
		Day	**Night**	**Day**	**Night**
A	Silent Zone	40	35	30	25
B	Places of worship	40	35	30	25
C	Residential: Indoor Outdoor	45 50	35 35	35 40	25 25
D	Mixed residential (with some commercial & places of entertainment)	55	35	50	25
E	Commercial	60	35	55	25

3.1.1.2 - Air quality

Baseline air quality measurements will be undertaken outside the proposed site using the portable equipment highlighted in **Table 3.3** in accordance with Air Quality, Regulations, 2014.

Table 3- 3: Air quality parameters and testing equipment

Air quality parameter	Equipment
1. Ambient particulate matter (dust)	Langder high sensitivity PM2.5 dust analyzer
2. Ambient Volatile Organic Compounds (VOCs	Langder VOC analyzer

Table 3-4 Baseline air quality status as recorded during the site environmental assessment in April 2022

Location	GPS	$PM_{2.5}$ (µg/m³)	VoCs (mg/m³)	CO_2 (mg/m³)	CO (ppm)	NO_x (ppm)	SO_x (ppm)
NEMA limit (Residential)		75	0.6	2	2	0.08	0.08
1. Parking area (bordering main gate)	E 36^0, 02' 38.3" S 00^0, 17'25.0"	8	NIL	0.0	2	0.0	0.1
2. Near main road (Round about area)	E 36^0, 01' 36.3" S 00^0, 16'22.0"	20	0.898	0.0	3	0.0	0.0
3. Near Main road (Boda boda stage)	E 36^0, 00' 37.8" S 00^0, 17'06.3"	12	NIL	0.0	6	0.0	0.0
4. Borehole section	E 036^0, 02'39.3" S 00^0, 17'07.3"	21	0.226	0.0	5	0.0	0.2
5. Main workstation (bordering power house)	E 36^0, 02' 39.8" S 00^0, 17'00.3"	12	NIL	0.0	2	0.0	0.0
6. Near Zakayo timber yard	E 36^0, 02' 44.8" S 00^0, 16'43.3"	9	NIL	0.0	3	0.0	0.0
7. Main workstation (main entrace)	E 36^0, 02' 39.8" S 00^0, 17'03.3"	10	NIL	0.0	2	0.0	0.0
8. Near airtel premises	E 36^0, 02' 37.7" S 00^0, 17'00.3"	57	NIL	0.0	0.0	0.0	0.0
9. Former canteen section	E 36^0, 02' 35.6" S 00^0, 17'01.2"	14	NIL	0.0	0.0	0.0	0.0
10. Garage area	E 36^0, 02' 36.5" S 00^0, 17' 05.3"	87	NIL	0.0	0.0	0.0	0.0

3.1.1.3 – Climate change scenario analysis

The analysis will be undertaken in accordance to the National Climate Change Response Strategy (NCCRS). The NCCRS shows clear evidence that temperature rise is common throughout the country and rainfall has become more irregular, unpredictable and torrential. The NCCRS (2009) predicts that more torrential rainfalls accompanied by floods could affect a wide range of infrastructure and this need to be taken into consideration.

3.1.2: Social environment

3.1.2.1- Land tenure and landuse mapping

Land tenure, landuse and neighbourhood stakeholder analysis was undertaken through key informant consultations with government personnel as well as detailed physical inspection of the site and neighbourhood.

3.2 Stakeholder Engagement approach

The need for public involvement in project development is enshrined in the Constitution of Kenya, 2010. This requirement is also provided for in the EMCA, 1999 (cap 387), the Environmental (Impact and Audit) Regulations, 2003, and is one of the guiding principles of the National Environment Policy, 2013. Sections 87 and 115 of the County Governments Act, 2012 also provides for public participation in county planning premised on timely access to clear and unambiguous information on any matter under consideration in the planning process. Chapter Four of the Kenyan Constitution on the Bill of Rights makes international law a key component of the laws of Kenya and guarantees protection of minorities and marginalized groups. Under Articles 33, 34, 35 and 36, freedom of expression, the media, and access to information and association are also guaranteed.

Objectives of stakeholder engagement and consultation were to:

- Comply with EIA Regulations;
- Comply with the public participation obligation in the National Constitution;
- Obtain wider support from stakeholders for the proposed project;
- Improve communications between LAPFUND and relevant stakeholders including local administration and county government;
- Gather useful data and ideas about the proposed project;
- Enhance LAPFUND corporate reputation; and

- Provide for more sustainable decision-making.

Plate 1-1: consultant giving brief on the project

Plate 1.2: Area Acc addressing the stakeholders

3.2.1-Stakeholder mapping and analysis

The scope of engagement and consultations involved the stakeholders affected by, involved in and interested in, and in respect of the EIA of the proposed lapfund project in Nakuru town. **Table 3.2** provides a summary of the key clusters of stakeholders involved in the LAPFUND EIA process.

Table 3- 1: List of stakeholders for the EIA process

Cluster	List of stakeholders	Specific targets
National Government-Statutory bodies	Local administration	Ward rep, area Acc area chief
Project Affected People – PAP	Neighbours and interested parties around proposed site	staff and neighbours
Other	Private and or public companies around the site	Administration, staff

3.2.2-Stakeholder engagement objectives

The main objectives of the stakeholder consultation process were:

a) To inform stakeholders about the proposed LAPFUND development project

b) To share with stakeholders, the impacts (positive and/or negative) that they should expect from the proposed project during demolition of existing structure, construction and operation;

c) To collect stakeholders' views, comments, concerns and local knowledge regarding the proposed project; and
d) To seek consensus and stakeholder consent on the project

3.2.3-Project information disclosure

Disclosure on the proposed project entailed an elaboration of the proposed project features. In addition to an explanation of the project features, potential environmental and social impacts of the project were discussed, and the stakeholders given opportunity to participate through a structured questionnaire, giving their views, reservations, and proposals, and finally whether the project is acceptable.

3.2.4-Stakeholder engagement strategy

The overall approach for the stakeholder engagement was based on the recent guidelines by NEMA on EIA, EA and SEA consultations during the period of the Corona Virus (COVID-19) pandemic including the social distancing regulations. The methods used in line with this included key informant consultations and comprehensive EIA questionnaire as highlighted below:-

a) ***Key informant interviews (KIs***): This involved key informant consultation of the targeted officials. Consultations were either held physically (face-to-face) in the official's places of work where that was possible. These interviews were conducted using the structured questions in the standard EIA questionnaire.

b) Comprehensive EIA Questionnaire

To ensure a formal record of community views, concerns and/or recommendations regarding the proposed project, a structured standard EIA questionnaire was administered to all the various clusters of stakeholders in order to capture their individual views with regard to the following attributes regarding the proposed Local provident fund project:-

a) Expectations from the proposed project;
b) The benefits expected from the proposed project;
c) Environmental concerns for the proposed project;
d) Recommendations for addressing environmental concerns;
e) Overall recommendation on whether the project should be implemented or not.

3.3 Impacts on the Biological Environment

Impact on Flora

Within the Master Plan area there are few scattered trees and vegetation that will be cleared may lead to loss of economically significant flora and degradation of environmentally important areas. This may further interfere with ecosystem functions within the Master Plan area with attendant environmental consequences. Destruction of flora will be accelerated by the envisioned land use changes consisting of developments in housing, industrial, educational, sports facilities, commercial, infrastructure, transportation and agriculture.

Impact on Fauna

The natural forests house a number of small game / wildlife. Development of the land will cause minimal disturbances to the wild game as the area is not encroaching any forest. There would be visual and auditory disturbance due to the presence of machinery, construction workers, and associated equipment.

3.3 Impacts on the Socio- Economic Environment

Development of the various land uses will bring along major socio-economic impacts which are likely to be both negative and positive. Key positive impacts anticipated will include provision numerous employment opportunities for skilled, semi-skilled and unskilled labour. Even though most of the development will need skilled labour force during operation, the stakeholders expressed hope that they will be able to access employment once the development commences mostly as casual workers. Business opportunities are anticipated during the execution of different land uses. Opportunities will range from supply of raw materials to small scale business people such as food vendors and kiosk owners. It is also anticipated that the value of land will increase with urbanization.

Impacts on the Health and Safety

The several developments and land use changes envisioned by the Master Plan will result to known workplace safety risks. Safety hazards are likely to increase resulting in a possible increase in accidents involving workers and/or the public. Development works will expose workers to occupational health and safety risks and injuries resulting from accidental falls or use of hand tools and construction equipment.

3.4 Impacts analysis

The magnitude and the extent of the impacts will be quantified by the ESIA. The magnitude of each impact is described in terms of being significant, minor or negligible, temporary or permanent, long-term or short-term, specific (localized) or widespread, reversible or irreversible. Generally, temporary impacts having no obvious long-term consequences are regarded as being minor. But those with long-term repercussions are classified as significant. Significant positive impacts are usually associated with improved access, which is the prime objective of the development. The negative and positive impacts likely to originate from the development have been linked to the social and biophysical environment and the economic aspects on various land uses proposed by the Master Plan. Among the broad linkages that will be discussed are as follows:

Biophysical Environment:

- Biodiversity: Flora and Fauna.
- Water: hydrology of the area.
- Land and Soil.
- Climate and Weather

Social Environment:

- Population characteristics.
- Land use patterns.
- Health and Safety.

Economic Issues:

- Trade and industries.
- Transportation and communication.
- Income generation activities.

4. BASELINE ENVIRONMENTAL SITUATION

4.1: Nakuru County

Nakuru County (35°28, 35°36`E; 0°13, 1°10`S) is one of the 47 counties of the Republic of Kenya established in the Constitution of Kenya 2010. *Nakuru County* is one of the largest counties in the Kenya with an area of 7,495.1 Km² and lies within the Great Rift Valley bordering eight other counties, namely Kericho and Bomet to the west, Baringo and Laikipia to the north, Nyandarua to the east, Narok to the south-west and Kajiado and Kiambu to the south. In 2013-2017, Nakuru County was ranked as the second-highest contributor to Kenya's GDP with an average of 6.1% growth.

4.1.1: Nakuru County

Nakuru County is the fourth-largest urban area in Kenya after Nairobi, Mombasa and Kisumu (**Figure 2-1**). It is the headquarters of Nakuru County and has an approximate area of 348km^2. In 2013, it was considered by UN-Habitat as one of the fastest growing towns in East and Central Africa. The county was elevated into a city status recently.

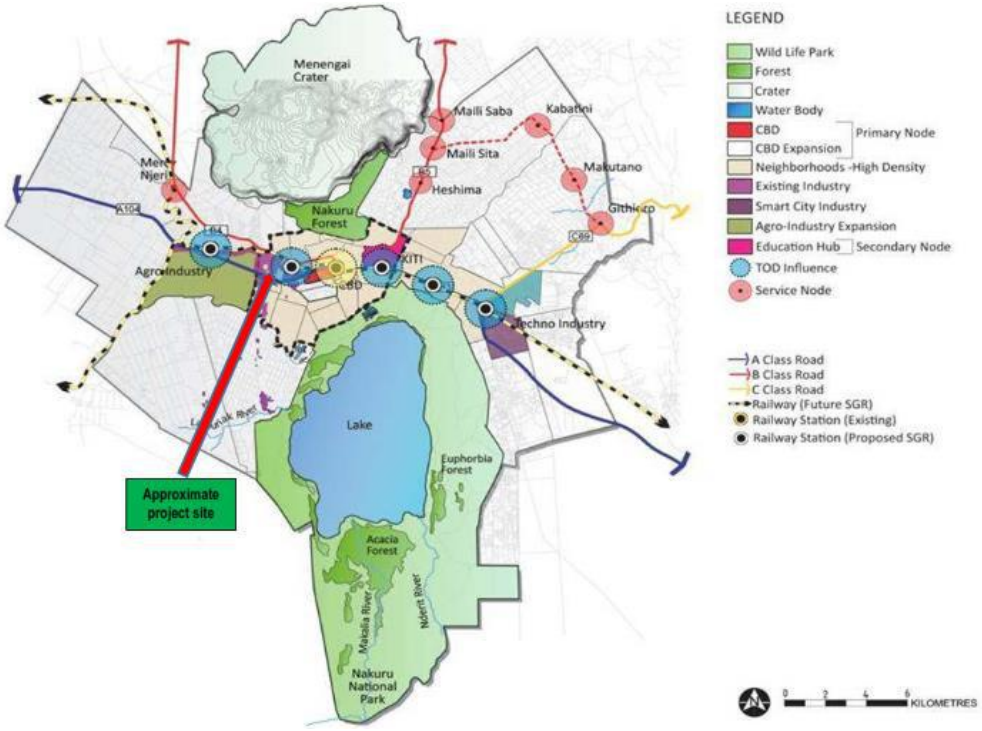

Figure 4- 1: Map of Nakuru County

Plate 4- 1: Nakuru County

4.2: Site baseline environmental status

4.2.1 – Landuse

The proposed premises is surrounded by other manufacturing and business-related enterprises including Eveready Battery Company, Spin Knit Ltd and Crater Automobile, NCPB, Brookside dairy, Shell petrol station, Viwanda health center and Menengai Oil, Trinity church.

4.2.3 - Air quality

The baseline $PM_{2.5}$ and VoC readings near the proposed site (S00^0, 17' 25.0"; E036^0, 02' 38.3") was recorded before any activity commences and rate the particulate matter levels

4.2.4 - Noise & vibration

The baseline noise levels was recorded around the proposed site during the initial survey for recording in ESIA report as indicated on **table 3.1**

4.3: Climate change

According to the National Climate Change Response Strategy (NCCRS) in Kenya, the evidence of climate change in the country is unmistakable (GoK, 2010). Evidence of temperature rise is

common throughout the country and rainfall has become more irregular, unpredictable and torrential. **Figure 4-2** shows the projected temperature and rainfall change levels for country including the Nakuru County. The NCCRS (2009) predicts that the more torrential rainfalls accompanied by floods could destroy roads, railways, bridges and other similar transport and telecommunication infrastructure. The near-time scenario of upto 2025 predicts a 1.1^{0}C rise in temperature and a 100mm decrease in rainfall (USAID/USGS, 2010).

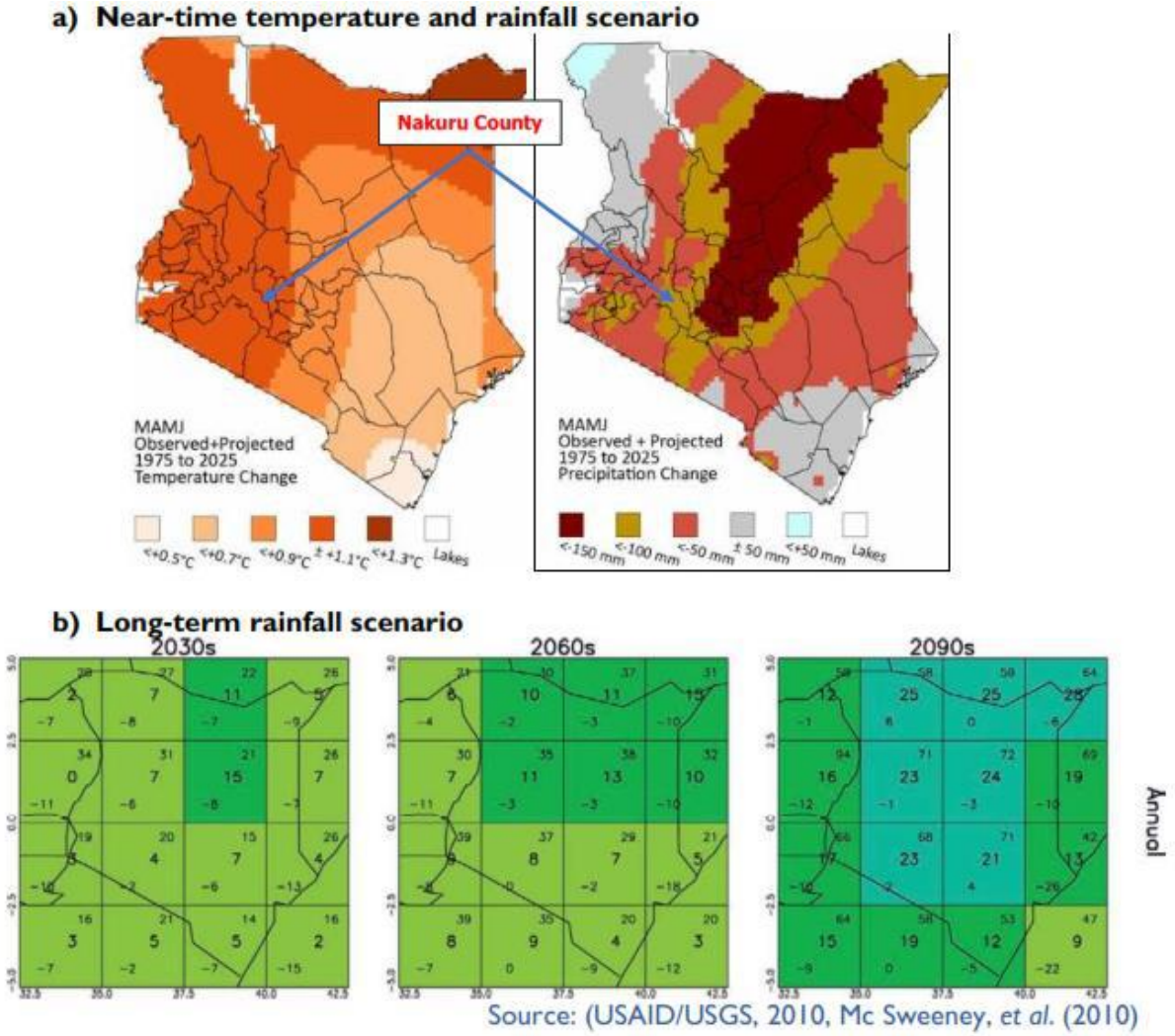

Figure 4- 2: Projected climate change in Kenya

The County Government of Nakuru has recommended that all new infrastructure should make appropriate considerations for climate change-proof designs in relation to the expected climate change scenarios in their project location areas.

4.4 Topography/drainage

The area is characterized by relatively flat landscape. The topography of the proposed project site is gently sloping from east to west. The proposed area is generally flat and is mainly used for cultivation and settlements. The soil in the area is sandy loams which are well drained. The site falls from east to west at an average slope of about 1%. The site is along Nakuru-Eldoret Highway. There exists a storm drainage channel along the highway. The area is within Lake Baringo watershed.

4.5 Soils

In general, the area is characterized by sandy loam soil. The soils are suitable for crop production. Both topography and soil types favour agricultural production and this explains why crop production (predominantly maize and wheat) is the main economic activity in the area. The proposed site has been under cultivation for many years.

4.6 Water resources

Water resources refer to various sources of water accessible in the site and its vicinity. The various water resources in the area are:

- Tap water provided by NARUWASCO;
- Underground water;
- Water from Molo River; and
- Rain water during rainy season.
- Water vendors.

The developer will connect to the public water supply though, a borehole may be sunk if necessary. The proposed project will require reliable supply of water during operation phase.

4.7 Economy

Nakuru is a diversified County in terms of climate, people and livelihoods. Agriculture is the main sector providing food, income, employment creation and raw materials for industries pursuing processing. The sector provides about 48% of the household income and employs over 60% of the employed population. The main economic activity around the project site is agriculture. There are also some commercial activities, Sobea shopping centre is about 1.5Km from the site. The area has also seen establishment of several factories due to availability of land

and the low population density. As a result of increasing population in Nakuru town, the Sobea, Ngata and Salgaa areas have seen influx of people settling in these areas. Large farmlands have been sub-divided into smaller portions.

4.8 Demographics

The local community is made up of people from different tribes across Kenya. The majority are native to the land while the rest are in-migrants from different counties. The sex ratio is said to be 1:1. The types of settlement in the area include permanent and temporary housing which are clustered while others are scattered.

4.9 Infrastructure and social amenities

The community infrastructure consists of the basic facilities such as transport, communications, power supplies, and buildings, which enable it to function. The area is well served with Nairobi-Eldoret highway, and a network of feeder roads. There is also widespread use of mobile phones where at least a person own one in a household thus making easier communication. In addition, there exist other means which are common such as email, and postal office as well as courier services provided by companies e.g. Wells Fargo, and G4S among others. There is also network of National Grid Line in the area supplying electricity to the area but the project site has no electricity connection.

5. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Kenya can face various environmental challenges as a result of past, present and proposed development interventions. The Government of Kenya has put in place a wide range of policy and legal frameworks to deal with these challenges. The policies and legal frameworks governing environmental protection and conservation in Kenya are derived from the constitutional statutes and the relevant international conventions which have been ratified. Other instruments include regulations, guidelines and standards all of which are implemented and enforced by different institutions and lead agencies. The aim of all this effort is to alleviate, prevent or minimize the risk of environmental degradation in the country. The proposed project is expected to support this effort.

EIA is a legal requirement in Kenya for all development projects. The Environmental Management and Co-ordination Act 1999 (Amendment 2015), is the legislation that governs EIA studies. The proposed project falls under the Second Schedule that lists the type of projects that are required to undergo EIA studies in accordance with section 58 (1-4) of the Act. Projects under the Second Schedule comprise those considered to pose potential negative environmental impacts. EIA has been prepared to fully comply with environmental legislations for projects with impacts and as per various NEMA Regulations. This EIA report has been prepared to fully comply with environmental legislations for projects with a potential for negative impacts and as per various NEMA regulations. One of the objectives of the EIA is to ensure that all the proposed projects do not violate national, regional and global obligations for environmental sustainability as prescribed in policies, legal frameworks, strategies, action plans and multilateral environmental agreements (MEAs). The key environmental benchmark instruments used in the policy, legal and institutional framework for the proposed project is highlighted below.

5.1: National, County and International requirements

The ESIA for the proposed project in (Nakuru County) was undertaken in accordance with the environmental regulatory frameworks highlighted below.

5.1.1: National policies

Box 5- 1: List of policies

1. The Constitution of Kenya
2. Pharmacy and Poisons Act (cap 244)
3. Factories and other places of work Act, 2020
4. Sessional Paper No. 10 of 2014 on the National Environment Policy
5. National Policy on Occupational Safety and Health, 2012

5.1.2: National Environmental Legal frameworks

Legal Framework	Relevant environmental obligations	Linkages with the LAPFUND project
1. Environmental Management and Coordination Act (EMCA) No. 8 of 1999 (GoK, 1999b), Revision 2015 (Cap 387)	Some relevant obligations are as follows:- a) Carrying out EIA for all proposed projects with a potential for adverse impacts b) Carrying out environmental audit and monitoring of all activities that are likely to have significant effect on the environment c) Controlling and prevention of environmental pollution d) Ensuring compliance with all other relevant EMCA (1999) Regulations including the following:- *a) Environmental (Impact Assessment and Audit) Regulations 2003 (Legal Notice No. 101 of 2003)* *b) Environmental Management and Coordination (Noise and excessive vibration pollution) (Control) Regulations, 2009 – LN 61)* *c) Environmental Management and Coordination (Waste Management) Regulations, 2006 (Legal Notice No. 121 of 2006)* *d) Environmental Management and Coordination (Air Quality) Regulations, 2014*	The proponent will undertake the obligatory environmental monitoring audits throughout the life cycle of the project
2. Employment Act, 2007	The Employment Act declare and define the fundamental rights of employees, to provide basic conditions of employment of employees, to regulate employment of children and to provide for matters connected with the foregoing. The Act declares that: - *Priority will be given to the local community in terms of employment opportunities.*	The provisions of the Act shall apply especially with regard to the employment of local people in the project area
3. Occupational Safety and Health Act, 2007	This Act applies to all workplaces where any person is at work, whether temporarily or permanently. The provisions of the Act are to ensure that workplaces maintain a safe working	Failure to comply with the OSHA, 2007 attracts penalties

	environment. Among the requirements are the adequate and sufficient ventilation, lighting and good housekeeping. Other requirements include: • Provision of wholesome drinking water. • Provision of suitable personal protective equipment and clothing. • The requirement that workstations suit and fit the worker. • Provision of adequate fire-fighting equipment and precautions against fire. • Workplaces should ensure machinery safety, chemical safety and electrical safety.	of up to KES 300,000 or 3 months jail term or both or penalties of KES 1,000,000 or 12 months jail term or both for cases where death occurs and is in consequence of the employer
	a) Safety and Health Committee Rules (LN 31) The Rules require the creation and management of OHS Committees. The Rules require that the project proponent must have in place an OHS Committee if there are a minimum of 20 persons employed in a work place. The Rules also require that the proponent complies with the following measures: • Provide adequately stocked First Aid Kits in various sections of the service Station • Ensure that there is an appropriate number of certified first aid staff trained by recognized institution such as the St. John's Ambulance or Kenya Red Cross Society • Provide a general register for recording all incidents and accidents • Formation of an S&H Committee of five members from management and five from the workers. All members of the S&H Committee to undergo a DOHSS approved 40-hour induction course • Nominate and formalize an S&H management representative. • The S& H Committee must meet at least quarterly, take minutes, circulate key action items on bulletin boards and send a copy of minutes to the DOHSS head office in Nairobi • Appropriate record-keeping including maintenance of all current certificates related to inspection of critical equipment such as air compressors, lifts and pulleys. Such inspections need to be undertaken by a competent person certified by the Director of the DOHSS	The provisions of the Rules shall apply

4. Work Injuries Benefits Act (WIBA), No. 13 of 2007	s28. Compensation for temporary total or partial disablement s30. Compensation for permanent disablement s38. Compensation in respect of scheduled and unscheduled diseases s45. First Aid (1) The employer shall provide and maintain such appliances and services for the rendering of first aid to his employees in case of any accident 46. Transportation of injured worker to a hospital	The provisions of the Act shall apply for the LAPFUND project
5. Building Code 1997	The Act Mandates County Governments the powers to approve building plans	The provisions of the Act shall apply for the LAPFUND project
6. National Construction Authority Act, 2012, CAP 49A	Registration of civil works as specified in Section 5 and the 3rd Schedule of the Act	The provisions of the Act shall apply for the construction of any new structures at the LAPFUND project
7. County By-Laws	Every County has its own Environmental By-Laws	The Proponent shall observe all the relevant County By-Laws

5.1.3: National Strategic Plans

Box 5- 2: List of national strategies and action plans
1. Kenya Vision 2030
2. National Climate Change Response Strategy (NCCRS) 2010
3. The National Climate Change Action Plan (NCCAP) 2018 -2022
4. Nakuru County Integrated Development Plan (2018-2022)

5.1.4: Regional and international multinational environmental agreements

Box 5- 3: List of MEAs
1. EAC Climate Change Policy (EACCCP)
2. The Paris Agreement

5.2: Licenses and Permits

Several of the legislations above require issuance of licenses or permits whenever the conditions of the legislation are met as highlighted in the table below.

Table 5- 1: Permits and licenses

Legislation	Required licenses and permits
Environmental Management and Coordination Act (EMCA, 1999), Revision 2015 (Cap 387)	• EIA license • Emission licenses • Effluent discharge • Operation of waste disposal • License to generate hazardous waste
National Construction Authority Act, 2012, CaP 449A	• NCA construction registration certificate
Water Act, No. 43 of 2016	• WRMA licenses water abstraction of ground water through borehole sinking
Standard Act, Cap 496	• Standardization permit
Public Health Act, Cap 242	• Licenses eating places such as restaurants and kiosks
Occupational Health and Safety Act of 2007	• Workplace health and safety standards • Inspects and registers workplace
Physical Planning Act, Cap 286	• Relevant approvals for structural drawings by relevant

	national and county offices for any new construction works
Traffic Act, Cap 403	• Licensing for public service and other vehicles
Transport Licensing Board Act, Cap 404	• Licensing for public service vehicles (PSVs)

5.3: Institutional Framework

EIA is a legal requirement in Kenya for all development projects. The Environmental Management and Co-ordination Act 1999 (Amendment 2015), Cap 387 is the legislation that governs EIA studies. The relevant institutions associated with the construction of projects in Nakuru County are highlighted below inclusive of both the safety and environment sectors.

5.3.1: National, county and international requirements

The ESIA for the proposed development at the LAPFUND parcel of land in Nakuru County wail be undertaken in accordance with the environmental regulatory frameworks highlighted below.

5.1: National environmental policies

Box 4- 4: List of policies
• The Constitution of Kenya • Pharmacy and Poisons board act, cap 244 • Sessional Paper No. 10 of 2014 on the National Environment Policy • National Policy for Disaster Management, 2009 • National Policy on Occupational Safety and Health, 2012

5.3.2: Kenya Revenue Authority (KRA)

The Authority is the Government body with the specific mandate for collecting revenue in all sectors on behalf of the Government.

5.3.3: Kenya Bureau of Standards (KeBs)

The Kenya Bureau of Standards is charged with the responsibility of identifying standards needs for goods produced or imported into Kenya.

5.3.4: Environment Sector

There are about 21 institutions, which deal with environmental issues in Kenya. However, the key institution which is relevant with regard to the proposed development is the National Environmental Management Authority (NEMA) which is responsible for the enforcement of the Environmental Management and Coordination Act (EMCA, 1999 and Review 2015 Cap 387) and subsidiary regulations and standards. The institutional framework for the Environmental Management and Coordination Act (EMCA, 1999 and Review 2015 Cap 387) which is the umbrella framework within which all the environmental issues concerning the proposed project that will be implemented.

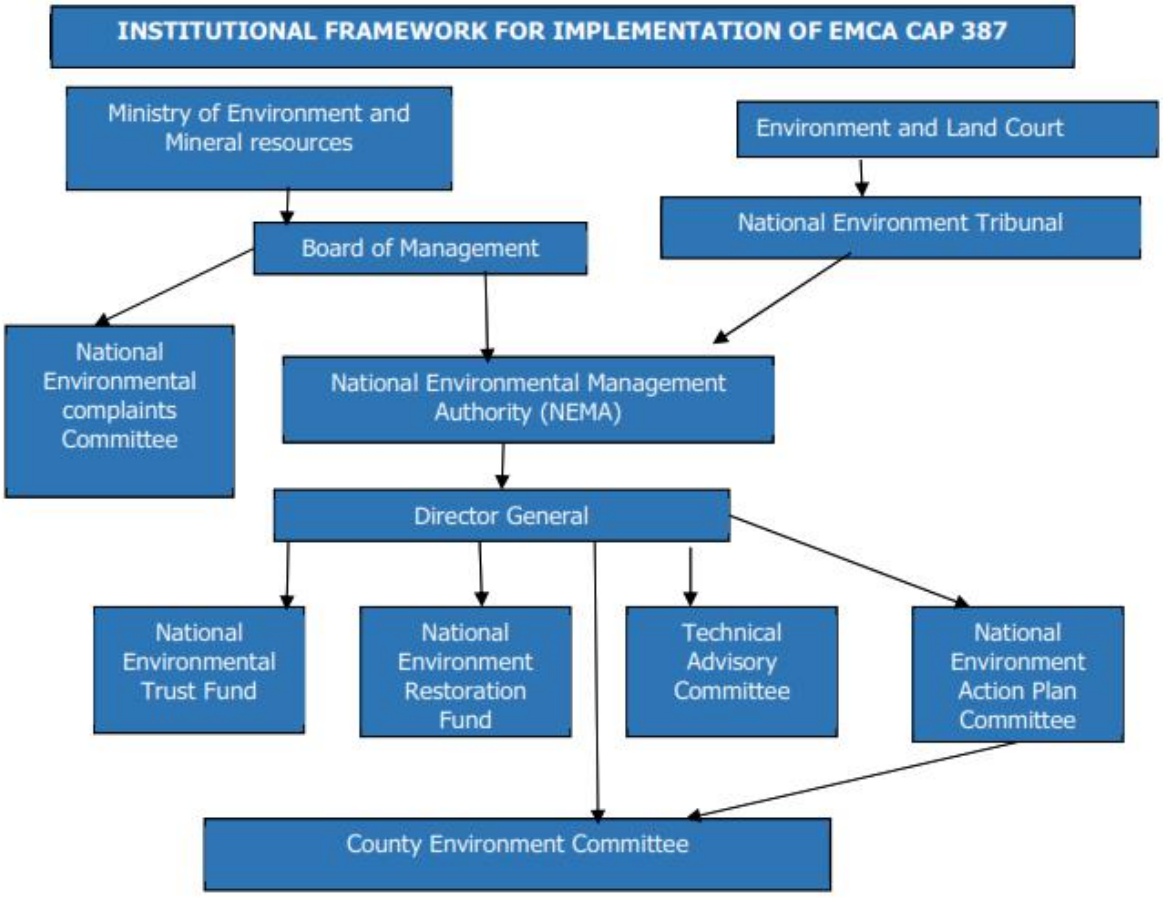

Figure 5- 1: Institutional Framework for EMCA Cap 387

a. National Environmental Management Authority (NEMA)

The object and purpose for which NEMA was established is to exercise general supervision and co-ordinate over all matters relating to the environment and to be the principal instrument of the government in the implementation of all policies relating to the environment. Director General appointed by the president heads NEMA. The Authority shall:

- Co-ordinate the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plan, programmes and projects with a view of ensuring the proper management and rational utilization of the environmental resources on a sustainable yield basis for the improvement of the quality of human life in Kenya.
- Take stock of the natural resources in Kenya and their utilization's and consultation, with the relevant lead agencies, land use guidelines.
- Examine land use patterns to determine their impact on the quality and quantity of the natural resources.
- Carry out surveys, which will assist proper management and conservation of the environment.
- Advise the government on legislative and other measures for the management of the environment or implementation of relevant international conservation treaties and agreements in the field of environment as the case may be.
- Advise the government on regional and international environmental convention treaties and agreements to which Kenya should be a party and follow up the implementation of such agreements where Kenya is a party member.
- Undertake and co-ordinate research, investigation and surveys in the field of environment and collect and disseminate information about the findings of such research, investigation or survey.
- Mobilize and monitor the use of financial and human resources for environmental management.
- Identify projects and programmes or types of projects and programmes, plans and policies for which environmental audit or environmental monitoring must be conducted under EMCA.

- Initiate and evolve procedures and safeguards for the prevention of accidents, which may cause environmental degradation and evolve remedial measures where accidents occur.
- Monitor and assess activities, including activities being carried out by relevant lead agencies in order to ensure that the environment is not degraded by such activities, environmental management objectives are adhered to and adequate early warning on impeding environmental emergencies is given.
- Undertake, in co-operation with relevant lead agencies programmes intended to enhance environmental education and public awareness about the need for sound environmental management as well as for enlisting public support and encouraging the effort made by other entities in that regard.
- Publish and disseminate manuals, codes or guidelines relating to environmental management and prevention or abatement of environmental degradation.
- Render advice and technical support, where possible to entities engaged in natural resources management and environmental protection so as to enable them to carry out their responsibilities satisfactorily.
- Prepare and issue an annual report on the state of the environment in Kenya and in this regard, may direct any lead agency to prepare and submit to it a report on the state of the sector of the environment under the administration of that lead agency and,
- Perform such other functions as government may assign to the Authority or as are incidental or conducive to the exercise by the authority of any or all of the functions provided under EMCA.

5.3.3.1: Offences and Penalties for Non-Compliance with Provisions under Environmental Legislation

Table 5.1 highlights the offences and penalties for non-compliance with provisions under environmental legislation in Kenya.

Table 5- 1: Offences and penalties for non-compliance with provisions under environmental legislation in Kenya

Item	Offences	Penalties for an offence
General offence	Offence against a provision of the Act, where no penalty is specifically provided for.	Fine of not more than Kshs. 350,000 Imprisonment for not more than 18 months. Or both such fine and imprisonment
Inspection	Offences in respect of inspection, including: Hindering or obstructing an environmental inspector in his duties;	Fine of not more than Ksh 500,000. Imprisonment for not more than 2 years. Or both such fine and imprisonment
Environmental Impact Assessment	Failure to submit project report contrary to the requirements of Section 58 of the Act. Failure to prepare an EIA in accordance with the requirements of the Act. Knowingly give false information in an EIA report.	Fine of not more than Ksh 2,000,000. Imprisonment for not more than 2 years. Or both such fine and imprisonment.
Records	Failure to keep records required under the Act. Fraudulently or knowingly altering records. Fraudulently or knowingly making false statements in any records required under the Act.	Fine of not more than Ksh 500,000. Imprisonment for not more than 18 months. Or both such fine and imprisonment.
Standards	Violation of any environmental standard	Fine of not more than Kshs 500,000.

Item	Offences	Penalties for an offence
	established under the Act; Contravenes any measure prescribed under the Act; Uses the environment or natural resources in a wasteful and destructive manner contrary to measures prescribed under the Act.	Imprisonment for not more than 2 years. Or both such fine and imprisonment.

6. STAKEHOLDER ENGAGEMENT AND PUBLIC PARTICIPATION

6.1: Introduction

Stakeholder engagement and consultation is a policy requirement by the Government of Kenya and a mandatory procedure as stipulated in the National Constitution and also by EMCA 1999 and EMCA (amendment), 2015 section 58, on Environmental Impact Assessment (EIA) for the purpose of achieving the fundamental principles of sustainable development. This section describes the process of stakeholder engagement and consultation that was followed to identify the key issues and impacts of the proposed project from the stakeholder's views especially the project affected people (PAPs) near the proposed site.

The consultations was undertaken using a standard questionnaire). This targeted stakeholders (mainly PAPs and relevant institutions)

6.2: Objectives of the Stakeholder Engagement and Consultations

The objective of the exercise was to:

- Disseminate and inform the stakeholders (especially the neighborhood surrounding the proposed site).
- Create awareness among the public on the need for the EIA for the proposed project
- Gather comments, suggestions and concerns of the interested and affected parties.
- Incorporate the information collected in the final EIA study report.
- To share with stakeholders, the impacts (positive and/or negative) that they should expect from the proposed project during construction, installation and operation;
- To seek consensus and stakeholder consent on the project
- Comply with EIA Regulations;
- Comply with the public participation obligation in the National Constitution;
- Obtain wider support from stakeholders for the proposed project;
- Improve communications between LAPFUND and relevant stakeholders including local administration and county government;
- Enhance LAPFUND corporate reputation; and
- Provide for more sustainable decision-making.

6.3: Stakeholder characteristics and engagement approach

The consultations involved government officials, interested and affected parties, local authority, community organizations and neighbors, neighboring industries around the proposed project. The need for public involvement in project development is enshrined in the Constitution of Kenya, 2010. This requirement is also provided for in the EMCA, 1999, the Environmental (Impact and Audit) Regulations, 2003, and is one of the guiding principles of the National Environment Policy, 2013. Sections 87 and 115 of the County Governments Act, 2012 also provides for public participation in county planning premised on timely access to clear and unambiguous information on any matter under consideration in the planning process. Chapter Four of the Kenyan Constitution on the Bill of Rights makes international law a key component of the laws of Kenya and guarantees protection of minorities and marginalized groups. Under Articles 33, 34, 35 and 36, freedom of expression, the media, and access to information and association are also guaranteed.

6.3.1-Stakeholder mapping and analysis

The scope of engagement and consultations involved the stakeholders affected by, involved in and interested in, and in respect of the ESIA of proposed project situated in Nakuru County. Table 6.3 provides a summary of the key clusters of stakeholders involved in the ESIA process

Table 6- 3: List of stakeholders for the ESIA process

Stakeholder category/organisation, group or individual	**Potential role in the ESIA activity**	**Engagement strategy**	**Follow-up strategy plans for feedback or continued involvement**
Public sector and key ministries/ key public institution	Give views on the LAPFUND project Identify any improvement needed for the plan	Invitation to public meetings Special consultations at the organizational levels	Invitation to ESIA validation meeting Implement the final recommendations Participate in

		Review of any relevant existing documents	Monitoring and Evaluation of the implementation of ESIA recommendations
Private sector actors/ investors and associations	Come up with ideas to improve the plan	Special consultations at the organizational levels	Participate in Monitoring and evaluation of the implementation of ESIA recommendations Implement the final recommendations
Political leadership	Play major role in creating awareness on the Master Plan	Invitation of some political leaders to participate in public consultation meetings	Invitation to validation meeting
Civil society organizations (NGOs and CBOs)	Enhance awareness of the Master Plan since they deal with people on the ground	Invitation to participate in scoping meeting	Implement the final recommendations especially on community-related issues Invitation ESIA validation meeting
Professional associations/ experts/research and	Lead in research and consultancy	Invitation to public meetings	Invitation ESIA validation meeting

academic institutions		One on one consultation	Participate in Monitoring and evaluation of the implementation of ESIA recommendations

Plate 1-3: Environmental consultants engaging with the stakeholders during Q&A section




6.3.2-Project information disclosure

Disclosure on the proposed project will entail an elaboration of the proposed project features. In addition to an explanation of the project features, potential environmental and social impacts of the project were discussed, and the stakeholders given opportunity to participate through a

structured questionnaire, giving their views, reservations, and proposals, and finally whether the project is acceptable.

6.3.3-Stakeholder engagement strategy

The overall approach for the stakeholder engagement was based on the recent guidelines by NEMA on EIA, EA and SEA consultations during the period of the Corona Virus (COVID-19) pandemic including the social distancing regulations. The methods used in line with this will include key informant consultations and comprehensive EIA questionnaire as highlighted below:-

c) Key informant interviews (KIs): This involved key informant consultation of the targeted officials in Table 6.3. Consultations will either be held virtually or physically (face-to-face) in the official's places of work or through a public baraza. These interviews were conducted using the structured questions in the standard EIA questionnaire.
d) Comprehensive EIA Questionnaire

To ensure a formal record of community views, concerns and/or recommendations regarding the proposed project, a structured standard EIA questionnaire were administered to all the various clusters of stakeholders in order to capture their individual views with regard to the following attributes regarding the proposed project:-

f) Expectations from the proposed project;
g) The benefits expected from the proposed project;
h) Environmental concerns for the proposed project;
i) Recommendations for addressing environmental concerns;
j) Overall recommendation on whether the project should be implemented or not.

6.3.4-Stakeholder Identification

Key stakeholders were identified in accordance with the areas/sectors that are affected directly or indirectly by the proposed project. The criteria that was used to identify various stakeholders was based on the legal mandates of various institutions, assessment of the different interests of the stakeholders, stakeholder power rights and responsibilities and their role in the proposed development in Nakuru County.

6.3.5 Methodology used for Public Participation and Consultation

Views and concerns from the local residents, local leaders, surrounding institutions and development partners in LAPFUND project who in one way or another would be affected or have interest in the proposed project were sought through interviews, key stakeholder and public meetings as stipulated in the Environmental Management and Coordination Act, 1999 (Cap 387). During the consultation process, the stakeholders were taken through the Master Plan including their objectives and possible impacts associated with implementation activities. Stakeholders were then be given time to ask relevant questions regarding the proposed project to enable the consultants clarify on any issues that they may not have understood properly. Stakeholders were consulted during screening, scoping and ESIA study. Consultative meetings were held on 04.04.2022, 13.04.2022 and 28.04.2022. These included focused group discussions and public baraza.

In general, the following steps were followed in carrying out the public consultation process: -

- Identification and compiling a database of interested and affected individuals and institutions
- Interview schedules to different target groups and local community members in the proposed development site.
- Technical Meetings with Key stakeholders

The public consultation and participation were conducted through;

- Household socio-economic survey
- Key stakeholder consultation and interviews
- Key Stakeholder Consultative Meeting
- Key informants interviews
- Comprehensive ESIA questionnaire

In general, the following steps were followed in carrying out the public consultation process: -

- Identification and compiling a database of interested and affected individuals and institutions

- Interview schedules to different target groups and local community members in the proposed development site.
- Technical Meetings with Key stakeholders

6.4: Potential benefits of the proposed project

- Employment opportunities for the local community.
- Increase in revenue for the county.
- Affordable houses and commercial rental spaces
- Generate income for LAPFUND members
- County government revenue generation
- The land will be well utilized

6.5: Potential Environmental and social concerns

- Noise during construction phase
- Solid waste management.
- Increase in population
- Accidents during construction
- Air pollution due to fumes during mixing
- Traffic flow of vehicles to and from the site

Major concerns raised by stakeholders, interested and affected parties

- Noise from excavation machinery
- Vibration from heavy machinery
- Air and Noise pollution
- Traffic on the access road due to Lorries delivering construction materials
- Pressure on resources eg water
- Population influx
- Nakuru area prone from tremors
- Frequent accidents at the nearby roundabout
- Foreign casual workers at the site

- Solid waste management
- Odor smell from bone crushing factory to make animal feeds
- Zakayo glue making industry that releases foul smell and irritates the eyes
- Effluent management that is within the facility
- Security of the area during construction and operation phase

Key suggestions/recommendation/mitigation by the stakeholders

- Ensure a CSR is implemented to benefit the community
- The proposed construction to be environmentally friendly and will adopt a spongy city concept as advised by one of the stakeholder.
- Consider MoH COVID 19 guidelines during all phases of the project
- Develop programs, training, self-help groups for disabled in the community
- Approach local waste management companies for waste disposal
- Prioritize on local community job opportunities
- Observe working hours to minimize noise pollution/ switch off idling vehicles and machinery
- Consult further on zonation of the area
- Ensure geotechnical survey is done to ascertain the soil stability due to possible tremors
- Adopt energy saving techniques i.e use of energy saving bulbs and use of solar
- Ensure water harvesting is done exclusively to supplement the county piped water.
- Plan for a police post and a chief's office at the proposed project as it is a mega investment.
- Abating dust by regular sprinkling of water on dusty area.
- Adopt a continuous public and stakeholder consultation process throughout the project cycle.
- Proponent to ensure proper drainage construction and connection to existing drainage systems.
- The local youth and people to be given priority during hiring of persons to work on the project.
- A police post/ station to be put up with the locality to increase security in area during project operations.

- Adhere to engineering and construction standards
- Re-planting of indigenous trees and/or vegetation for landscaping.
- They suggested that dust covers be used during the construction and transportation of materials like cement and sand

The recommendations from the public consultations have been incorporated in the mitigation measures proposed in this report. Additional mitigation measures presented in the Environmental and Social Management and Monitoring Plan (ESMMP) should be fully implemented to minimize the raised impacts.

Overall decision by stakeholders

The analysis of the personalized questionnaires (ANNEX 1) indicated that all the EIA consultees approved the project. There was No Objection regarding the establishment of the proposed construction of the LAPFUND project based in Viwanda ward, Nakuru west sub-county, Nakuru County.

Plate 1-4: Stakeholders in approval of the project by show of hands

Potential impact	+	-	Proposed mitigation
Interruption of the usual cycle of demolition, construction and operation phase			Adequate sensitization and awareness will be undertaken to avoid any risks during demolition of existing structures, construction and operation phase

a) Occupational safety risks			The project will adhere to all OSH regulations. All structures must be approved by the relevant Local Authorities as required by the Laws of Kenya. The safety of all the workers should be maintained by providing them with appropriate personal protective equipment (PPEs) including boots, helmets, overalls, gloves and dust masks in accordance with the Occupational Safety and Health Act (2007). As a general approach, health and safety management planning should include the adoption of a systematic and structured approach for prevention and control of physical, chemical, biological and radiological health and safety hazards described in General IFC EHS Guidelines. Recommended strategies to manage General Workplace Health and Safety include the following:- • All personnel should be trained on health and safety procedures and how to respond in case of accidents. All installation workers should be trained on how to handle unexpected events such as accidents, fires or explosions. To adequately prepare for an emergency, all personnel should plan, train, and practice emergency responses. Staff should also be encouraged to prepare for emergencies in the workplace. As a standard procedure on health and safety, appropriate guidelines and signage shall be put up in prominent places for the attention of all workers. • Preparation of emergency response plans including the provision and maintenance of necessary emergency response and rescue equipment. • Sufficient number of first aid trained employees to respond to emergencies. • Implementation of specific personnel training on work-site health and safety management including a communication program with a clear message about the commitment to health and safety

			• In addition, the LAPFUND should ensure comprehensive consideration of the following key categories of occupation and safety according to the Occupational Safety and Health Act (OSHA) and General IFC EHS Guidelines: o General workplace health and safety o Electrical safety o Physical hazards - Fitness for work

7. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

The EIA consultants identified and analysed the anticipated positive and negative impacts in the three distinct phases of the project, i.e. construction phase, operations phase and decommissioning phase.

7.1 Project Construction Phase

7.1.1 Positive Impacts

a) Employment opportunities

One of the main positive impacts during projects construction phase is the availability of employment opportunities especially to casual workers and several other skilled workers such as building and construction engineers. Employment opportunities are of benefit both economically and socially. Several workers including casual laborers, masons, carpenters, joiners, electricians, and plumbers are expected to work on the site during the construction phase. Apart from casual labour, semi-skilled, unskilled labour and formal employees are also expected to obtain gainful employment during the period of construction. Generally, employment during the construction phase will lead to multidimensional development in the area and improve several people's living standards.

b) Economic Growth

Through the use of locally available materials during the construction phase e.g. cement, sand, electrical cables and others; The consumption of these materials, oil, fuel and others will attract taxes including VAT which will be payable to the government hence increasing government revenue while the cost of these raw materials will be payable directly to the producers.

c) Revenue generation

The construction and operations will involve statutory taxation including Corporate Tax, VAT, PAYE as well as payments for permits and licenses which will provide valuable economic benefit to Nakuru County Government as well as the Government of Kenya.

7.1.2 Negative Impacts

a) Noise pollution

During the construction phase, minimal noise is expected to be produced by the construction equipment and machinery and vehicles delivering construction materials. The noise generated due to such activities is likely to be a nuisance within the immediate locality of the site.

b) Oil leaks and accidental spills

Movable parts of various construction equipment will require to be lubricated continuously to minimize the usual corrosion or wear and tear. Likewise, vehicles on site may require oil change. Possibilities of oil spills and contamination of the soil and water on site are high.

c) Loss of flora and fauna

Construction projects, whether commercial developments, housing estates, infrastructure or public-sector projects, all have the potential to damage natural habitats, and pose a threat wildlife and plant species. During the site visit, the team noted that there no endangered faunal species within the site. There were no floral species at the site except for grass, which would be cleared to pave way for the project.

d) Solid waste

The project's construction activities will lead to the generation of high amounts of solid waste. If not well managed, solid waste piles can harbor vectors and rodents, and also cause water borne diseases in the area. Unregulated waste piles can also cause accidents e.g. trips and falls, to the construction workers and persons visiting the site.

e) Soil erosion

There is a possibility of soil erosion occurring during construction during rainy and windy seasons. Soil erosion is an important problem both at its source and downstream of the development site. Eroded soil will be deposited somewhere, and the location of the deposition could alter downstream hydrology and increase flooding. It may also pose a water quality issue directly as a result of siltation and indirectly from contaminants carried with or attached to soil particles.

f) Dust emissions

Particulate matter pollution is likely to occur during the site clearance, excavation and spreading of the topsoil. This can have health implications to the workers such as increased cases of asthma attacks, flu etc.

g) Faecal waste

The construction workers will generate faecal waste during their day-to-day operations. The generated waste needs proper handling to prevent diseases such as diarrhea, outbreak on the site. An area will be designated for ladies and gents within the proposed site.

h) Workplace accidents and hazards

During construction of the proposed project, it is expected workers are likely to have accidental injuries and hazards as a result of handling hazardous waste. Because of the intensive engineering and construction activities including erection and fastening of roofing materials, metal grinding and cutting, concrete work, steel erection and welding among others, construction workers will be exposed to risks of accidents and injuries. Such injuries can result from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets and collapse of building sections among others.

7.2 Operations Phase

7.2.1 Positive Impacts

a) Employment opportunities

The construction of the project will create employment for skilled and unskilled workers (civil and structural engineers, drivers, machine operators, plumbers, carpenters, masons etc.).

b) Gains in the local and national economy

The construction stage will introduce a need to for goods and services and local entrepreneurs should position themselves to provide goods and services. The consumption of these materials will attract taxes which will be payable to the government. For material sites, the County Government of Nakuru (CGN) shall 'collect levies and other charges applicable and due to the County Government in accordance with the applicable county legislation'.

LAPFUND will ensure that the country also benefits from the development of the Crater city through the following opportunities:

- Contribution to the introduction of Constituency Industrial Development Centres (CIDCs) in Viwanda location as recommended in the Nakuru CIDP (2013-2017.
- Wealth creation through employment of locals
- Provision of affordable housing and commercial facilities within Nakuru city
- Improved tourism sector through the five star hotel
- Income taxes from employees.
- Taxes and duties from the activities

c) Long term employment and training

Local people in the surrounding settlements near the proposed site will be given preference in certain levels of employment as a form of social impact mitigation. This will be accompanied by more openings for training for the local people who are expected to be the first primary beneficiaries of the workforce needs.

d) Increase in disposable income

It is anticipated that as a result of the construction of property development, the local area will have a steady reliable source of substantial income during the project life and beyond.

e) Infrastructure development to support the project

Infrastructural development in terms of roads, electricity and water supply, among others will improve for the benefit the local people. There will also be increased community benefits through Corporate Social Responsibility projects for the community.

f) Revenue generation

The construction and operations will involve statutory taxation including Corporate Tax, VAT, PAYE as well as payments for permits and licenses which will provide valuable economic benefit to Nakuru County Government as well as the Government of Kenya.

7 ANALYSIS OF PROJECT ALTERNATIVES

7.1 Introduction

This section outlines the main alternatives considered by project proponent, an evaluation of impacts of each alternative with clear information on the criteria used to assign significance and an indication of the main reasons for choosing the proposed development taking into account the environmental effects.

7.2 No Action Alternative

The no development option entails leaving current status of the proposed project site as it is. Environmental effects of the proposed development will be avoided making the option desirable considering the state of the environment. This being the case, one of the reasons for construction of the proposed development will not be realized. A significant investment of approximately Kshs. 10B which is to be spent in the project construction and short term employment opportunities will not be used. This will invariably prevent injection of this amount into the Kenyan economy. No action option may also result to continued poverty in Viwanda location, Nakuru West sub-county due to loss of foreseeable employment opportunities.

7.3 Alternative Site

A pursuant of a change of site alternative will require that the project be implemented at an alternative site other than the proposed site. Change of site will mean the proponent has to purchase an alternative piece of land. The result will be an increase in time and resources required to complete the transactions. The unpredictability of financial resources and the lag time required in acquiring and completing official transaction on it may take a long period. The proposed site was chosen because of its proximity to the market and access to social amenities. There is no guarantee that an appropriate and accessible land will be available at a reasonable cost within the project area.

7.4 Alternative Construction materials and technology

The proposed project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security, environmental and aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors. The building will be constructed using locally sourced bricks, cement,

river sand (washed and clean), twisted metal that meet the Kenya Bureau of Standards requirements.

7.5 Alternative building design

The proponent has evaluated various alternative designs, Materials to be used and technology. Various professionals were involved including Architects, Engineers, surveyors and environmental consultants. After extensive discussions, the various options were assessed and the optimal design, materials and technology were agreed as per the proposed plan, materials and technology. The proposed development design was chosen on the basis of the needs of the project including commercial mall, petrol station, residential blocks, kindergarten, office block and a five star hotel. The proposed project design was the most preferred since it was able to meet all the above requirements.

8. ENVIRONMENTAL MANAGEMENT PLAN

Integrating environmental issues in business management, such as those related to real estate development is that it increases efficiency while enhancing the project proponent financial and environmental management. These issues, which are normally of financial concern, are: costs, product quality, investments, level of productivity and planning. Environmental planning and management as a concept seeks to improve and protect environmental quality for both the project site and the neighborhood through segregation of activities that are environmentally incompatible. Environmental planning and management integrates land use structure, social systems, regulatory law, environmental awareness and ethics.

Environmental management plan (EMP) for development projects such as the proposed residential apartment complex development is aimed at providing a logical framework within which identified negative environmental impacts can be mitigated and monitored. In addition, EMP assigns responsibilities for action to various actors, and provides time frame within which mitigation measures can be done.

EMP is a vital output for an environmental impact assessment as it provides a checklist for project monitoring and evaluation. A number of mitigation measures are already incorporated into the project design.

The objectives of the EMP are as follows:

- To ensure that the project will operate in compliance with applicable national environmental legal requirements throughout the full cycle;
- To outline the institutional measures required to prevent, minimize, mitigate and compensate for adverse environmental and social impacts, or to enhance the project beneficial impacts.
- To indicate the key players to be engaged in the various environmental issues associated with the project.

8.1 ENVIRONMENTAL MANAGEMENT PLAN IMPLIMENTATION PHASE

PLANNING & DESIGN PHASE

REF NO.	OBJECTIVE	MANAGEMENT ACTION	RESPONSIBILITY	TIMEFRAME	MONITORING INDICATORS	APPROXIMATE COST (KES)
1.1: PERMITS AND LICENCES FOR THE PROJECT DEVELOPMENT FOR LAPFUND						
1.1.1	To ensure compliance with Kenyan environmental legislative requirements	Apply and obtain all environmental permits and licenses required for the for the proposed development project including the following where applicable: • NEMA EIA license	Proponent	Before project commencement	Terms & Conditions in Permit & Licenses	TBD (To be determined)
1.1.2	To ensure compliance with other Kenyan statutory requirements	• EPRA License • NCA • County government approval • Any other relevant permits	Proponent	Before project commencement	Terms & Conditions in Permit & Licenses	TBD

CONSTRUCTION PHASE				
Environmental Impacts	**Mitigation measures**	**Responsible party**	**Time Frame**	**Cost estimate**
Vegetation Disturbance	-Ensure proper demarcation and delineation of the project area to be affected by the construction work -Specify location for vehicles and equipment and areas of the site which shall be kept free of traffic equipment and storage -Designate access routes and parking within the site -Introduction of vegetation(trees, shrubs and grass) on open spaces and around the project site and their maintenance -Design and implement an appropriate landscaping progamme to help in re-vegetation of open parts of project area after construction	Contractor Proponent	Continuous	Kshs. 100,000
Dust Emission	-Ensure strict enforcement of on-site speed limit regulations -Sprinkle water during excavation works by heavy machines -Sprinkle water on graded access routes when necessary to reduce dust generation by construction vehicles -Dust masks to be provided to employees and should be worn -Use environmentally friendly fuels -Minimize the period for machinery idling -Pursue good practices in energy use during operations and sensitize staff -Provide appropriate personnel protective equipment to site workers	Contractor Proponent	Continuous	Kshs. 60,000 per quarter
	-Use of an integrated solid waste management			

Increased solid waste generation	system i.e. through a hierarchy of options: 1. Reduction at source, 2. Recycling, 3. Reusing, 4.Incineration, 5. Sanitary Land filling -Through accurate estimation of the dimensions and quantities required. -Use of durable, long lasting materials that shall not need to be replaced as often as, thereby reducing the amount of waste generated over time. -Provide facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements -Use building materials that have minimal or no packaging to avoid generation of excessive packaging waste -Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers to reduce waste at site. -Dispose waste more responsibly by contracting a waste registered handler who will dispose the wastes at designated sites only. -Waste collection bins to be provided at designated points only.	Contractors Drivers	During construction	Kshs. 200,000
Health and Safety	-Comply to the OSHA -Provide personnel and passers-by signage and warnings traffic control signs and warning -Develop a traffic management plan to ensure that site vehicles do not interfere with the regular traffic on the Project area -Provide for appropriate signage and warnings at work sites -Provide appropriate personnel Protective Equipment (PPE) to site workers	Contractor Proponent	Continuous	Kshs. 300,000

	-Provide for First Aid facilities as per the OSHA, 2007 -Provide for an appropriate traffic management plan to avoid congestion on road leading to the project area -Provide and clearly display emergency contacts -Develop and implement detailed and site specific Emergency Response Plans.			
Oil Spills	-Install oil trapping equipment's in areas where there is a likelihood of oil spillage such as during the maintenance of construction equipment -Soil in such an area shall be well protected from contamination	Contractor	During both construction and operation phases of the project.	100,000
Noise and Vibrations	-Sensitize construction vehicle drivers and machinery operators to switch off engines or machinery not being used -Sensitize the construction vehicle drivers to avoid unnecessary hooting. -Ensure that construction machinery are kept in good condition to reduce noise generation -Sound barriers to be erected around the construction site -The noisy construction works should be entirely planned to be during day time	Contractor Proponent	During construction and transportation of materials	TBD
OPERATION PHASE				
Fire hazards	-Ensure fire extinguishers are stationed in visible places. -Security personnel and occupants to be trained in firefighting skills. -Drilling exercise to be conducted regularly. -Train substation operators on firefights -Install smoke fire detectors and fire alarms	Proponent	Servicing of fire extinguishers and fire drills to be done every six months	Ksh.100,000= per 6 months

Energy Resources Management	-Ensure machinery is regularly serviced to improve efficiency in consumption of energy -Energy management through use of sound/appropriate equipment -Application of rated equipment in welding and related works -Use of efficient mechanical plant and energy savers on sites	Contractor Proponent	Continuous	Kshs.250,000
Water and energy management	-Provide adequate and appropriate drainage infrastructure where required -Ensure machinery is regularly serviced to avoid leakages and/or spillages -Oils, fuels and other materials to be stored in accordance with the manufacturers safety data sheets (MSDS) -Train staff on spill response -Implement erosion and sedimentation controls -Energy management through use of sound equipment -Application of rated equipment in welding and related works -Use of efficient mechanical plant and energy savers on sites	Contractor Proponent	Continuous	Kshs.200,000
Increased storm water, runoff and soil erosion	-Surface runoff and roof water shall be harvested and stored in reservoirs so that it can be used for other purposes within the project site. -A storm water management plan that minimizes impervious area infiltration by use of recharge areas and use of retention with graduated outlet structures shall be designed -Apply soil erosion control measures such as	Contractor Proponent	Continuous	Kshs.500,000

	leveling of the project site to reduce run-off velocity and increase infiltration of storm water into the soil. -Ensure that construction vehicles are restricted to use the graded roads -Ensure that compacted areas are ripped to reduce run-off			
Insecurity	The establishment to have 24-hour security guards to protect life and property. Engage a security firm and ensure regular security patrols especially during the working shift exchange hours	Occupiers and Property Managers	Daily on 24-hour basis	Kshs.60,000 per month
Sustainable resource utilization	To ensure sustainable use of water and energy resources Sensitize factory workers on efficient use of water and electricity	Proponent	Throughout the operation phase	TBD
CSR program	Formulate a LAPFUND CSR policy Establish a LAPFUND CSR committee in partnership with the liaison committee Consider supporting the local community through the following CSR interventions on the long term:- • Supporting nearby dispensary by stocking or expansion. • Identify a school and build a classroom or two • Supporting area football team or other teams	Proponent/Liaison committee	Throughout the project cycle	TBD

ENVIRONMENTAL MONITORING						
	To monitor and document the impact of the LAPFUND project	Undertake regular monitoring according to the environmental monitoring plan in Section 9.5	Proponent	Quarterly	Relevant environment & social indicators	200,000
	To ensure compliance and enforcement of the EMP	Undertake annual environmental audit (EA)	Proponent/Third party consultants in collaboration with Proponent	Annually	NEMA approved EA report	1,000, 000

8.2 DECOMMISSIONING PHASE

Expected Negative Impacts	Recommended Measures	Responsible Party	Time Frame	Cost (KShs)
1. Construction Machinery/Structure & Wastes				
Scraps material and other debris	Use of an integrated solid waste management system i.e. through a hierarchy of options. Wastes generated as a result of facility decommissioning activities will be characterized in compliance with standard waste management procedures. The contractor will select disposal locations and the local council based on the properties of the particular waste generated.	Project Manager & Contractor	During decommissioning	Kshs.350,000
	All buildings, machinery, equipment, structures and partitions that will not be used for other purposes should be removed and reused or rather sold/given to scrap material dealers.	Project Manager & Contractor	During decommissioning	Kshs. 250,000
2. Rehabilitation of project site				
Vegetation disturbance Land deformation: soil erosion, drainage problems	-Implement an appropriate re-vegetation programme to restore the site to its original status. -During the vegetation period, appropriate surface water runoff controls will be taken to prevent surface erosion; -Monitoring and inspection of the area for indications of erosion will be conducted and appropriate measures taken to correct any occurrences; -Fencing and signs restricting access will be posted to minimize disturbance to newly-vegetated areas;	Project Manager & Contractor	During decommissioning	Kshs. 150,000
3.Social- Economic impacts				
-Loss of income -Loss of housing facilities	The safety of the workers should surpass all other objectives in the decommissioning project. -Adapt a project – completion policy; identifying key issues to be considered. -Compensate and suitably recommend the workers to help in seeking opportunities elsewhere. -offer alternative housing facilities	Project Manager & Contractor	During decommissioning	Kshs. 180,000

9. CONCLUSION AND RECOMMENDATION

9.1: Conclusion

The field survey findings showed that the project design is the most suitable based on the current state of environment and the available technology. The project is feasible and desirable within the perspective of environmental and social economic evaluation undertaken during the field study. Therefore, the project is necessary, and should be implemented as soon as possible because it will have many benefits and will not introduce any negative environmental changes. The project will conform to the status of Nakuru as a city.

9.2: Recommendation

The proposed project design is by far more suitable and environmentally sound than the No Project Option or base alternative of Business-as-Usual (BAU). The stakeholder engagement and consultation process was carried out in accordance with NEMA guidelines. The ToR was submitted and approved on 24th March 2022 (NEMA/TOR/5/2/408) and full study shall commenced thereafter with subsequent public meetings and site visits. The site visit done at the proposed site by a team of experts found that the premises is occupied by go down structures that used to house the Eveready factory. The machinery are not at the site. Few structures are being used but the rest of the buildings are not occupied. The client before commencement of the project shall ensure a decommissioning plan has been done, Environmental Impact Assessment for the removal of asbestos roofing is done and approval and or recommendations are issued by the authority before commencement.

The EIA findings showed that the project design is the most suitable based on the current state of environment and the available technology. The project is feasible and desirable within the perspective of environmental and social economic evaluation undertaken in this study. Therefore, the project is necessary, and should be implemented as soon as possible. The overall benefits of the proposed development are far higher than the potential cost of the marginal negative environmental changes which are likely to occur. All other impacts of the project will remain far below acceptable limits after necessary mitigation as described and suggested in EIA report. The potential impacts for the LAPFUND project will be brought under acceptable limits by implementing the required hazard prevention and control measures. Thus, it has been concluded that there would not be any major impacts on environment due to the proposed project.

Work plan

Time schedule for executing the ESIA
The study is bound to run for approximately twenty one (21) days. The anticipated activities schedule is shown in the table below.

DAYS / ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Preliminary preparations	X	X																			
Study planning phase.			X	X	X	X	X	X	X												
Project description.						X	X	X	X	X											
Collection of baseline data and information relevant to the study.							X	X	X	X											
Comparative analysis of project line with global trends in establishment of conservation areas.											X	X									
Review of legislative policy frameworks within the context of EIA study												X	X	X							
Impact identification, analysis and mitigation measures.															X	X					
Environmental Management and Monitoring Plan.																	X	X			
Public participation and consultative processes.									X	X	X	X	X	X	X	X	X	X			
Report writing, production and submission to NEMA.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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