ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) STUDY REPORT

FOR

PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT L.R No. KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY

Project proponent:

SHREE SHYAM PETRO CHEMICLAS LIMITED
P.O BOX 717-00100
NAIROBI

GPS Coordinates

3º47′57.97″S & 39º24′03.01″E

June 2025

DOCUMENT AUTHENTIFICATION

EIA/EA EXPERTS

This report has been prepared in pursuant to the Environmental Management and Coordination Act Cap.387 of the Laws of Kenya. We hereby certify that this study report was prepared on the information provided by the proponent, consulted stakeholders as well as that collected from other primary and secondary sources and on the best understanding and interpretation of the facts by the environmental experts. It is issued without any prejudice.

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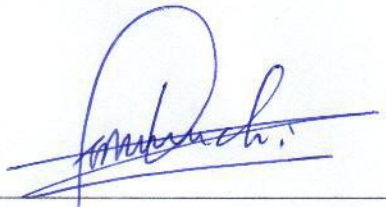
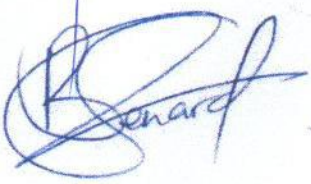
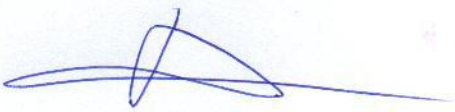
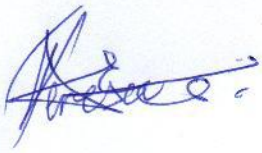
Mr. Fredricks Omondi Ojijo Lead Expert, NEMA Reg No. 3088 MSc Environmental science(2nd year ongoing)	
Mr. Ben Arnold Opapo Lead Expert, NEMA Reg, No. 9294 BSc. Disaster Mitigation and Sustainable Development	
Mr. Alex Maina Sociologist, Lead Expert Reg No. 2049 Bachelor of Art Sociology and Economics	
Teresa Awino Associate Expert (13188)	
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EXECUTIVE SUMMARY

This Environmental and Social Impact Assessment (ESIA) report documents the findings of a study of the proposed Used Oil Handling and Recycling Facility and associated amenities to be situated on Plot number KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY along/off Mombasa-Nairobi Highway, Samburu Sub County within Kwale County by Shree Shyam Petro Chemicals Limited herein referred to as the proponent.
The proponent, Shree Shyam Petro Chemicals Limited, proposes to set up and operate Used Oil Handling and Recycling Facility pursuant to Section 58 of the Environmental Management and Coordination Act Cap. 387 of the Laws of Kenya and Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019, the proponent has contracted a team of Environmental experts (consultants) licensed by National Environment Management Authority (NEMA), to prepare an Environmental and Social Impact Assessment (ESIA) Study Report for the proposed project. In addition to compliance with the law, the output of the ESIA process will provide a baseline of the environmental and social conditions of the project area to enable future monitoring of the environmental performance of the proposed project.
The proponent has proposed to set up and operate used oil handling and recycling facility with enhanced health and safety mechanisms and without compromising environment and public health with prospects of future expansion. Currently, the proposed project site has boundary wall construction ongoing that encloses the plot for the proposed project. The proposed project will be set up on a piece of land of approximately 2.45Ha comprising of three plots namely; KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 respectively. The geo-reference points of the site are Latitude **3º47′57.97″S** & Longitude **39º24′03.01″E at an elevation of 679ft above sea level.**

The methodology for preparing the ESIA study report was guided by the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019. Project site visits were undertaken between May and June 2025 for purposes of area reconnaissance survey, assessing the baseline and environmental risks associated with the proposed project as well as applicable environmental safeguards and standards. An environmental screening was conducted by the environmental experts in compliance with Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 criterion. The issues considered by the experts included; ecological and socio-economic issues, landscape changes, land use character and water use and requirements. Data collection methods included literature review of relevant documents, observations during site visits and photography. The stakeholder engagement strategy included stakeholder consultative meeting that was conducted at the project site with Project Affected Parties (PAPs).

The proposed project will involve the construction and subsequent operation of a used oil handling and recycling facility. The facility will comprise a total of Twenty (20) oil storage tanks; these will entail eight (8) storage tanks with a capacity of 40,000Ltrs each, four (4) storage tanks with the capacity of 14,000Lts each and eight (8) storage tanks with the capacity of 30,000Lts each, loading and offloading area, oil/water interceptor, office block and associated facilities. The tanks will be mounted on concrete slabs above a paved ground (2ft high) with a drain to channel the oil sludge into the oil/water interceptor. At the interceptor, oil will be separated from water. The end product is furnace oil which will be sold off to industrial clients for further use. The source of raw materials will be; used mobile oil (black oil) from garage service centers, furnace oil from ship yards, transformer oil and any other type of used oil collected from the market. There are three types of waste that will be generated from proposed used oil handling and recycling facility, that is; water, waste clay and sludge. Sludge and clay will be sold in an open market while wastewater will be discharged into a NEMA designated land field in accordance to Environmental Management and Co-ordination (Water Quality) Regulations, 2024; Legal Notice 177/2024. The proposed project will have the capacity to handle approximately 15,000 metric tons of used oil per year.

The proposed project is necessitated by the ever-increasing waste generation from industrialization and other development activities within Kwale County, other neighboring counties and whole country at large and the implementation of Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 in addition to the need to cope and comply with other regulatory framework.

The documented findings of this ESIA study report demonstrate that the proposed project is expected to have both positive and negative environmental and social impacts to the community and other Project Affected Parties (PAPs). Anticipated positive impacts include; provision of effective and sustainable waste management services in compliance with Environmental Management and Co-ordination (Waste Management) Regulations, 2024, creation of employment opportunities and generation of revenue to Kwale County Government and Central government through payment of operational permits/licenses. Alongside the positive impacts, several environmental and social constrains will arise at different phases of the project implementation stages.

During project construction phase, the main environmental issues will include environmental risks of sourcing raw materials, water demand and effluent generation, solid waste generation and management, occupational safety and health risks, air and noise pollution. During operational phase, the main environmental concerns include waste oil leaks and spills, oil sludge management, fire risks and emergencies,

occupational safety and health risks, air and noise pollution, water demand and effluent generation, solid waste generation and management, traffic congestion and energy demand.

There are potential safety and health risks associated with operations of the proposed used oil handling and recycling facility. These include dermal contact with waste oil and inhalation of vapors during handling of such products, accidental falls, musculoskeletal injuries and general exhaustion. All these risks have potential to cause injuries, permanent disability or even death and hence the management should be committed to ensuring safety and health of workers and visitors at the facility. The proposed mitigation measures include developing and implementing a safety and health policy, and emergency response plan for the facility, sensitizing employees to adhere to work procedures to minimize accidents, providing adequate and appropriate Personal Protective Equipment (PPEs) to workers and enforcing on their use and displaying precautionary signages at appropriate sections within the facility. Additionally, the proponent should conduct first aid training among the workers, provide well-stocked first aid kit, conduct annual occupational safety and health audits and comply with the provisions of the Occupational Safety and Health Act.

Used oil handling and recycling facilities can be a potential source of air pollution. The main sources of emissions to air include evaporative losses of volatile organic compounds (VOCs) of waste oil from storage, particularly during bulk deliveries. Other sources include exhaust fumes from the waste oil delivery tankers. On the other hand, noise pollution will emanate from vehicular movement in and out of the facility. The proponent should sensitize the drivers to avoid unnecessary hooting and running of vehicle engines and comply with the provisions of the Environmental Management and Coordination (Air Quality) Regulations, 2024 and (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 during facility operations.

The facility will generate different types of solid wastes i.e. from the office comprising of mainly paper from administrative activities, glass and plastics for office supplies; and from the used oil operations of the facility in the form of rags, used seals and packaging materials. Poor disposal of solid waste degrades environmental quality. Adequate measures should be put in place to ensure that oil contaminated wastes are not mixed with regular wastes. The proposed mitigation measures include provision of adequate solid waste collection bins with a capacity for segregation within the facility, sensitizing workers on proper waste management and procuring a sizeable central solid waste collection bin with chambers to accommodate separated waste. The proponent should also contract a NEMA licensed waste handler for disposal solid wastes at designated locations in compliance with Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 and Environmental Management and Coordination (Management of Toxic and Hazardous Chemicals and Materials) Regulations, 2024.

The operations of the proposed project will require water supply for both sanitations, drinking and cleaning purposes. Domestic water use will be generated as effluent from sanitation facilities and will be managed trough onsite septic tank. Additionally, wastewater will be generated at the interceptor during the separation process of used oil/sludge. The proponent should create awareness among the staff on water conservation, monitor the quality of domestic effluent discharge the interceptor to ascertain conformity to the set standards for discharge into the environment. The project proponent will be required to apply for and obtain an Effluent Discharge License (EDL) from the Authority in compliance with the Environmental Management and Co-ordination (Water Quality) Regulations, 2024 Legal Notice 177/2024.

Decommissioning is the last phase of project life. It involves terminating project activities and operations and rehabilitating site to or close to its original state. Decommissioning of the proposed project can be necessitated by the following reasons; closure by government agencies due to non-compliance with environmental and health regulations, an order by a court of law due to non-compliance with existing regulations and natural calamities. Major environmental and social concerns at this phase will be economic decline, waste generation and safety and health risks. The proponent should prepare and submit decommissioning audit report to the Authority for approval before decommissioning process.

Conclusion

The proposed project is considered important and beneficial to the economy as it will ensure safe management of used oil through handling and recycling, promote socio-economic growth of the area through employment creation and revenue generation to the relevant government agencies. This study report proposes comprehensive mitigation measures for the negative anticipated impacts during the entire project cycle and improves the environmental performance of the proposed project. It is on this basis that we recommend that the proposed project be allowed to proceed alongside conditions which will ensure compliance with the relevant environmental legislations and standards

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ABBREVIATIONS AND ACRONYMS

EA	Environmental Audit
EDL	Effluent Discharge License
ESIA	Environmental and Social Impact Assessment
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
EMP	Environmental Management Plan
EMS	Environmental Management System
EPRA	Energy and Petroleum Regulatory Authority
ERC	Energy Regulatory Commission
ILO	International Labour Organization
ESMP	Environmental and Social Impact Plan
GBV	Gender Based Violence
GHGs	Green House Gases
GPS	Geographical Positioning System
HIV/AIDS	Human immunodeficiency virus/ acquired immunodeficiency syndrome
NCA	National Construction Authority
NCCAP	National Climate Change Action Plan
NEMA	National Environmental Management Authority
OHS	Occupational Health & Safety
PAPs	Project Affected Parties
PPE	Personal Protective Equipment
PWDs	People Living Disabilities
SEA	Sexual Exploitation and Abuse
SOPs	Standard Operating Procedures
SHE	Safety Health and Environment
STI	Sexually Transmitted Infections
WIBA	Work Injury Benefits Act
WRUA	Water Resource Users Association

WRA	Water Resource Authority
WSP	Water Service Providers
WWDA	Water Works Development Agencies

CHAPTER 1: INTRODUCTION

1.1 Background Information

Waste management is an integral part of industrial development in Kenya and all over the world. Without this, all the development activities would be detrimental to the environment and to life in general. Waste management in the Kenya has been assumed to be managed by the National Environmental Management Authority (NEMA) and the County governments. However, the National Environmental Management Authority has had private entities/companies to help in the collection, transfer of wastes to designated areas and waste management through other means in compliance with set regulations and standards.

The world demand for lubricant oil is about 41.35 million metric tons. The regional distribution indicates that Africa consumes only 2.068 million metric tons of the global lubricant consumption. Kenya consumes about 0.007 million metric tons of lubricating oils (PIEA, Kenya 2013). These lubricating oils become degraded after use due to presence of contaminants hence not fit for its intended use and require to be disposed. Improper storage, handling, transportation, treatment and disposal of the waste oils results in negative environmental impacts and public health hazards. It is in this regard that Shree Shyam Petro Chemicals Limited is proposing to set up and operate Used Oil Handling and Recycling Facility on Plot number KINANGO/MAJI YA CHUMVI/160,163 & 164, along/off Mombasa-Nairobi Highway, Samburu Sub County within Kwale County.

Shree Shyam Petro Chemicals Limited intends to operate used oil handling and recycling facility in compliance with existing waste management regulations and other applicable laws. The proponent intends to operate the facility with enhanced safety and health measures and without compromising environment and public health.

1.2 Project Location

Proposed project site is located on Plot number KINANGO/MAJI YA CHUMVI/160,163 & 164 Maji ya Chumvi area along/off Mombasa-Nairobi Highway, Samburu Sub County within Kwale County. The proposed project will be set up on a piece of land of approximately 2.24Ha. The geo-reference points of the site are Latitude **3º47′57.97″S** & Longitude **39º24′03.01″E at an elevation of 679ft above sea level.**

Figure 1.1: Location Map (Source: Google map 2025)

Figure 1.2: The project site entrance gate (Source, Site visit/photography)

Figure 1.3: The proposed project site (Source, Site visit/photography)

Fig 1.4: Ongoing construction of boundary wall at the site (Source, Site visit/photography)

1.3 Project Neighborhood

The plots neighboring the proposed project site are composed undeveloped land and few residential settlements adjacent to the main Highway (Mombasa-Nairobi Highway). The proposed site lies on a flat ground covered with natural growing grass, shrubs, and trees making up the vegetation cover.

Fig 1.5: Immediate neighborhood to the project site (Source, Site visit/photography)

Fig 1.6: Access weather road to the project site (Source, Site visit/photography)

Fig 1.7: Vegetation cover around project site (Source, Site visit/photography)

1.4 Project objective

The overall objective of the proposed project is to set up & operate a used oil handling and recycling facility in line with the Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 and Technical Guidelines on the Management of Used Oil and Oil Sludge in Kenya, 2016

1.5 Project Justification

Managing waste properly is essential for building sustainable and livable cities, but it remains a challenge for many developing countries and cities. The proposed project will improve public health and livelihoods by reducing improper waste management mechanisms through poor handling and disposal of used oil leading to environmental degradation. In Kenya, management of wastes (both hazardous & non-hazardous) is regulated under the Environmental Management and Co-ordination Act (Waste Management) Regulations, 2024 and other related regulations. These regulations establish an order of preference for the management of wastes to enhance environmental protection. A number of waste generation facilities in the country lack proper waste management systems thus opting for open dumping or even illegal disposal and dumping. However, this is not safe thus the urgency to establish quality and functional used oil handling and recycling facility within Kwale County and its environs. Operation of the proposed project will thus foster proper management and recycling of used oil within Kwale County and the surrounding environs.

1.6 Scope and criteria

The study has been conducted to evaluate the environmental impacts of the proposed used oil handling and recycling facility. Upon evaluation, recommendations are made on the accentuation of positive impacts and the mitigation of negative ones. The scope for the assessment dwelled on impacts the project will have on the following parameters:

- Physical environment
- Socio-cultural environment
- Land use
- Socio-economic aspects
- Flora and fauna
- Occupational safety & health issues

1.7 Assessment methodology

This ESIA study is based on proposed project site visits, literature review and discussions with the project proponent, engineers, quantity surveyors and consultation with the stakeholders through public participation with Project Affected Parties (PAPs). The project proponent provided all details relevant to the proposed project. While preparing the ESIA study report, care has been taken to identify the potential negative impacts and their mitigation measures in terms of:

- Impacts due to project location;
- Impacts from project design and during construction; and
- Impacts during the operation of the project

For the purpose of the assessment and preparation of the study report, the following approaches and methodologies were employed:

1) Desktop studies which involved review and analysis of literature for acquisition of secondary data;
2) Environmental screening, in which the project was identified as among those requiring ESIA under second schedule of Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019, the proposed project is classified as a High Risk Project.
3) Environmental scoping that provided the key environmental issues to be investigated in relation to implementation of the proposed project;
4) Physical inspection of the site and surrounding areas;
5) Consultation involving key stakeholders for collection of primary data through public meeting and questionnaires administration
6) Identification of potential impacts and preparing an ESMP;
7) Confirmation and sharing of findings with the project proponent;
8) Reporting assessment findings

1.8 Stakeholder Identification, Analysis and Engagement Plan

a) Stakeholder Identification

Stakeholders represent individuals or groups that hold a stake in the project, either because they will be impacted by the project or because they have a vested interest in it. A public consultation/engagement process is very important in gauging the sentiments of a variety of stakeholders. Besides the fact that this is a regulatory requirement under the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019, it is an excellent opportunity to offer the public an opportunity to ventilate their concerns and probably give recommendations concerning the proposed project in the specific area.

The stakeholders' categories identified in this proposed project included the following Project Affected Parties;

- Local communities/immediate neighbors
- Local Administration (Area chief; Samburu Location)
- Deputy County Commissioner - Samburu Kwale Sub County
- Assistant County Commissioner - Samburu Chengoni
- Lead/Government agencies (Kwale County Government, Public Health)
- Community Based Organizations (CBO's)

Each of the stakeholders above had different requirements, different interests, different levels of influence, and different expectations towards the project. A project proponent's challenging role is to align these expectations, engage the stakeholders, and promote acceptance of the project in totality.

b) Stakeholder Analysis

After the identification of the stakeholders, they were analysed by the environmental consultants on who they really were, their level of interest, what power they had, what their expectations were, and if they seemed favourable or against the proposed project. This was done through a power-interest matrix, where each stakeholder was plotted in the matrix based on their level of power to impact the project and their level of interest. In any project, all stakeholders are equal, but some are more equal than others.

Depending on power and interest of the stakeholder, different strategies apply to manage their engagement:

- **Keep them satisfied**

Stakeholders in this group have little interest in the project but high power to continue or stop. Examples of such stakeholders include the local communities which forms the larger group. The best engagement strategy is to meet their needs and keep them satisfied, which can mean invite them for project updates meetings occasionally or ensure that their communication requirements are being met.

- **Minimal effort**

Stakeholders who have little power and little interest in the project are the least important and require minimal effort from the project manager. However, they should not be totally overlooked.

- **Engage closely**

Stakeholders with a high level of power and a high level of interest are the most important stakeholders. This will include the lead and government agencies interested in the proposed project.

- **Keep them informed**

These are the stakeholders with low power but highly interested in the project. These are stakeholders to whom you need to show consideration, such as the project end-users and whom you should keep informed regularly on the project status.

In consideration of the above stakeholder engagement plan, public consultative meetings for the proposed project were conducted at the proposed project site on 6th June, 9th June and 12th June 2025. (*See attached meeting minutes*)

1.9 Terms of reference

The terms of reference for the proposed project represents NEMA approved terms of reference report vide reference number **NEMA/TOR/5/2/915** that was submitted to the Authority prior to the commencement of this study report. The terms of reference define the objectives and scope of the ESIA as follows:

- Assess the baseline environmental conditions in the project area, such as biological, physical and socio-economic environment;
- Study the potential positive and negative impacts of implementing the proposed project in the society living within the influence of the project including, but not limited to, sound handling used oil, job creation and improvement in the livelihood within the local community.
- Assess the potential environmental and social impacts of the project and suggest suitable mitigation measures for the adverse impacts
- Study the project conditions and requirements in terms of location, implementation and operation requirements
- Study negative impacts arising from the proposed project for example public safety and health and rehabilitation of the affected environment.
- Prepare an Environmental and Social Management Plan (ESMP) for implementation and monitoring of mitigation measures along with budgetary estimates.

CHAPTER 2: BASELINE INFORMATION ON PROJECT AREA

2.1 Introduction

This chapter presents a status report on the situation of the proposed project within the context of Kwale County as a whole. The environmental baseline offers both the present and future status of the environment. It takes into account changes which might be occasioned by natural and anthropogenic activities. Baseline information provides a basis to ascertain the implication of the development process and determine the mitigation measures to be undertaken or suitable to ameliorate the identified impacts. The baseline survey was done through literature review, site visits and baseline environmental monitoring within the proposed project area.

2.2 Administrative location and size

Kwale is one of the forty-seven (47) counties in Kenya and one of the six counties that form the coast region Kwale County is located in the southeastern part of Kenya, within the Coastal Region. It borders Taita Taveta County to the northwest, Kilifi County to the northeast, Mombasa County to the east, the Indian Ocean to the east, and the United Republic of Tanzania to the south. The county lies between latitudes 3° 3' and 4° 45' South and longitudes 38° 31' and 39° 31' East. Kwale County covers an area of about 8,270.2 Square Kilometres, of which 62 is water surface. Kwale County comprises of six sub-counties namely Msambweni, Matuga, Kinango, Lungalunga, Samburu and the newly gazetted Shimba Hills. The sub counties are further divided into 20 wards and 77 village units. For example, Msambweni has 4 wards, Lunga Lunga has 4 wards, Matuga has 5 wards, and Kinango has 5 wards.

2.3 Location

The proponent has proposed to set up and operate Used Oil Handling and Recycling Facility on Plot Number KINANGO/MAJI YA CHUMVI/160,163 & 164 Maji ya Chumvi area along/off Mombasa-Nairobi Highway, Samburu Sub County within Kwale County. The proposed project will be set up on a piece of land of approximately 2.24Ha. The geo-reference points of the site are Latitude **3º47'57.97"S** & Longitude **39º24'03.01"E at an elevation of 679ft above sea level.**

2.4 Climatic conditions

The County has a tropical type of climate influenced by the monsoon winds/seasons. The average temperature is about 23ºC with maximum temperature of 25ºC being experienced in March during the inter-monsoon

period and minimum temperature of 21ºC experienced in July a month after the start of the southwest monsoon (also known as *Kusi*).

Rainfall is bi-modal with short rains (*Mvua ya Vuli*) being experienced from October to December, while the long rains (*Mvua ya Masika*) are experienced from March/April to July. There is a strong east to west gradient of decreasing precipitation with eastern (coastal) parts of the County receiving greater than 1000 mm of precipitation per year, while a majority of the County; central to west around 500-750 mm. Some areas along the western side of the County receive less than 500 mm of precipitation per year. As such, heat stress, dry spells, and drought are hazards that strongly contribute to agricultural risks in the County, especially in the central and western parts of the County. However, flooding due to intense rains has also occurred historically and as such is a risk to the County, especially in the central to eastern parts (including the coast) of the County.

2.5 Physical and Topographic Features

The County comprises the following main topographic features, which are closely related to the geological characteristics of the area:

2.5.1 The Coastal Plain

The Coastal plain; sometimes referred to as the "coral rag". It is a narrow strip of land, three to ten (3-10) kilometers wide, with approximately 255 kilometers length from Likoni to Vanga. It lies 30 meters above sea level and extends 10 kilometers inland. This strip of land consists of corals, sand, and alluvial deposits.

2.5.2 The Foot Plateau

Behind the coastal plain is the foot plateau. It lies at an altitude of between 60 and 135 meters above sea level on a flat plain surface with high potential permeable sand hills and loamy soils. This is the sugar cane zone of the region.

2.5.3 The Coastal Range/Uplands

Commonly known as Shimba Hills, the area rises steeply from the foot plateau to an altitude between 150 metres and 462 meters above sea level. This topographical zone is made up of many sandstone hills. The hills include Shimba Hills (420 m), Tsimba (350 m), Mrima (323 m) and Dzombo (462 m). This is an area of medium to high agricultural potential.

2.5.4 The Nyika Plateau

This zone stands at an altitude of about 180 to 300 meters above sea level on the western boundary of the region. The zone is underlain by a basement rock system with exception of reddish sand soils. This area occupies over 50% (half) of the region and is characterized by semi-arid conditions except for occasional patches. The area has reddish soils which are generally poor or of low fertility. The main activity in the area is livestock rearing.

2.6 Ecological Conditions

The county is divided into agro-ecological zones in terms of agricultural potential. Moderate potential and marginal lands constitute 15% and 18% of the total land area respectively. The rest 67% is range, arid and semi-arid land suitable only for livestock and limited cultivation of drought resistant crops. Annual precipitation is less than 800mm on the average and is extremely unreliable.

2.7 Population Density and Distribution

According to the 2019 Census, Kwale County has a total population of 866,820 and land area of 8254 square kilometres. The population density is 105 persons per square kilometre and has 173,176 households with an average household size of 5.0. The rural population is 740,389 with a land area of 8191 implying a population density of 90 persons per square kilometre. The rural population which is engaged in Agriculture as the main source of livelihood accounts for about 85 percent of the total county population. From a gender perspective, the county comprises 425,121 (49%) males and 441,681 (51%) are females. The annual average population growth rate is estimated at 3.8%.

2.8 Settlement patterns

Kwale County is inhabited mainly by the Digo and Durumas who are the natives, though it has experienced immigrations from other Kenyan and foreign communities. Settlement patterns in the county are both linear and nucleated due to availability of social amenities, infrastructure network (Roads, Water, Electricity) and high agricultural zones dictated by nature of soils and the coastline. In the arid and semi-arid areas, the population is dispersed/scattered due to harsh climatic condition and poor infertile soils.

2.9 Land Use Systems

The lowlands of Samburu area are characterized by reddish, very deep, acid sandy- clayey soils (Ferralsols). They are vulnerable to soil erosion, have low water retention capacity and low soil fertility. The proposed project site area is

composed of undeveloped land (farmland) in terms of land use and comprises of communal land with sparse and scattered human settlements being along the Mombasa-Nairobi Highway,

Along the coastal strip and the coastal uplands, land is mainly owned by absentee landlords, leading to the squatter settlement problem. The trust and government land within these areas have since been adjudicated and government settlement schemes established. In the drier areas of the Nyika Plateau in Kinango, Kasemeni, Samburu, Ndavaya and some parts of Lunga-Lunga Divisions land is held in trust and under group ranches. Land is viewed as communal asset where every member of the community has the right to use it. In most areas adjudication has not been done. Most of the group ranches currently are non-functional and this has resulted in unplanned human settlements in the land. The land is also used for small scale farming, mining and quarrying as well as settlements.

2.10 Water Resources and Water access

The main resources of water in Kwale County comprise of rivers (7), shallow wells (693), springs (54, protected and unprotected), water Pans, Dams (6), rock catchments and boreholes (110). However, most of the rivers are seasonal thus cannot be relied upon to supply the much-needed water in the county for both agriculture and household uses.

According to the census of 2009, protected wells and boreholes were the main sources of water for 21.9% of the County's households (KNBS, 2012). The average distance to the nearest water point in the County is two (2) Kilometres. This is well above the internationally required five (5) meters distance to the nearest water source. The proposed project area is neighbored by a seasonal waterway/river approximately 1Km from the project site.

2.11 Physical Infrastructure

Kwale County's physical infrastructure includes a mix of natural resources and built infrastructure. Natural resources include water bodies, forests, and marine ecosystems. Built infrastructure encompasses roads, buildings, and communication networks. The county is also working on improving access to basic services like water and sanitation. Kwale County has a total of 2,028 Km of classified roads of which 212.5 Km are Bitumen surface (paved surface), 425.2 Km is gravelled and 1,695.5 Km of earth surface roads/rural access roads. An international trunk road traverses the county from Mombasa to Lunga-Lunga on the Kenya –Tanzania border. On the northern side the Mombasa – Nairobi Highway virtually forms the boundary of Kwale and Kilifi County. There are 4 Km of railway line and four (4) airstrips at Ukunda/Diani, Shimba Hills National Reserve, Msambweni and Kinango although only Ukunda/Diani is operational. Air transport has contributed to the

growth of tourism sector, which significantly contributes to the economic growth of the county. There is a small port at Shimoni which is mostly used for water transport by boats controlled by Kenya Wildlife Service. The County Government through partnership with the Kenya Ports Authority and the National Government intends to develop the Shimoni port facility. The site for the proposed projects is served with infrastructural facilities such as Mombasa-Nairobi Highway, telecommunication services and eletricity from the national grid.

2.12 Socio-economic Infrastructure

2.12.1 Employment level

This section gives the employment situation in the County in terms of number of wage earners, self- employed persons, County's labour force and the unemployment levels. Access to jobs is essential for overcoming inequality and reducing poverty. Therefore, levels and patterns of employment and wages are significant in determining degrees of poverty and inequality. According the 2019 census, Kwale had a labour force of about 352,353 comprising of 165,636 and 186,718 male and female respectively.

CHAPTER 3: POLICY, INSTITUTIONAL & LEGAL FRAMEWORK

3.1 Introduction

The relevant legislation which the project must comply with is intended to ensure project's sensitivity to environmental concerns, public safety, public health and physical planning regulations. Kenya has a policy, legal and administrative framework for guiding it in environmental management. Under the framework, NEMA is responsible for ensuring that EIAs/ESIAs are carried out for new projects and EAs on existing facilities as per the provisions of Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019. ESIAs are carried out in order to identify positive and negative impacts associated with projects with a view to taking advantage of the positive impacts and developing mitigation measures for the negative ones.

The legal and institutional frameworks provide important safeguards for protection and conservation of fragile environments and vulnerable communities and enhance the implementation of the Environmental and Social Management Plans. Under this section, the ESIA study report will therefore review the applicable sets of laws, management principles and institutions that require level of environmental compliance for the Proposed Used Oil Handling and Recycling Facility

This chapter will discuss the following aspects in relation to the proposed project;

- Policy Framework
- Environmental Management Principles and Guidelines
- Institutional Framework
- Legal Framework
- International Conventions and Treaties

3.2 Policy Framework

3.2.1 *National Environment Policy, 2013*

The National Policy aims to provide a framework for an integrated approach to sustainable management of Kenya's environment and natural resources. In particular, it proposes to strengthen;

- Legal and institutional framework for good governance
- Integrate environmental management with economic growth, poverty reduction and improving livelihoods
- Research and capacity development

- Promote new environment management tools
- Promote collaboration and cooperation and partnerships in environment management
- Promote domestication, co-ordination and maximization of benefit from Strategic Multilateral Environment Agreements

National Environment Policy also elaborates on environmental quality and health and the need to ensure a clean and health environment for all.

3.2.2 *The National Land Policy, 2009*

The National Land Policy guides the country towards efficient, sustainable and equitable use of land for prosperity and posterity. The Mission of the Policy aims at promoting positive land reforms for the improvement of the livelihoods of Kenyans through the establishment of accountable and transparent laws, institutions and systems dealing with land. The overall objective of the Policy is to secure rights over land and provide for sustainable growth, investment and the reduction of poverty in line with the Government's overall development objectives. Specifically, the policy offers a framework of policies and laws designed to ensure the maintenance of a system of land administration and management that will provide:

- All citizens with the opportunity to access and beneficially occupy and use land
- Economically viable, socially equitable and environmentally sustainable allocation and use of land
- Efficient, effective and economical operation of land markets
- Efficient and effective utilization of land and land-based resources
- Efficient and transparent land dispute resolution mechanisms.

Sustainable land use practices are key to the provision of food security and attainment of food self-sufficiency.

3.2.3 *The National Energy and Petroleum Policy, 2018*

Energy is a critical component in the economy, standard of living and national security of a country. The level and the intensity of energy use in a country is a key indicator of economic growth and development. The Kenya Vision 2030 identified energy as one of the infrastructure enablers of its socio-economic pillar. Sustainable, competitive, affordable and reliable energy for all citizens is a key factor in realization of the Vision.

This Policy aims to ensure sustainable, adequate, affordable, competitive, secure and reliable supply of energy at the least cost geared to meet national and county needs while protecting and conserving the environment.

It has twenty objectives that include but not limited to providing an environment conducive for the development and provision of energy services and ensuring that prudent environmental, social, health and safety considerations, as well as issues of climate change are factored in energy and petroleum sector developments.

3.3 Environmental Management Principles & Guidelines

The project proponent and the contractor/project engineer are expected under law and best practice to consider and exercise all the principles and tenets of environmental management. These principles are as discussed below:

3.3.1 *The Principle of Sustainability*

The principle of sustainability requires that natural resources should be utilized in a way and at a rate that does not lead to the long-term decline of natural resources, thereby maintaining its potential to meet the needs and aspirations of present and future generations. It strives for equity in the allocation of the benefits of development and decries short-term resource exploitation which does not consider the long-term costs of such exploitation. In the course of implementing the proposed project, the project proponent/manager is strongly advised to use resources sustainably and source materials from suppliers that have been identified as employing/ practicing sustainable resources use.

3.3.2 *The Principle of Intergenerational Equity*

The principle of sustainability should be examined together with that of intergenerational equity, which focuses on future generations as a rightful beneficiary of environmental protection. Essentially, the principle of intergenerational equity advocates for fairness, so that present generations do not leave future generations worse off by the choices they make today regarding development. Operations and activities undertaken at all the stages of the proposed project ought to be designed to embrace the rationale of intergeneration equity in resources use both natural and man-made resources. Besides, intra-generation equity should be observed whereby various resources users in the current generation should not have their resources use ability compromised by the proposed project.

3.3.3 *The Principle of Prevention*

The principle of prevention states that protection of the environment is best achieved by preventing environmental harm in the first place rather than relying on remedies or compensation for such harm after it

has occurred. The reasoning behind this principle is that prevention is less costly than allowing environmental damage to occur and then taking mitigation measures. The project proponent is duty bound under EMCA Cap 387 to undertake all the preventive and viable measures to protect the environment in the course of implementing the project, upon commissioning the project through to decommissioning of the project.

3.3.4 *The Precautionary Principle*

The precautionary principle recognizes the limitations of science, as it is not always able to accurately predict the likely environmental impacts of resource utilization. It calls for precaution in the making of environmental decisions where there is scientific uncertainty. Accordingly, it is closely related to the principle of prevention and can be viewed as the application of the principle of prevention where the scientific understanding of a specific environmental threat is not complete. The precautionary principle thus requires that all reasonable measures must be taken to prevent the possible deleterious environmental consequences of development activities. Further, it demands that scientific uncertainty should not be used as a reason for not taking cost effective measures to prevent environmental harm. The project proponent should undertake all the necessary precautionary measures in the course of implementing the proposed project.

3.3.5 *The Polluter Pays Principle*

The polluter pays principle requires that polluters of natural resources should bear the full environmental and social costs of their activities. It seeks to internalize environmental externalities by ensuring that the full environmental and social costs of resource utilization are reflected in the ultimate market price for the products of such utilization. Since environmentally harmful products will tend to cost more, this principle promotes efficient and sustainable resource allocation as consumers are likely to prefer the cheaper fewer polluting substitutes of such products. This principle dictates that when undertaking a project or running institution, if damage is caused to private properties or even public utilities such as roads or public goods such as water bodies, measures to compensate the affected should be instituted immediately.

3.3.6 *The Principle of Public Participation*

The principle of public participation seeks to ensure environmental democracy and requires that the public, especially local communities should participate in the environment and development decisions that affect their lives. It requires that the public should have appropriate access to information concerning the environment that is held by public authorities and should be given an opportunity to participate in decision-making

processes. This principle calls for public participation in the development of policies, plans and processes for the management of the environment. Public participation ensures that:

- The process is open and transparent;
- Provides valuable sources of information on key impacts, potential mitigation measures and possible alternatives;
- Ensures that a project meets the community's needs;
- Ensures that a project is legitimate and it is a way of ensuring that conflicts can be addressed before NEMA makes a decision;
- Assists in informed decision making
- Promotes better implementation of projects once NEMA has made a decision;
- Enlightens the community on the opportunities and benefits that could arise from a project;

In compliance to this principle, public consultation meetings were conducted at the project site with the Project Affected Parties (PAPs) to give their views regarding the proposed project.

3.3.7 *The Cultural and Social Principle*

The Cultural and Social Principle is traditionally applied by many communities in Kenya for the management of the environment or natural resources in so far as the same are relevant and are not repugnant to justice and morality or inconsistent with any written law. Since time immemorial many communities have lived sustainably in various ecosystems in Kenya. It against this setup that existed where resources utilization though devoid of sophisticated/ complicated technologies guaranteed health environment that the current development should borrow leave from. It is therefore important for the proponent to factor in local/ traditional environment management systems in the course of implementing the project.

3.3.8 *The Principle of International Co-operation*

The Principle of International Co-operation applies in the management of environmental resources shared by two or more states. Environmental impacts do not respect national or international boundaries and as such are trans-boundary. This principle ensures that international relations and understanding are upheld and therefore management of environmental concerns arising from a project/ action across two jurisdictions can be managed. However, the proposed project does not have far reaching impacts across national boundaries. (trans-boundary impacts)

3.4 Legal Framework

The key national laws that govern the management of environment resources in the country in relation to the proposed project have been discussed in the following paragraphs. The relevant legislation which the proposed project must comply with is intended to ensure project's sensitivity to environmental concerns, public safety, public health and physical planning regulations.

3.4.1 The Constitution of Kenya, 2010

The Constitution of Kenya 2010 is the supreme law of the land. Any other law that is inconsistent with the Constitution is null and void to the extent of its inconsistency. Under Chapter IV, article 42 provides for the right to a clean and healthy environment for all. Further, Chapter V of the Constitution deals with Land and Environment. Specifically, Part 2 elaborates on the following components regarding the protection of the environment.

- Enforcement of environmental rights
- Obligations in respect of the environment
- Agreements relating to natural resources
- Legislation relating to the environment

Relevance to the proposed project

- Under the Constitution the proponent is entitled to carry out the project within legal limits and a fair administrative decision-making process from NEMA and other State organs. On the other hand, he is required to ensure:
    - That the development is carried out in an ecologically, economically and socially sustainable manner;
    - That the right to a clean and healthy environment for all is upheld in all phases of the development
    - That all the applicable provisions of the Constitution are observed at all times.
    - The proponent should ensure that construction and operations of the facility do not infringe on the right to a clean and healthy environment for all

3.4.2 The Environmental Management and Co-ordination Act (EMCA) Cap. 387 of the Laws of Kenya

The Act is the framework environmental law and aims to improve the legal and administrative coordination of the diverse sectoral initiatives in the field of environment so as to enhance the national capacity for its effective management. The Act harmonizes the sector specific legislations touching on the environment in a manner designed to ensure greater protection of the environment in line with the National Environment Policy, 2013.

Relevance to the proposed project

- Section 58 of the Act requires proponents of a development likely to have deleterious effects on the environment to prepare and submit an EIA report to NEMA for consideration for decision making. This ESIA study report is prepared to comply with the provisions of this section.

The relevant Regulations under EMCA that are relevant to the proposed project are discussed below;

a) The Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019

These Environmental (Impact Assessment and Audit) Regulations, 2003 were amended in by deleting regulation 7. The EIA/EA Regulations are meant to ensure the implementation of Sec. 58 of EMCA. It makes it illegal for anyone to undertake developments without an EIA license and stipulates the ways in which environmental experts should conduct the Environment Impact Assessment and Audits reports in conformity to the requirement stated. It is concise in its report content requirements, processes of public participation, licensing procedures, inspections and any possible offences and penalties under the Act.

Relevance to the proposed project

- The proponent is preparing this ESIA report for submission to the Authority for licensing/approval prior to commencement of the project.

b) Environmental Management and Coordination (Waste Management) Regulations, 2024

These regulations are meant to provide a framework for the management of waste and abatement of pollution in line with the constitutional and statutory guarantees of ensuring clean, safe and sustainable environment for all persons. The Regulation provides for guidance, procedures and standards for

environmental governance to ensure compliance in the waste management sector. These regulations define the responsibilities of waste generators and define the duties and requirements for transportation and disposal of waste. The regulations provide for mitigation of pollution and handling of hazardous and toxic wastes. The regulations require a waste generator to dispose waste only to a designated waste receptacle. The proponent shall adhere to the regulations during the project implementation.

Relevance to the proposed project

- Seek license to operate/own waste handling facility and ensure that vehicles delivering used oil to the facility are licensed in compliance with these regulations
- Ensure hazardous wastes from facility operations are disposed off in the manner prescribed
- Ensure that tracking documents for the waste are used and kept for future inspection if needed

c) Environmental Management and Coordination (Air Quality) Regulations, 2024

These regulations are meant to provide for the prevention, control and abatement of air pollution to ensure clean and healthy ambient air. This is an improvement of the 2014 Regulations and introduces various improvements including emission testing from mobile sources.

Relevance to the proposed project

- The activities of the proposed project will have a potential to pollute the air from construction works and operational activities.
- The proponent should undertake quarterly air quality monitoring and provide workers with appropriate PPEs during operations

d) Environmental Management and Coordination (Water Quality) Regulations, 2024

These regulations are meant to provide for the prevention of land and water pollution by establishing standards for waste water management to ensure clean and healthy water resources as well as provision of standards for water for different uses. The eleventh schedule on EDL fees for controlled facilities has been enhanced. The proposed project proponent will adhere to the provision of these regulations during facility operations.

Relevance to the proposed project

- The proponent should implement measures to prevent water pollution from construction activities, effluent discharge and oil spills at operational phase.
- The proponent should apply for and obtain an Effluent Discharge License from NEMA during the operation phase of the proposed project in compliance with these regulations

e) ***Environmental Management and Coordination (Noise and Excessive Vibrations Pollution) (Control) Regulations, 2009***

These regulations prohibit any person to cause unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Part 11 section 6 (1) provides that no person shall cause noise from any source which exceeds any sound level as set out in the First Schedule of the regulations. The proposed project will comply with this regulation to reduce the possibility of adverse noise impacts to human health in the project area.

Relevance to the proposed project

- Ensure compliance with the set noise level limits for the site especially during construction and occupational phases. The proponent should ensure that employees are not exposed to noise levels above 85 dB (A) and in such cases provide suitable personnel protection equipment (ear protective devices).

f) ***Environmental Management and Coordination (Management of Toxic and Hazardous Chemicals and Materials) Regulations, 2024***

These regulations are meant to ensure protection of human health and environment from adverse effects of toxic and hazardous industrial chemicals and materials and reduce risks posed by chemicals and provide for the sound management of chemicals. These regulations also ensure the free movement of chemical products. The project proponent will adhere to the provision of these regulations.

3.4.3 Technical Guidelines on the Management of Used Oil and Oil Sludge in Kenya, 2016

These guidelines were developed to promote safe management of used oil in Kenya. The guidelines will contribute to reduction of pollution because they provide direction on safe management of waste oil and sludge. In particular, they expound on the requirements stipulated in Environmental Management and Coordination

(Waste Management) Regulations, 2024 on management of hazardous waste. The proposed project proponent will adhere to these regulations in operating the facility.

Relevance to the proposed project

- The proponent should comply with the following Guidelines for Used Oil/Sludge handling/Transfer Stations;

- **Requirement for the site**
- Every person intending to establish a transfer station shall undertake an Environmental Impact Assessment (EIA) and obtain EIA license before commencement of construction works
- The facilities shall undertake annual Environmental Audits
- All transfer stations must obtain an operational license issued under the Waste Management Regulation to own or operate a transfer station from the Authority
- All used oil from transfer stations shall be transferred to licensed recycling facilities
- A transfer station shall not process the used oil in any way except dewatering
- All transfer stations shall be provided with adequate and functional oil interceptors and other pollution control measures e.g. spillage control kit
- At each site the operator is to have a minimum amount of storage capacity of $90M^3$ on site to allow for discharge from the largest capacity of a vehicle that may be received, in the event of a contaminated load
- The loading and offloading area must have paved surfaces with an impervious material to prevent any spills from contaminating the soil
- The offloading and loading area should be bunded and must equal or exceed the volume of the largest compartment of any vehicle to be discharged
- All transfer stations shall provide valid physical addresses, contact details, telephone numbers, email contacts and GPS coordinates of their locations
- All transfer stations should have in place an Emergency Response Plan (spill control equipment, a fire control plan, an evacuation plan) in case of incidents, spillages, fires, explosions etc
- The transfer stations shall only sell used oil to licensed recycling facilities and energy recovery users
- All used oil to and from a transfer station shall be transported by licensed used oil transportation vehicles
- The transfer station shall have a waste management plan and

- Establish a complaint management system (twenty-four (24) hour complaint contact telephone number) and ensure verbal response is provided to the complainant within two (2) hours.

- **Tank farm**

- All oil tanks shall meet the KS 200: Part 1: 2002 on specifications for storage tanks for petroleum industry
- All oil tanks shall be bunded appropriately with a bund wall of size stipulated under the KS 1967:2006
- All tanks are to be made from steel
- All tanks compartments should be padlocked when not in use
- All tanks are to be bunded. The bund must equal or exceed the volume of the largest tank in that bunded area
- The bunded area must be paved with concrete or asphalt, not soil, clay or gravel
- All tanks are to be inspected on a regular basis for worthiness in accordance with KS 1938
- All tanks are to have some method to determine the volume in each tank
- All tank maintenance is to be recorded and kept for five years and
- Haulage of 5% must be left when the tank is full

3.4.4 Guidelines for Used Oil Recycling Facilities

A recycling facility shall undertake reprocessing, reclaiming and regeneration (re-refining) of used oils by use of an appropriate selection of physical and chemical methods of treatment. All the recycling facilities shall specify the nature of recycling activity to be undertaken e.g. Reprocessing, Reclamation, Regeneration (Re-refining) and the final products to be produced.

3.4.4.1 Infrastructural Facilities

Recycling facilities shall require standard infrastructure such as;

- Tanks (as per KS standards)
- Oil water interceptors;
- Bund walls;
- Paved surfaces with an impervious material especially at the offloading and loading bays;

- Proper drains etc;
- Pollution control equipments;
- Signages;
- Fire assembly and exit points;
- Minimum required area for each facility;
- Perimeter walls.
- Refractionating column
- Site office

3.4.4.2 Requirement for the site

- Every person intending to establish a recycling facility shall obtain an Environmental Impact Assessment (EIA) license before commencement
- All recycling facilities shall obtain a waste recycling license on commencement of operations and adhere to the license conditions
- The operator shall undertake annual Environmental Audits and submit the report to the Authority
- All recyclers shall receive used oil from licensed transporters only
- All recycled oil emanating from the processes shall be handled and stored in accordance with the requirements set out in KS 1967:2006.
- All recyclers shall maintain a record of dully filled tracking documents
- All recyclers shall ensure any waste arising from their recycling operations is disposed as per Waste Management Regulations of 2024
- All recyclers shall ensure that emission levels meet the required National set standards
- All recycling facilities shall be provided with adequate and functional oil interceptors and other pollution control measures.
- All oil tanks shall meet the standards set out under KS 1967:2006 for storage and distribution of petroleum products in above ground bulk installations.
- All oil tanks shall be bunded appropriately with bund wall of a size stipulated under the KS 1967:2006.
- Recyclers operating an oil interceptor and discharging effluent to the environment must obtain an effluent discharge license from the Authority

- All recyclers shall provide valid physical addresses, contact details, telephone numbers, email contacts and GPS coordinates of their locations
- All recyclers should have in place an Emergency Response Plan (spill contingency plan, spill control equipment, a fire control plan, an evacuation plan) in case of incidents, spillages, fires, explosions etc
- The loading and offloading area is to be bunded. The bund area must equal or exceed the volume of the largest compartment of any vehicle to be discharged.

3.4.5 The Climate Change Act, 2016

This is an Act of Parliament to provide for a regulatory framework for enhanced response to climate change; to provide for mechanism and measures to achieve low carbon climate development, and for connected purposes. The Act provides a regulatory framework for the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya. It provides for mainstreaming of climate change responses into development planning, decision making and implementation as well as resilience and adaptation in all governance sectors.

The Act also stipulates the climate change response measures and actions; this includes the formation of National Climate Change Action Plan. The National Climate Change Action Plan shall be presented for approval by the Council. The National Climate Change Action Plan shall prescribe measures and mechanisms that will include guiding the county toward the achievement of low carbon climate resilient sustainable development among other measures and mechanisms aimed at reducing carbon levels in the country.

Relevance to the proposed project

- The proponent should develop a Climate Change Action Plan and implement measures to ensure low carbon footprint at the facility through incorporating low carbon technologies in order to reduce emission intensity
- The proponent should install renewable energy sources such as lighting, energy efficient machines and ensure low carbon emissions to the environment

3.4.5.1 Climate Change risk and vulnerability assessment

Climate change refers to long-term shifts in temperatures and weather patterns. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions. However, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels (like coal, oil and gas), which produces heat-trapping gases. The purpose of the Climate Risk and Vulnerability Assessment is to develop an understanding of the current and future climate risks that will be attributed to the existence of the proposed project in the larger Samburu area.

Objectives

- To inform participatory action planning processes that lead to community-driven and owned adaptation mechanisms
- To identify lower risk areas in which climate-resilient infrastructure can be developed
- To develop targeted early warning systems, training programs in environmental management and risk reduction and community capacity building within the project area
- To select, prioritize, and design appropriate resilient infrastructure development options.

Vulnerability assessment is a function of exposure, sensitivity, and adaptive capacity. The proposed project proponent together experts will identify critical assets, sectors, and populations vulnerable to climate hazards. The adaptive capacity of these assets and population groups to climate change will also be evaluated. The aspects of vulnerability conditions that will be examined include the following; physical, social, economic, and environmental factors.

This assessment involves the following methods;

1. Critical assets, sectors, and services will be identified, organized, and mapped
2. Vulnerable populations will be identified and mapped using area population data and previous studies. This may also involve engaging with community members, vulnerable groups, and climate experts.
3. A vulnerability assessment will be conducted, taking into account the exposure, sensitivity and adaptive capacity of assets and groups

Risk assessment is a function of the probability of a hazard impact and the overall consequence of the impact.

For instance;
Risk = Probability x Consequence

This assessment allows for the prioritization of the most at-risk assets, systems, and groups, focusing on the most vulnerable ones identified during vulnerability assessment.

3.4.6 The Occupational Safety and Health Act, 2007

The purpose of the Occupational Safety and Health Act (OSHA) is to provide for the safety, health and welfare of workers and all persons lawfully present at workplaces and to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes.
Of particular importance to the proposed project is the requirement that all work places must be registered with the Department of Occupational Safety and Health Services. Further, there is a requirement that a Safety and Health Committee must be put in place and those employees and members of this committee must be inducted and trained on the provisions of the Act accordingly.
The OSHA, 2007 stipulates that an employer shall not require or permit his employee to engage in the manual handling or transportation of a load which by reason of its nature is likely to cause the employee to suffer bodily injury.

Relevance to the proposed project

- Under OSHA, the proponent should register the site as a workplace with the DOSHS and ensure timely renewal of the same
- It also involves the prevention of accidents at the workplace and provision of personal protective equipment (PPE) to all workers and enforces their use.
- Strict provisions will be made for the requirement of supervision and training of inexperienced workers during commissioning period and carry out occupational safety and health audit annually.

3.4.7 Public Health Act, 2012

This is an act of parliament to make provision for securing and maintaining health. Section 13 states that it shall be the duty of every health authority to take all lawful, necessary and under its circumstances reasonably practicable measures for preventing the occurrence or dealing with any outbreak, or prevalence of any

infections, communicable or preventable diseases or conditions to safeguard and promote the public health and to exercise the powers and perform the duties in respect of the public health conferred or imposed on it by this act or by any other law. The Public Health Act Cap 247, Section 3 gives provisions for use of poisonous substances. It refers to regulations for protection of persons against risk of poisoning, imposing restrictions or conditions on the importation, sale, disposal, storage, transportation or use of poisonous substances. This Act also requires persons concerned with importation, sale, disposal storage, transportation or use of poisonous substances to be registered and licensed and provides measures for detecting and investigating cases in which poisoning has occurred.

Relevance to the proposed project

- The proponent should ensure compliance with the Act by providing clean, healthy and safe environment during construction and subsequent operation of the proposed used oil handling and recycling facility

3.4.8 The Water Act, 2016

The purpose of the Water Act 2016 is to align the water sector with the Constitution's primary objective of devolution. The act recognizes that water related functions are a shared responsibility between the national government and the county government. The Constitution acknowledges access to clean and safe water as a basic human right and assigns the responsibility for water supply and sanitation service provision to the 47 established counties.

This is also an act of Parliament to provide for the regulation, management and development of water resources, water and sewerage services; and for other connected purposes. This Act may be cited as the Water Act, 2016 and shall come into operation on such a date as the Cabinet Secretary responsible for matters relating to water may by notice in the Gazette, appoint, and different dates may be appointed for the coming into operation of different provisions. Water in Kenya is owned by the Government, subject to any right of the user, legally acquired. However; this Act regulates conservation and management of all water resources within the republic, and related purposes. In section 3 of part II, it states that every water resource is vested in the State, subject to any rights of user granted by or under this Act or any other written law. The Act also provides for establishment of a Water Resource Authority, whose aim is to manage and coordinate conservation and utilization of water resources at national scale and other several organs to ensure development and sustainable use of water

resources. These include Water Sector Trust Fund (WSTF), Water Resources Users Associations (WRUAs), Water Services Providers (WSPs) and Water Works Development Agencies among others.

Relevance to the proposed project

- The proponent should ensure that water usage in all phases of the project cycle is in line with the provisions of this Act
- Obtain a permit from WRMA if a borehole will be considered as a source of water to supply the facility.
- The proponent should also ensure that the activities of the facility does not cause any leachate that may cause ground water pollution.

3.4.9 The Energy Act, 2019

An Act of Parliament to consolidate the laws relating to energy, to provide for National and County Government functions in relation to energy, to provide for the establishment, powers and functions of the energy sector entities; promotion of renewable energy; exploration, recovery and commercial utilization of geothermal energy; regulation of midstream and downstream petroleum and coal activities; regulation, production, supply and use of electricity and other energy forms; and for connected purposes. The Act sets up the establishment of Energy and Petroleum Regulatory Authority (EPRA) hereinafter referred to as the Authority. The Energy and Petroleum Regulatory Authority (EPRA) is established as the successor to the Energy Regulatory Commission (ERC) under the Energy Act, 2019 with an expanded mandate of inter alia regulation of upstream petroleum and coal.

Relevance to the proposed project

- The proponent is required to ensure that the energy supplied is consumed in accordance to the provisions of the Act and energy audits carried out on the facility

3.4.10 The Petroleum Act, 2019

An Act of Parliament enacted by the Parliament of Kenya to provide a framework for the contracting, exploration, development and production of petroleum; cessation of upstream petroleum operations; to give effect to relevant articles of the Constitution in so far as they apply to upstream petroleum operations,

regulation of midstream and downstream petroleum operations; and for connected purposes. The facility should strive to be compliant to provisions of this Act.

Relevance to the proposed project

- The proposed project should strive to be compliant to provisions of this Act.

3.4.11 Physical and Land Use Planning Act, 2019

The Act provides for the planning, use, regulation and development of land and for connected purposes. It was enacted to ensure that every person engaged in physical and land use planning shall promote sustainable use of land and livable communities which integrates human needs in any locality. The Act allows the County Government to prepare a local physical and land use development plan in respect of a city, municipality, town or unclassified urban area.

3.4.12 County Government Act, 2012

An Act of Parliament to give effect to Chapter Eleven of the Constitution; to provide for county governments' powers, functions and responsibilities to deliver services and for connected purposes. Section 109 of the County Government Act, 2012 helps counties to ensure effective coordination of spatial developments. Sub - section (2) part C states in part; a spatial county plan shall;

- Indicate desired patterns of land use within the county
- Address the spatial construction or re-construction of the county
- Provide strategic guidance in respect of the location and nature of development within the county
- Set out basic guidelines for a land use management system in the county taking into account any guidelines, regulations or laws as provided for under Article 67(2) (h) of the Constitution
- Set out a capital investment framework for the county 's development programs and;
- Contain a strategic assessment of the environmental impact of the spatial development framework

Relevance to the proposed project

- The Act gives right to access private property at all times by the County Government officers for inspection purposes.

3.4.13 Occupiers Liability Act Cap 34

This is an Act of parliament to amend the law as to liability of occupiers and others for injury or damage resulting to persons or goods lawfully on land or property from dangers due to the state of the property or to things done or omitted to be done there.

Relevance to the proposed project

- Ensure safety of workers during construction, implementation and possible decommissioning phases of the proposed project
- The act requires that the occupier warn the visitors of the likelihood of dangers within his premises to enable the visitor to be reasonably safe

3.4.14 National Construction Authority Act, 2011

This is an Act of Parliament to provide for the establishment, powers and functions of the National Construction Authority and for connected purposes. The National Construction Authority Act seeks to regulate the construction industry and coordinate its development.

Relevance to the proposed project

- The project proponent, shall liaise with NCA to ensure licensed contractors are the ones to be awarded contract to construct the proposed project at times whenever needed

3.5 Institutional Framework

At present there are many institutions and departments which deal with environmental issues in Kenya. To implement the above legal framework, these government institutions have varying mandates of implementation. These include;

a) The National Environment Management Authority (NEMA)

The object and purpose for which NEMA is established is to exercise general supervision and coordinate 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.

b) The Directorate of Occupational Safety and Health Services

The mandate of the Directorate is to ensure compliance with the provisions of the Occupational safety and health Act 2007 and promote safety and health of workers. The directorate is aimed to promote a safe and health workplace by implementing effective systems for the prevention of Occupational diseases, ill health accidents and damage to property in order to reduce the cost of production and improve productivity in all sectors of our economic activities. The core function of the directorate is among other functions Inspecting workplaces to ensure compliance with safety and health law.

c) The County Government of Kwale

The County Government of Kwale has powers to control or prohibit all businesses, factories and other activities including the proposed project which by reason of smoke, fumes, gases, dust, noise, wastes or other cause, maybe or become a source of danger, discomfort or annoyance to the neighborhood and to prescribe conditions subject to which such activities shall be carried.

The County Government of Kwale shall supervise project roll out by use of the technical team to ensure no activity being implemented may become a source of danger, discomfort or annoyance to the neighborhood. The relevant county departments will be responsible in the issuance of the approvals and necessary permits for the proposed project activities.

d) The National Construction Authority (NCA)

The NCA is responsible for issuing permits to construction sites and advising the government of Kenya on construction. The proponent shall liaise with NCA to ensure licensed contractors are the ones to be awarded contract to carry out the project activities.

CHAPTER 4: PROJECT DESIGN & DESCRIPTION

4.1 Project description

The proposed project will involve the construction and subsequent operation of a used oil handling and recycling facility. The facility will comprise a total of Twenty (20) oil storage tanks; these will entail eight (8) storage tanks with a capacity of 40,000Ltrs each, four (4) storage tanks with the capacity of 14,000Lts each and eight (8) storage tanks with the capacity of 30,000Lts each, loading and offloading area, oil/water interceptor, office block and associated facilities. The tanks will be mounted on concrete slabs above a paved ground (2ft high) with a drain to channel the oil sludge into the oil/water interceptor. At the interceptor, oil will be separated from water. The end product is furnace oil which will be sold off to industrial clients for further use. The source of raw materials are; used mobile oil (black oil) from garage service centres, furnace oil from ship yard, transformer oil and any other type of used oil collected from the market. There are three types of waste that will be generated from proposed used oil handling and recycling facility, that is; water, waste clay and sludge. Sludge and clay will be sold in an open market while wastewater will be discharged in accordance with Environmental Management and Coordination (Waste Management) Regulations, 2024. The proposed project will have the capacity to handle approximately 15,000 metric tons of used oil per year.

The proposed facility site will be designed to facilitate proper handling and recycling of used oil. The facility will accommodate the following basic components;

4.1.1 Office Block

The project proponent proposes to put up office block that will provide working space for the workforce during operation phase of the project.

4.1.2 Washrooms

The proponent intends to construct adequate toilet and washing facilities for use by the workforce during operation phase of the proposed project.

4.1.3 Storage Tanks

The facility will comprise a total of Twenty (20) oil storage tanks; these will entail eight (8) storage tanks with a capacity of 40,000Ltrs each, four (4) storage tanks with the capacity of 14,000Lts each and eight (8) storage tanks with the capacity of 30,000Lts each incorporating concrete bund walls to serve as secondary containment for spillage.

4.1.4 Site Store

The proponent will include a store room to provide a designated space for the safe and organized storage of various equipment, tools, and supplies that are essential for the operation and maintenance of the facility. The existing permanent block will be renovated to provide space for store at the facility.

4.1.5 Parking Space

The open space within the yard/facility will be used as a parking area for the trucks that will be delivering used oil to the site or collecting processed/refined oil from the site. The proposed project site will be expanded to provide adequate parking space for trucks. The proponent proposes to provide the entire yard/facility with a concrete slab.

4.1.6 Oil/Water interceptor

The design of the facility will incorporate concrete drainage channel complete with oil/water interceptor. At the interceptor, oil will be separated from water.

4.1.7 Perimeter Fence

The proposed project site has existing boundary wall with one gate entrance. The construction of the boundary wall is still ongoing onsite.

4.1.8 Site accessibility/Security

The proponent will provide a security area/room to serve as a centralized location for monitoring and controlling access to the facility. It will also serve as a hub for storing important documents, records, and communication equipment related to the facility's security protocols.

4.2 Project activities

The proposed used oil handling and recycling facility activities are described as follows;

4.2.1 Activities during Construction Phase

The project proponent intends to set up proposed project site to acceptable national environmental and safety standards. The following will be the activities to be undertaken during this phase.

- Mobilization of construction equipment to the site
- Site excavation, leveling, grading and compaction of the ground
- Delivery of construction materials to the site

- Concrete mixing
- Construction of concrete slab, bund walls, and renovations of washrooms and office block
- Preparation of pipe and cable bridges/racks, service ways, ducts and trenches
- Installation of above ground fuel storage tanks and associated piping works
- Laying down of concrete storm water drainage channel incorporating oil/water interceptor
- Plumbing works
- Construction of decanting chambers
- Setting up the septic tank and soakage pit
- Power supply installation
- Site finishing works including plastering, painting, decoration, grading and landscaping

4.2.2 Activities during Operation Phase

Activities during operation phase of the proposed project will entail the following:

- Purchase of used oil from used mobile oil (black oil) from garage service centres, furnace oil from ship yard, transformer oil and any other type of used oil collected from the market and other sources
- Delivery of used oil to the site using licensed oil tankers
- Offloading and storage of used oil in above the ground storage tanks
- Processing and recycling of used oil in the decanting chambers and used oil using Used Oil Filtration Machine respectively
- Storage and/or transfer of processed oil in designated above ground storage tanks
- Selling and transfer of processed/recycled oil into awaiting oil tankers ready for transportation for reuse

4.2.3 Used oil/Sludge Processing

The proposed facility will be involved in handling of used oil/sludge in accordance with Waste Management Regulations 2024 and Technical Guidelines on the Management of Used Oil and Oil Sludge in Kenya, 2016. Waste oil processing will be a physical process, which is comparatively simple and requires no chemicals. It involves the following steps;

4.2.3.1 Sieving/Mechanical Screening

The used oil delivered at the site will be stored in above the ground storage tanks. This oil will be allowed to flow to the first chamber by opening the valve. The sieve incorporated in this chamber will remove solid materials from the oil. The sieved oil will then be permitted to flow to the second chamber where it will be allowed to settle.

4.2.3.2 Settling

In the second chamber, the oil water mixture is allowed to settle. The mixture separates in two distinct layers one on-top of the other. Water being denser than oil sinks to the bottom, while the waste oil floats on top. The process of settling takes a few hours to several days depending on the composition of the waste oil.

4.2.3.3 Separation (decanting)

The water is then allowed to drain by gravity to the next chamber by opening the valves of the interconnecting pipes thereby leaving oil behind. The process of settling and separation is repeated in all the other chambers until all the water is removed from the waste oil. The water is then drained into the last chamber where it is contained until it is disposed off.

4.2.3.4 Disposal of oily water (supernatant) and solid waste

The water removed from the waste oil will contain a layer of oil hence making it unsuitable for direct discharge into the environment. The proposal is to contract licensed waste handler who will ensure sound disposal of the water hence preventing the potential for polluting soil and water resources. Solid waste will be placed in labelled waste bins which shall be emptied by a contracted waste handler registered by NEMA.

4.2.3.5 Storage of waste oil

The separated oil is the final product of the separation process. It will be pumped from any of the decanting chambers into a storage tank or directly into a collecting oil tanker for use.

4.2.4 Used oil Recycling Process

Shree Shyam Petro Chemicals Limited intends to recycle used oil to produce re-refined base oil for secondary use. The facility will use Used Oil Filtration Machine. The recycling process will entail filtration and distillation to produce re-refined base oil suitable for use. Distillation done to produce re-refined base oil suitable for use as

this process is very similar to the process undergone by virgin oil. Used oil recycling process will include the following;

4.2.4.1 Pre-treatment or Dewatering

Pre-treatment of used oil involves removing any water within the oil, known as dewatering. One way of doing this is by placing it in large settling tanks, which separates the oil and water. Dewatering is a simple process relying on the separation of aqueous and oil phases over time under the influence of gravity. The used oil is allowed to stand in a tank (raw waste oil) and free water drops to the bottom where it can be drained, treated and discharged appropriately to sewer or stormwater depending on quality and regulations.

4.2.4.2 Filtering & Demineralization

The purpose of filtering and demineralization is to remove inorganic materials and certain additives from used oil to produce a cleaner burner fuel or feed for re-refining. The dewatered used oil is transferred to a reaction tank and reacted with Sulphuric acid and surfactant the heated and stirred. This allows the mixture to separate into two "phases" i.e. oil and aqueous phase. The contaminants accumulate in the aqueous phase and settles at the bottom of the tank and drained off as slurry. The slurry is then dried off and disposed. The demineralized oil is filtered to remove suspended fine particles and run off to storage as a clean burner fuel. It can be further diluted with a lighter petroleum product (called cutter stock) to produce a range of intermediate to light fuel oils depending on the fuel viscosity requirements of the burner.

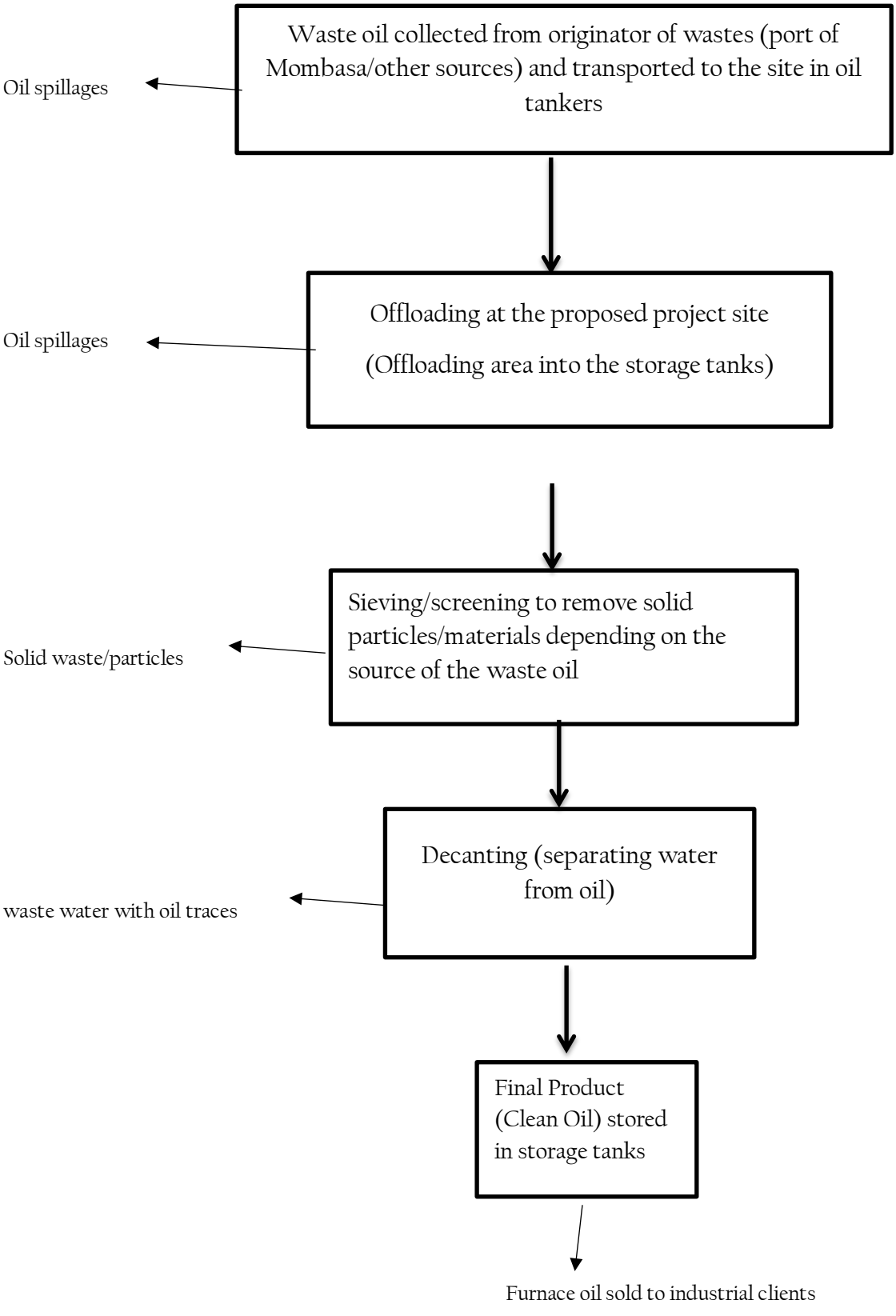
4.2.4.3 Distillation

Distillation (or Fractionation) is the physical separation of components of used oil by boiling range. Depending on the type of distillation, the boiling ranges can produce gases and gasoline at the lower boiling points with heavy oils being distilled at higher boiling points. Distillation is the core process for a facility capable of producing re-refined base-oils.

4.2.4.4 Vacum Distillation

Vacuum distillation is considered the key process in used oil re-refining. The feedstock can be separated into products of similar boiling range to better control the physical properties of the lube base stock "distillate cuts" that will be produced from the vacuum tower product

Figure 4.1 Waste Oil Handling Process



4.2.5 Project's Decommissioning Activities

Decommissioning is an important phase in the project cycle and comes last to wind up the operational activities of a particular project. It refers to the final disposal of the project and associated materials at the expiry of the project lifespan. If such a stage is reached, the proponent needs to remove all materials resulting from the demolition/ decommissioning from the site. The following should be undertaken to restore the environment;

- The general public to be informed of demolition exercise well in advance by placing notices in public places concerning the intended demolition at least two weeks in advance;
- The site must be sealed off from public access;
- The firm commissioned to demolish must have enough relevant machines and equipment such as fleet of dumpers that will enable the work be undertaken smoothly and be completed within stipulated time;
- The firm must have experienced labor force to undertake the exercise;
- Adequate measures to be put in place to minimize environmental degradation;
- Site supervision from relevant County Government Departments throughout the exercise;
- Waste materials resulting from demolished development must be handled and disposed according to environmental requirements and procedures;
- Care must be taken to avoid destruction of trees and other vegetation on site during the exercise.

a) Site rehabilitation

Once demolition is complete rehabilitation of affected site should be undertaken to its original state or close to original state. Site rehabilitation will include the following: -

- Test and analysis of soil from site should be undertaken before rehabilitation begins;
- Planting of appropriate species of trees (indigenous), shrubs and grasses;
- Ensuring they are regularly watered, weeded in their early stages to ensure survival;
- The area should be fenced off while rehabilitation is in progress.

4.2.6 Waste generated by project activities

The table below show the summary of waste generated by the activities undertaken during the proposed project phases.

Waste	Types	Management/Disposal
Oil/grease	Oil spills	Interceptor
Solid wastes (degradable)	Packaging, office waste and food remains	Collected in waste bins then disposed at an authorized dumpsite
Solid Waste (Non degradable)	Topsoil (Excavated soil)	Re-used for landscaping
	Scrap waste	Sold to Recyclers
	Plastic wastes/glasses	Sold to Recyclers
	Debris	Re-used in construction
Liquid Waste	Sewage	Onsite Septic tanks

4.3 Project Cost

The project implementation cost is estimated at Kshs. Sixty Million Shillings Only. (65,000,000). See the attached project Bill of Quantities.

CHAPTER 5: PUBLIC & STAKEHOLDER CONSULTATION

5.1 Introduction

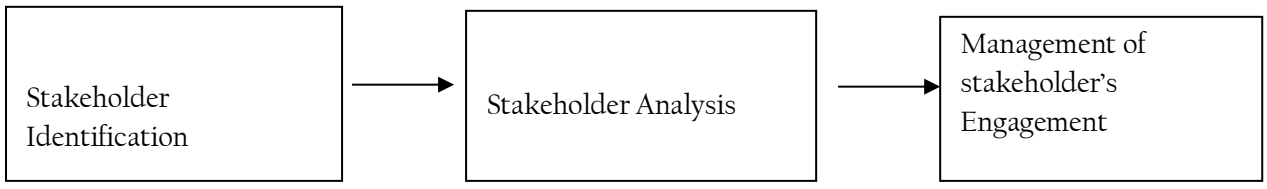
A public consultation process was engaged in gauging the sentiments of a variety of stakeholders. Besides the fact that this is a regulatory requirement under the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019, it was an excellent opportunity to offer the public (PAPs) an opportunity to ventilate their concerns and probably give recommendations concerning the proposed project in the specific area.

Stakeholders represent individuals or groups that hold a stake in the project, either because they will be impacted by the project or because they have a vested interest in it. A public consultation/engagement process is very important in gauging the sentiments of a variety of stakeholders. The stakeholders' categories identified in this proposed project included the following Project Affected Parties;

- Local communities/immediate neighbors
- Local Administration (Area chief; Samburu Location)
- Deputy County Commissioner - Samburu Kwale Sub County
- Assistant County Commissioner - Samburu Chengoni
- Lead/Government agencies (Kwale County Government, Public Health)
- Community Based Organizations (CBO's)

Each of the stakeholders above had different requirements, different interests, different levels of influence, and different expectations towards the project.

Stakeholder Management Plan



5.2 Stakeholder Analysis

After the identification of the stakeholders, it is time to analyse who they really are, their level of interest, what power they have, what their expectations are, and if they seem favourable or against the proposed project. This will be done through a power-interest matrix, where each stakeholder is plotted in the matrix

based on their level of power to impact the project and their level of interest. All stakeholders are equal, but some are more equal than others.

Depending on power and interest of the stakeholder, different strategies apply to manage their engagement:

- **Keep them satisfied**

Stakeholders in this group have little interest in the project but high power to continue or stop. Examples of such stakeholders include the local communities which forms the larger group. The best engagement strategy is to meet their needs and keep them satisfied, which can mean invite them for project updates meetings occasionally or ensure that their communication requirements are being met.

- **Minimal effort**

Stakeholders who have little power and little interest in the project are the least important and require minimal effort from the project manager. However, they should not be totally overlooked.

- **Engage closely**

Stakeholders with a high level of power and a high level of interest are the most important stakeholders. This will include the lead and government agencies interested in the proposed project.

- **Keep them informed**

These are the stakeholders with low power but highly interested in the project. These are stakeholders to whom you need to show consideration, such as the project end-users and whom you should keep informed regularly on the project status.

5.3 Stakeholder engagement table

Stakeholder identification	Method of engagement	Presentation of the comments/concerns
Local Communities/immediate neighbours - Local residents	Public gathering/open public meeting was conducted at the proposed project site	Minutes of the meeting
Local Administration Mzee wa Mtaa/Village elders Area Chief, Samburu Location DCC- Samburu Kwale Sub County ACC- Samburu Chengoni	Public gathering/open public meeting was conducted at the proposed project site	Minutes of the meeting

Lead/Government agencies Kwale County Government, Public Health Community Based Organizations (CBO's)	Public gathering/open public meeting was conducted at the proposed project site	Minutes of the meeting

Figure 5.1: Public Consultation Meeting at the project site (Source: Site survey/photography)

5.4 Public consultation methodology

Public consultative meeting was conducted at proposed project site on 6th June, 9th June and 12th June 2025 with the project affected parties; the local community and local leadership regarding the proposed project. Meeting minutes have been appended to this report.

5.5 Stakeholder comments/concerns

All the Project Affected Parties (PAPs) and the local community had a chance to understand and present their views and opinions about the proposed project. They were all in support of the proposed project as the benefits of the project seemed to supersede the threats to the environment and human health. However, community pointed out the following;

- The proponent should strive to create good and sustainable working relationships to foster good neighborhood. This will in turn promote project acceptance among the locals hence sustainability of the project in the area.
- The proponent should engage in Cooperate Social Responsibility (CSR) initiates such as helping the community in social engagements
- The local community should be given priority in job opportunities resulting from the project operations

- The local community also cited that in the event that the proposed project is seen to negatively impact on the health and environment due to failure of the proponent to abide by the set regulations, they will not hesitate to stop the project operations through their local leadership by launching official complain to NEMA and other state organs.

5.6 Conclusion on findings

Members of the public could see enormous benefits accruing to them by the coming into being of the proposed project. The local community and local leadership endorsed and supported the proposed project on condition that the relevant regulations and guidelines will be followed during operations and the local community will stand a chance to benefit from the project.

CHAPTER 6: ANALYSIS OF PROJECT ALTERNATIVES

6.1 Introduction

Investigating the available alternatives to the development proposal is an important aspect of the assessment process that could invariably help in mitigating the impacts of the proposed project. In this analysis, the consultants' team considered alternatives on the following basis.

- The project site
- Design and technology alternatives
- Scale and extent
- Waste management alternatives

In most cases, the ESIA process often occurs too late in decision-making to consider a full range of alternatives. This can undermine ESIA goals to encourage more environmentally sound and publicly acceptable solutions. Allowing new alternatives and objectives to evolve in relation to environmental conditions, public preferences and project sustainability may be a solution to most of the environmental and socio-economic problems associated with the implementation of new projects

6.2 Proposed Project Alternatives

6.2.1 The "No Project" Alternative

The No Project option in respect to the proposed project implies that the status quo is maintained. This option is the most suitable alternative from an extreme environmental perspective as it ensures noninterference with the existing environmental conditions. This alternative is however not viable owing to the fact that the status quo denies the proponent a viable investment opportunity and thereby income generation translating into profits, denies the local community employment opportunities and also denies both the County and National Government revenue. The 'No project' alternative is therefore not considered viable in the light of the benefits and deprivations of the project. From the analysis above, it becomes apparent that the No Project alternative is no alternative to the proponent.

6.2.2 The "Yes Project" alternative

This option envisages that the proposed project will be implemented thus was considered as the most viable because of the following reasons;

- There will be employment creation
- Commitment to environmental performance through effective used/waste oil management procedures
- Source of income to the proponent through investment

- County and National Government revenue generation

6.2.3 Alternative project site

Relocating the proposed project to an alternative site is not a viable option. An alternative site could be considered for the proposed project if the proposed project would present serious environmental challenges that cannot be effectively managed. However, the proposed mitigation measures are considered adequate to minimize the impacts to levels that do not warrant significant environmental damage. In addition, there is also availability of adequate piece of land for the project since the site is also accessible and away from the densely populated areas thus making it suitable for the proposed project, this piece of land is also dully owned by the project proponent. This alternative is therefore not viable.

6.2.4 Project Design Alternatives

a) Technological Alternatives and Input Materials

The proposed project will be constructed using environmentally accepted technological innovations and materials compliant to engineering standards but locally available to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors, the project will entail use of locally available materials like sand, cement and ballast or similar approved materials that would not have adverse impacts on the environment. The technology to be used is environmentally friendly. Proposed project design will employ simple technology that lowers the cost of setting up the project based on the prevailing geographical formation.

b) Sustainability and Affordability

Sustainability of the proposed used oil handling and recycling facility would have a bearing on the environment in the area. This is because the operations of the project might affect the local environment positively or negatively; the proponent is expected to operate waste oil handling and recycling facility in line with the set guidelines by NEMA and internationally acceptable standards. This will be assured by developing standard operating procedures (SOPs) that will ensure that the project is sustainable. Sustainability would mean the ability of the project to continuously serve the proponent without adverse impacts within the project area. This would call for designs that would ensure that the cost of operating the facility is cost effective and does not impact negatively on the environment. Subsequently, this translates to affordability of the proposed project. Sustainability would also translate to the longevity of the project versus intended use. Affordability is greatly determined at the design stage.

c) Potential environmental impacts

The project might not generate a lot of wastes other than industrial wastes from the waste generator associated with facility operations. An integrated solid waste management system is recommendable. First, the proponent will give priority to reduction at source of the materials. This option will demand a solid waste management awareness programme in the management and the staff involved in implementing the project. Recycling and reuse options of the waste will be the second alternative in priority. This will call for a source separation programme to be put in place.

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CHAPTER 7: POTENTIAL ENVIRONMENTAL IMPACTS IDENTIFICATION & MITIGATION MEASURES

7.1 Introduction

This Chapter identifies both positive and negative environmental and social impacts likely to be occasioned by the activities of the proposed used oil handling and recycling facility. These impacts are hereby identified in three distinct phases of the project i.e., planning and designing phase, implementation/construction phase and operation phase. It discusses the nature of impacts, their magnitude, spatial and time extent and significance. The table below shows how these impacts are assessed.

Table 7.1: Scale for evaluation of project impacts

SCORE	(-1) +1	(-2) +2	(-3) +3	(-4) +4	(-5) +5
PARAMETER					
Magnitude	Impacts occur or are felt on site		Impacts affect more than 3 kilometers radius		Impacts affect the region
Significance	**Low** Small changes which are hardly detectable	**Moderate** Impact measurable but does not alter processes	**High** Many people, animals, plants affected. Disruption to ecosystems and social systems.	**Very high** Loss of biodiversity, property, livelihood systems	**Unknown effects** Insufficient information available. Apply precautionary principle
Probability of occurrence	**Possible** Impacts can occur but are controllable		**Probable** The impact is likely to occur but can be controlled by effective measures.		Definitely will occur
Duration of occurrence	**Short term** During pre-disposal phase only	**Medium term** Impacts will be during operational phase only		**Long term** Impacts will be there for entire operation phase	**Very Long term** For the entire operational phase and afterwards

7.2 Planning and Design Phase

7.2.1 Positive Impacts

- **Creation of Employment opportunities**

During the planning and design phase of the proposed project, there will be employment opportunities especially for professionals. Those involved in planning and design include engineers, surveyors, environmentalists and sociologists among others. Those employed will improve their living standards from the fees they will be paid for their services.

- **Awareness creation among the local community**

During the planning and design phase of the proposed project, a lot of awareness shall be done through consultations on different aspects of the project. Awareness improves civility in project planning, implementation and operations. This is a sure formula for ensuring there is sustainability of the project and acceptability among the local community. Impacts during this phase of the project are not significant. However, the professional consultants shall take necessary measures to document any concerns and address them on as they occur.

7.2.2 Negative Impacts

- **Heightened Expectations and Speculations**

The planning and design phase is bound to create heightened expectations and unwarranted speculations. It is expected that before all persons living within the project area are well informed on the objectives of the proposed project, a lot of speculation, lies and half-truths are peddled. This in return creates a lot of heightened expectations.

Proposed Mitigation Measures

- There has been adequate awareness through a public meeting held at the project site by the local area leadership and the ESIA experts
- Other professionals (engineers, architects, and surveyors) should be keen to listen and document any issue that requires to be addressed all through the project implementation cycle.

7.3 Implementation/Construction Phase

7.3.1 Positive Impacts

- **Employment opportunities**

The construction works will require several human resources from machine operators to other skilled and unskilled labourers. Machine operators will be engaged for excavation works, site clearance and compaction work. Several workers including casual labourers, plumbers and engineers are expected to work on the site for a period of time. Semi-skilled, unskilled and formal employees are expected to obtain gainful employment during the period of construction. With labour intensive construction technologies, the project will provide employment for the locals.

- **Market for construction inputs**

The project will require construction materials, most of which will be sourced locally. These include sand, cement, ballast and steel bars/ rods among others. This will provide a ready market for suppliers in and outside the project area.

- **Stimulation of business activities in the neighborhood**

As a result of spill-over effects brought about by increased spending power by the workers, local businesses will enjoy increased sales thus enhancing the living standards of the operators

7.3.2 Negative Impacts

- **Excavation and loss of top soil**

Project construction will involve earthworks and excavation that will comprise of pits and other landscaping activities. These activities will generate a lot of top soil that will need to be disposed from the project site. This top soil will also be used during backfilling and landscaping activities. The excavated soil may affect the surrounding environment if not adequately disposed.

Proposed Mitigation Measures

- Maximizing the re-use of excavated materials to ensure that no permanent spoil dumps are created
- Properly disposing off the spoil in designated areas approved by NEMA and County Government

- **Physical disturbance of the project setting**

The proponent is expected to undertake physical works on the project site especially during the construction of facility amenities such as offices and existing boundary wall. These activities will have minimal negative

impacts and could result in; changes in the local topography during excavation and blockage of natural drainage for rain water. The negative impacts will be temporal because the proponent is expected to mitigate all the negative impacts prior to commissioning of the project. The potential negative impacts on the physical environment will be addressed through the environmental management plan.

Proposed Mitigation Measures

- The proponent should ensure that there is minimal disturbance to the topography of the area
- The excavation and lanscaping design shall not interfere with local drainage or change the topography or introduce physical changes that are not in harmony with the physical setting of the project area
- The project components and associated structures should be aesthetically acceptable to blend in with the surroundings
- The proponent shall as much as possible complete the works in such a way that natural aesthetics shall be retained at the locations
- Restoration shall be undertaken to ensure that the original setting is as much as possible retained
- The proponent should observe measures stipulated in the ESMP

- **Noise and Excess Vibrations**

Construction activities of the proposed project will most likely result in noise disturbance as a result of the machines that will be used e.g., excavation equipment and construction vehicles delivering materials to site. Noise will also be generated by construction workers. Significance of noise impacts depends on whether the project would increase noise levels above the existing ambient levels by introducing new sources of noise. Noise impacts would be considered significant if the project would result in the following:

- Exposure of persons to noise levels in excess of acceptable and permitted levels
- Exposure of persons to excessive ground-borne vibration or ground-borne noise levels
- A substantial permanent increase in ambient noise levels (more than 3dBA) in the project vicinity above levels existing before the project

Proposed Mitigation Measures

- Provision of appropriate Personnel Protective Equipment (PPE)
- Construct activities to be mainly during the day
- Consider labour based construction methodologies

- Ensure compliance with Environmental Management and Coordination (Noise and Excessive Vibrations Pollution) (Control) Regulations, 2009 during construction phase

- **Dust Emissions**

Dust will be emitted during construction activities, excavation and related earthworks. Air-borne particulate matter pollution is likely to occur during the excavation works. This is likely to affect site workers, in extreme situations leading to respiratory problems.

Proposed Mitigation Measures

- Minimizing the number of motorized vehicles on use
- Rehabilitate disturbed areas
- Wet all active construction areas as and when necessary to reduce dust.
- Cover stock piles of construction materials to reduce dust emissions especially during windy conditions
- Ensure compliance with Environmental Management and Coordination (Air Quality) Regulations, 2024

- **Exhaust fumes**

Fuel powered construction equipment including bull dozers, excavators, graders and trucks emit pollutant fumes into the atmosphere as a result of combustion of hydrocarbon fuels. This condition worsens especially when the equipment is not serviced on a regular basis.

The exhaust fumes comprise of carbon dioxide, carbon monoxide, nitrogen oxide as (NOx) and Sulphur dioxide as (Sox). Such emissions are potentially hazardous to workers and the public because they have a potential of contributing to respiratory ailments. Carbon dioxide and nitrous oxide (N2 O) significantly contibute to the greenhouse effect. In addition, combination of nitrogen and Sulphur oxides (NOx and Sox) with atmospheric water vapour results to formation of acid rain. NOx and SOx when combined with water vapour, form nitric and sulphuric acids that return to the earth as acid rain, snow or fog. This contributes to

the acidification of soils and surface water bodies. Acid rain threatens biodiversity and also causes damage to buildings.

Proposed Mitigation Measures

- Gaseous emissions can be controlled by ensuring that all fuel powered construction equipment is serviced and maintained on a regular basis.

- **Increased Waste Generation**

Solid wastes generated during construction include papers used for packing, plastics, cuttings and trimmings of materials among others. Dumping around the site will interfere with the aesthetic status and has a direct effect on the surrounding community. Disposal of the same solid wastes off-site could also be a social inconvenience if done in the wrong places. The off-site effects could be aesthetic, pest breeding, pollution of physical environment including water resource, invasion of scavengers and informal recycling by communities.

Proposed Mitigation Measures

- Setting up waste collection and segregation area strategically within the facility/site for collection and sorting of solid wastes before disposal.
- Construction waste should be recycled or reused as much as possible to ensure that materials that would otherwise be disposed as waste are diverted for productive uses
- The proponent shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal
- Employ the 3R's concept (Reduce, Reuse & Recycle) in dealing with wastes onsite
- Contract a NEMA licensed waste handler for disposal of wastes from the site
- Ensure compliance with the provisions of the Environmental Management and Coordination (Waste
- Management) Regulations, 2024

- **Increased Water Demand**

During the construction phase of the proposed project, both the construction workers and the construction works will create demand for water in addition to the existing demand. Water will mostly be used during

construction for wetting surfaces or cleaning/curing completed structures. It will also be used by the construction workers to wash and drink.

Proposed Mitigation Measures

- The proponent through the contractor shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water use
- Any water handling equipment, facility and systems shall be appropriate for the intended usage.
- Water used on the construction shall reflect the level of conservation achieved by the contractors.
- Documentation of amounts of water used will be helpful in minimizing wastage
- Ensure compliance with the provisions of the Environmental Management and Coordination (Water
- Quality) Regulations, 2024

- **Occupational hazards at workplace**

Construction workers are likely to have injuries and hazards as the construction works unavoidably expose workers to occupational safety and health risks. The workers are also likely to be exposed to risk of accidents and injuries resulting from accidental falls and injuries from hand tools and construction equipment. There

will also be an increased risk of traffic accidents where delays and diversions are imposed or altered without adequate warning.

Proposed Mitigation Measures

- To reduce on the workers accidents and hazards, the proponent will develop and commit the contractors to Site Occupational Safety and health rules and regulations as stipulated in the Occupational Safety and Health Act, 2007
- All construction workers should be advised of the dangers associated with construction work
- Workers should be provided with suitable and appropriate PPE's
- Provision of adequate sanitary facilities to workers
- Train all workers on Safety Health and Environment (SHE) with an aim of improving awareness
- Install safety signage along the work areas
- Task-based risk assessment should be done on daily basis to assess the risks and hazards thereby prescribing the appropriate prevention measures

- **Spillage of Hazardous Materials**

There is a likely hood that fuel for emergency purposes will be stored at the construction site. In addition, minor servicing of equipment including oil change might be undertaken at the site. Refueling of construction equipment and oil change can result to accidental spillage of fuel or oil onto the ground surface. Other

potential sources of spillage include paints stored on site in bulk. This has the potential of causing soil and surface water contamination within and around the proposed project site.

Proposed Mitigation Measures

- Document spill prevention procedure & response plan.
- Major maintenance operations to be carried out offsite.
- Maintain appropriate spill response kits at the site.
- Use of drip trays for minor servicing of equipment.
- Hazardous materials to be stored in closed containers placed on water proofed surface and protected from direct sunlight and rainfall.
- Minimize the quantity of hazardous materials stored at the site during construction

7.3.3 Social Impacts during Construction Phase

- **Loss of Heritage, Cultural and Historical values**

The proposed project has the potential to cause loss of heritage cultural and historical significant to the community during its implementation. The site for the proposed project does not possess any cultural and heritage sites. From the field studies, there are no known impacts on archaeologically protected monuments and cultural properties in the proposed project area, if any archaeological or culturally important artefact be discovered during the construction process, the contractor should develop and implement a chance find procedure that should be approved by the relevant government body.

- **High Prevalence of Infectious and Communicable diseases**

During the construction phase, there is a risk of spread of communicable diseases. Aspects of the physical environment that promote transmission of diseases include: disposal of wastes and ventilation which are likely to occur during the construction phase of the project. With the influx of people during construction, there will be a likelihood of increase in diseases such as typhoid, tuberculosis, diarrheal diseases, respiratory diseases, dysentery and cholera. The infection rate of HIV/AIDS and other STI's is expected to rise during the construction phase of the proposed project. This is due to the fact that the contractors, traders and workers will have money to attract women/men from the project area in a bid to solicit for sex, thereby creating

avenues for spread of HIV/AIDS and other STIs. The most vulnerable members of the community are women as they don't have access to resources necessary for production and wealth creation.

Proposed Mitigation Measures

- Education and sensitization of workers and the local communities on STIs including provision of condoms to the project team and the public
- The contractor has to institute HIV/AIDS awareness and prevention campaign amongst workers for the duration of the contract e.g. erect and maintain HIV/AIDS information posters at strategic locations within the site.
- The contractor has to ensure that staff are made aware of the risks of contracting or spreading sexually transmitted diseases
- The contractor should ensure that the project workers are sensitized on the local culture

- **Influx of people in the area**

The proposed project has the potential to contribute to the massive influx/movement of people from different areas both during the construction and operation phases. This will have an extended impact of the social setting of the Maji ya Chumvi area in general. This therefore leads to concentration of people in one area drawn from diverse social and cultural backgrounds often resulting to a number of issues such as;

- Strain on various resources especially water resources, electricity and roads
- Grievances from local community members over job opportunities
- Sexual exploitation and abuse (SEA) and unwanted pregnancies

- **Social security and conflict**

Construction sites usually attract different kinds of people. These will include workers (both permanent and casual contract workers), food suppliers (to construction workers) and some idlers. A site of this nature can provide temptations to crooked workers and others to engage in theft. The presence of these people can therefore, negatively impact on the area's security. There could be conflict between the contractor or the facility and the surrounding communities due to: labor recruitment, shared resources (road, etc.) and behavior of workers.

Proposed Mitigation Measures

- The contractor should ensure the security personnel are well inducted to address security related issues as they arise
- Prepare labor management plan to guide recruitment of the workers in conjunction with local leaders
- Limit worker's interaction where possible with community members
- Contractor security personnel should discourage the use of force among the workers and community members unless for defensive purposes

- **Gender based violence and gender inequalities**

Gender-Based violence refers to harmful acts directed at an individual based on their gender. It is rooted in gender inequality, the abuse of power and harmful norms. Gender-based violence (GBV) is a serious violation of human rights and a life-threatening health and protection issue. Development projects are not isolated from traditions, culture, norms, customary laws and governmental policies that exist in the country and the community. If not addressed properly, commercial development projects can implicitly legitimize and reinforce harmful gender norms. Gender inequalities may occur during project construction phase when the Contractor fails to comply with the following provisions; gender inclusivity requirements in hiring of workers and entire project management as required by the Gender Policy of 2011 and gender rule, failure to protect Human Risk Areas Associated with Disadvantaged Groups, interfering with Participation Rights, and interfering with Labor Rights. Women face greater economic vulnerability as their labor participation is often

highly informal, without social protection. Low-income women and women migrant workers are especially vulnerable.

Proposed Mitigation measures

- The contractor will mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by the Gender Policy of 2011 and Gender Rule
- The existing community structures headed by local area administration such as chiefs should be involved in local labor hire, emphasize the requirement of hiring women, youth and people with disability
- Protecting Human Risk Areas Associated with Disadvantaged Groups, interfering with Participation Rights and interfering with Labor Rights to include promotion of rights, including gender equality and equity
- Ensure safe employment for women, including training for all staff on sex-disaggregated latrines, regular consultation with female employees and other measures to ensure physical safety and dignity of female employees
- GBV constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties and/or termination of employment. All forms of GBV including grooming are unacceptable in the work site, the work site surroundings, or at worker's camps (if any). Prosecution of those who commit to be pursued
- Treat women and children (persons under the age of 18) with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status. Do not use language or behavior towards women or children that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate
- Sexual activity with children under 18-including through digital media is prohibited. Mistaken belief regarding the age of a child and consent from the child is not a defense
- Exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading or exploitative behavior is prohibited
- Sexual interactions between contractor's and consultant's employees at any level and member of the communities surrounding the workplace that are not agreed to with full consent by all parties involved in the sexual act are prohibited. This includes relationships involving the withholding, promise of actual

provision of benefit (monetary or non-monetary) to community members in exchange for sex, such sexual activity is considered "non-consensual" and should not be allowed

- Where an employee develops concerns or suspicions regarding acts of GBV by a fellow worker, whether in the same contracting firm or not, he or she must report such concerns in accordance with Standard Reporting Procedures
- All employees are required to attend an induction-training course prior to commencing work on site to ensure they are familiar with the GBV Code of Conduct
- All employees must attend a mandatory training course once a month for the duration of the contract starting from the first induction training prior to commencement of work to reinforce the understanding of the institutional GBV Code of Conduct.

- **Child employment (child abuse) and other Labor Related Impacts**

The proposed project will have employment opportunities for the locals within the area especially for non-skilled labor. The project area hosts populations living below poverty line, coupled by high illiteracy levels, these vulnerability conditions can lead to employment of the minors who may disguise as adults.

This social impact is prevalent due to the fact that project construction phase attracts various categories of workers from local, national and international markets. This therefore leads to concentration of people in one area drawn from diverse social and cultural backgrounds often resulting to a number of issues such as; strain on various resources especially water resources, electricity and roads. grievances from local community members over job opportunities, sexual exploitation and abuse (SEA) and unwanted pregnancies.

Proposed Mitigation Measures

- The Contractor will ensure effective community engagement and strong grievance mechanisms on matters related to labor with a discrete mechanism for safely and confidentially reporting issues sexual exploitation and abuse and GBV at the community level triggered by the project
- Effective contractual obligations for the contractor to adhere to the mitigation of risks against labor influx, the contractor should engage a local community liaison person in employment issues
- The contractor will ensure proper records of labor force on site while avoiding child and forced labor
- The Contractor will ensure compliance with provisions of the Work Place Injuries and Benefits Act (WIBA) 2007
- The Contractor will develop and implement a Child Protection Strategy; this strategy will ensure that no person under the legal age of 18 years is employed in the project

- The contractors will develop training and sensitization of workers on Sexual Exploitation and Abuse and ensure specific signage on zero tolerance in all work sites
- The contractor will ensure signage on SEA-related rights and safe and confidential reporting mechanisms at the community level
- The contractor shall comply with the International Labor Organization Standards ratified in Kenya which include but not limited to: Prohibition of forced labor (ILO No 29) and Abolition of forced labor (ILO No 159)
- The contractor shall comply with the Kenya's persons with disabilities PWDs Act. The contractor will make reasonable accommodations for qualified individuals with known disabilities. This policy governs all aspects of employment, including selection, job assignment, compensation, discipline, termination and access to benefits and training
- It is the contractor's responsibility to provide all employees with a workplace free of harassment, intimidation, coercion and retaliation as provided by Kenya's Employment Act Cap 226 of 2007
- Any employee(s) who witness or believe they have been subject to discrimination, harassment, retaliation is encouraged to notify their supervisor

- **Drug & substance abuse**

The proposed project involves the influx of people from various areas. With huge population in one place, drug and substance abuse is a factor. This may also occur during operation of the waste management site since workers may indulge in drug and substance abuse.

Proposed Mitigation Measures

- The project contractor and the proponent should create awareness among the site workers on the impacts of drug abuse
- The project contractor should discourage the use and abuse of drugs among the workers and the community members
- The contractor should formulate a policy that discourages entrance with drugs on site

- **Impacts on Traffic and Site accessibility**

The operations of the proposed project are likely impact on the traffic in the area through the access road to the site from the Main Highway. The proposed project will come along with increased (vehicle) traffic especially during construction phase.

Proposed Mitigation Measures

- The trucks carrying construction materials will be advised to access the site at intervals to reduce traffic congestion along the access road
- Develop and implement a traffic management plan
- Control entry and exit of vehicles to and from construction site
- Comply with the provisions of Traffic (amendment) Act, 2022
- Ensure that all the vehicles accessing the facility are parked within the premises

7.4 Impacts during Operation Phase

7.4.1 Negative Impacts

- **Impacts on Occupational Health and Safety at Workplace**

There are potential safety and health risks associated with operations of the facility. These include dermal contact with used oil and inhalation of vapors during handling and recycling of such products, accidental falls, musculoskeletal injuries and general exhaustion. All these risks have potential to cause injuries, permanent disability or even death and hence the facility management should be committed to ensuring safety and health of workers and visitors to the facility.

Proposed Mitigation Measures

- All employees to be provided with the appropriate Personal Protective Equipment and Clothing (PPE & C) and enforce their use
- Warning & Safety signage to be displayed at strategic areas within the facility
- Restrict access to the facility by the unauthorized people/persons
- Develop and implement a safety and health policy, and emergency response plan for the facility
- Sensitize employees to adhere to work procedures to minimize accidents
- Conduct first aid training among the workers and provide well-stocked first aid kit
- Provide and keep an accident/incident register occurring on the facility including near misses and actions taken to prevent future occurrences
- Conduct annual occupational safety and health audits and other statutory safety audits

- Comply with the provisions of the Occupational Safety and Health Act, 2007 during facility operations

- **Waste oil leaks and spills**

There is potential of oil spills especially during offloading, and transfer of used oil into the storage tanks and into the interceptor. Oil/ lubricant leakages may result from the delivery tankers. These products contain detrimental elements which should not be exposed to the environment since they contain traces of heavy metals such as lead, sulphur and mercury among others and would thus contaminate ground water and soil.

Proposed Mitigation Measures

- Pave the loading and offloading area with an impervious material to prevent any spills from contaminating ground water and soil
- Construct a bund wall around the storage tanks, loading and offloading area to prevent accidental oil leaks and spills from flowing to other areas
- Ensure that adequate spill containment is provided at all times in case of severe leakage of oils. The containment should be of at least 20% the capacity of the storage tanks
- Regularly empty sludge tanks and maintain the oil interceptor in good working condition
- Conduct regular tests on the waste oil tanks to curb possible tank failure
- Ensure compliance with the Technical Guidelines on the Management of Used Oil and oil Sludge in Kenya, 2016 during facility operations

- **Used oil/sludge management**

Oil sludge is the viscous, non-flowing, semi-solid material which is generated as a result of long storage of oils. The sludge is hazardous and thus special attention and utmost care in handling and disposal should be accorded. Sludge will be generated from the oil water interceptor and cleaning of the storage tanks.

Proposed Mitigation Measures

- The sludge should be managed through incineration in in accordance with the provisions of the Environmental Management and Coordination (Waste Management) Regulations, 2024

- Ensure compliance with the Technical Guidelines on the Management of Used Oil and oil Sludge in Kenya, 2016 during facility operations.

- **Fire risks management and associated emergencies**

The proposed project will handle used oil that contains hydrocarbons which are volatile and their vapors in specific concentrations are flammable. If precautions are not taken to prevent their ignition, fire and subsequent safety risks may arise. Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Fire occurrence may lead to death, financial losses and loss of livelihoods for the workers and neighbors.

Proposed Mitigation Measures

- Provide firefighting equipment within the facility
- Firefighting equipment should be serviced regularly by fire service providers to be contracted
- Train employees on the use of fire-fighting equipment
- Develop and implement a fire and emergency response plan
- Provide informative fire safety and warning signage within the facility
- Enforce a 'no smoking' rule within the facility
- Conduct fire drills and fire safety audits annually
- Document and display at strategic points, emergency fire evacuation procedures.
- Designate a fire assembling point at a safe place within the facility

- **Impact on air quality (air & noise pollution)**

Waste oil storage facilities can be a potential source of air pollution. The main sources of emissions to air include evaporative losses of volatile organic compounds (VOCs) of waste oil from storage, particularly during bulk deliveries. Other sources include exhaust fumes from the waste oil delivery tankers. On the other hand, noise pollution will emanate from vehicular movement in and out of the facility. However, the background noise within the area is in conformity with ethe existing environment being off the Mombasa-Nairobi Highway.

Proposed Mitigation Measures

- Provision of appropriate and adequate PPE to all workers within the site and enforce on their use
- Sensitize the drivers to avoid unnecessary hooting and running of vehicle engines
- Conduct air quality monitoring in collaboration with a NEMA designated laboratory in compliance with air quality regulations, 2024

  Ensure compliance with the provisions of the Environmental Management and Coordination (Air Quality) Regulations, 2024 and (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 during facility operations

- **Impact on water quality (effluent generation & management)**

During operations of the facility, water will be required for sanitation and drinking purposes and will be supplied by contracted water suppliers and stored within the facility in the water storage tank. Effluent from sanitation facilities will be managed through onsite septic tank. Additionally, wastewater/oily water will be generated at the interceptor during the separation process of the used oil/sludge.

Proposed Mitigation Measures

- Monitor the quality of the domestic effluent and the discharge from the oil/water interceptor to ascertain conformity to the standards stipulated in the Environmental Management and Coordination (Water Quality) Regulations, 2024
- Contract a NEMA licensed waste handlers to collect oily water from the facility for appropriate disposal
- Apply for and obtain an Effluent Discharge License (EDL) for onsite septic tank from the Authority (NEMA)
- Ensure compliance with the provisions of the Environmental Management and Coordination (Water Quality) Regulations, 2024
- Create awareness among the staff on water conservation mechanisms

- **Impact on solid waste generation and management**

The facility will generate different types of solid wastes i.e., from the office comprising of mainly paper from administrative activities, glass and plastics for office supplies. The facility will also produce hazardous wastes from used oil operations including waste oil rags, used seals and packaging materials. Poor disposal of solid waste degrades environmental quality.

Proposed Mitigation Measures

- Provide adequate solid waste collection bins with a capacity for segregation within the facility
- Sensitize workers on the process of solid waste collection, segregation and proper disposal
- Procure a sizeable central solid waste collection bin with chambers to accommodate separated waste
- Contract a NEMA licensed waste handler to dispose off wastes in compliance with Environmental Management and Coordination (Waste Management) Regulations, 2024
- Ensure compliance with Environmental Management and Coordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 during wastes handling at the facility

- **Energy demand**

The facility will use energy resources from the environment such as electricity and fuel. Electrical energy will be used for lighting the offices, operation of electronic equipment and other daily operations. The primary energy source will be the National Grid.

Proposed Mitigation Measures

- Sensitize workers to switch off lights when not in use and ensure energy conservation methods within the facility
- Ensure use of renewable energy sources such as solar energy
- Ensure regular servicing and maintenance of electrical appliances at the facility

- **Impacts on Traffic and Site accessibility**

The operations of the proposed used oil handling and recycling facility are likely to impact on the traffic in the area since the project site is situated off/along the Mombasa-Nairobi Highway. This will be as a result of trucks visiting the facility in delivering the used/waste oil to the facility.

Proposed Mitigation Measures

- The trucks carrying used oil will be advised to access the site at intervals to reduce traffic congestion along the access road
- The operations of the facility will be on contractual basis hence reducing the potential impacts of heavy traffic
- Develop and implement a traffic management plan
- Control entry and exit of vehicles to and from the facility
- Comply with the provisions of Traffic (amendment) Act, 2022

- **Contact with hazardous materials through handling**

Staff handling used oil and/or processed oil during offloading from and loading on trucks respectively have the potential of suffering from occupational ailments as a result of continual inhalation of fumes and/or as result of the materials coming into direct contact with their skin.

Proposed Mitigation Measures

- Provide all workers handling hazardous materials with personal protective equipment including gloves, coveralls, and safety boots and enforce use of the same throughout the operation phase of the project.

- **Impacts on Heritage, Cultural and Historical Values**

The site for the proposed project does not possess any cultural and heritage sites. Therefore, the proposed protect will not have any impact on the cultural and heritage values of the community.

7.5 Decommissioning Phase

Decommissioning is an important phase in the project cycle and comes last to wind up the operational activities of a particular project. It refers to the final disposal of the project and associated materials at the expiry of the project lifespan. If such a stage is reached, the proponent needs to remove all materials resulting from the demolition/ decommissioning from the site and the proponent is also required to prepare a decommissioning management plan that will guide the decommissioning process and seek approvals/ permits from all the relevant government agencies.

- **Occupational health and safety impacts**

Safety and health risks are likely to emanate from accidental falls and cuts and injuries from machinery use. Noise and air pollution from decommissioning activities may also pose safety and health and safety risks to workers, neighbors and visitors to the facility

Proposed Mitigation Measures

- Ensure that the process of demolition is supervised by competent personnel
- Seek the services of a licensed construction company to carry out demolitions
- Ensure the protection of infrastructural facilities within the site during the decommissioning phase such as water facilities
- Provision adequate and appropriate PPE's and Clothing and enforce on their use for people involved
- Seek demolition permit from the relevant authorities
- Ensure compliance with the Occupational Safety and Health Act, 2007

- **Waste generation and management**

Demolition activities will result in generation of waste including building rubbles, oil sludge and effluent among others. If not properly managed, these generated waste will pose safety and health risks and environmental pollution

Proposed Mitigation Measures

- Ensure compliance with the Environmental Management and Coordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 in disposing demolition wastes
- Contract a NEMA licensed waste handler to dispose waste generated from the demolition activities in compliance with Environmental Management and Coordination (Waste Management) Regulations, 2024; Legal Notice 178/2024
- Waste recovery should be encouraged, reusable and recyclable components from the facility should be conserved for secondary use

- **Socio-economic impacts**

Proposed Mitigation Measures

- Inform and train employees on alternative livelihoods prior to decommissioning of the project
- Prepare and issue recommendation letters to the workers to seek alternative employment opportunities elsewhere
- Ensure compliance with labor laws and other statutory regulations in decommissioning phase
- Economic decline within the project area, look for an alternative site to set up the facility and realize the associated economic benefits

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

8.1 Introduction

The purpose of the Environmental and Social Management Plan (ESMP) for the proposed project is to initiate a mechanism for implementing mitigation measures for the potential negative environmental impacts and monitor the efficiency of these mitigation measures based on relevant environmental indicators. The ESMP identifies certain roles and responsibilities for different stakeholders for implementation, supervision and monitoring

The objectives of the Environmental and Social Management Plan are:

- To guide the project implementers in project planning,
- To guide the Project implementers on the likely impacts of the project and when they are likely to occur
- To give an assessment of the capacity requirements for the implementation of the ESMP
- To guide the project implementers to allocate adequate resources for the implementation of the mitigating measures

8.2 ESMP Outline

The table below outlines the environmental and social management plans for the proposed project cycle. The plan considers the following;

- Predicted/anticipated environmental impact
- Proposed mitigation measures
- Responsible party / parties
- Timeframe
- Estimated costs

The ESMP for the proposed project will cover all the project cylce or phases. The project phases comprises of construction phase, operation phase and decommissiong phase.

8.3 ESMP for Proposed Used Oil Handling and Recycling Facility

8.3.1 Construction Phase

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Occupational Health and Safety Hazards at Workplace	– Provide all employees with appropriate and adequate Personal Protective Equipment and Clothing (PPE's & C). These include working safety boots, overalls, helmets, goggles, earmuffs, respirators/masks and gloves. – Warning & Safety signage will be placed at the strategic areas within the facility – Provide employees with correct equipment tools and for the jobs assigned and train on their use – Provide first aid services and emergency services kit at the project site. This should be fully equipped at all times and should be managed by qualified person. – Register the site as a workplace with the Directorate of Occupational Safety and Health Services – Ensure moving parts of machines and sharp surfaces are securely protected while on site – Regulate the entry of visitors to the construction site by deploying adequate security measures – The proponent should have workmen's compensation cover (WIBA). It should comply with workmen's compensation	Project Manager/Contractor	100,000.00

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Excavation and loss of top soil (Land degradation)	– Maximizing the re-use of excavated materials to ensure that no permanent spoil dumps are created – Properly disposing off the excavated soil in designated areas approved by NEMA in compliance with the Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 – Ensure compliance with the Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024	Site Manager/proponent	50,000.00
Physical disturbance of the project area	– The proponent should ensure that there is minimal disturbance to the topography of the area – The excavation and lanscaping design shall not interfere with local drainage or change the topography or introduce physical changes that are not in harmony with the physical setting of the project area – The project components and associated structures should be aesthetically acceptable to blend in with the surroundings – The proponent shall as much as possible complete the works in such a way that natural aesthetics shall be retained at the locations – Restoration shall be undertaken to ensure that the original setting is as much as possible retained	Proponent/contractor	30,000
Noise and excessive vibrations	– Provision of appropriate Personnel Protective Equipment (PPE) to protect the empoyees from noise and vibrations effects – Construct mainly during the day (8am-5pm) – Consider labour based construction methodologies – Sensitize truck drivers to avoid unnecessary hooting and running of vehicle engines	Proponent/contractor	80,000

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
	– Ensure compliance with provisions of Environmental Management and Coordination (Noise and Excessive Vibrations Pollution) (Control) Regulations, 2009		
Air pollution (Dust emissions & exhaust fumes)	– Minimizing the number of motorized vehicles on use – Rehabilitate disturbed areas – Wet all active construction areas as and when necessary to reduce dust. – Dry materials should be kept dump or covered at all time – Install gadgets to intercept the particulate matter as well as controlling gaseous emissions. – Recondition engine exhaust systems. – Establish inspection & maintenance program for equipment	Proponent/contractor	50,000.00
Increased waste generation	– Setting up waste collection and segregation area strategically within the facility for collection and sorting of solid wastes before disposal. – Construction waste should be recycled or reused as much as possible to ensure that materials that would otherwise be disposed as waste are diverted for productive uses – The Proponent shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal	Proponent and site supervisor	80,000.00

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Increased Water demand	– The proponent through the contractor shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water use – Any water handling equipment, facility and systems shall be appropriate for the intended usage. Water used on the construction shall reflect the level of conservation achieved by the contractors. – Documentation of amounts of water used will be helpful in minimizing wastage – Ensure compliance with the Environmental Management and Co-ordination (Water Quality) Regulations, 2024; Legal Notice 177/2024.	Proponent/contractor	80,000.00

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Loss of Heritage, Cultural and Historical values	– Prevention and restoration of cultural and heritage values of the community in the proposed project site – The site for the proposed project does not possess any cultural and heritage sites	Proponent/contractor	Nil
High Prevalence of Infectious and Communicable diseases	– Education and sensitization of workers and the local communities on STIs and other communicable diseases – The contractor has to institute HIV/AIDS awareness and prevention campaign amongst workers for the duration of the contract e.g. erect and maintain HIV/AIDS information posters at strategic locations within the facility. – The contractor has to ensure that staff are made aware of the risks of contracting or spreading sexually transmitted diseases – The contractor should ensure that the project workers are sensitized on the local culture	Contractor/proponent	30,000.00
The community conflicts	– Make sure all stakeholders and the local population is comfortable with project implementation. – Comprehensive public consultation was conducted with the local community and leadership to create awareness among the locals	Proponent/ESIA experts	60,000

8.3.2 Operation phase

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Occupational Health and Safety	– Develop and implement a safety and health policy, and emergency response plan for the facility – All employees to be provided with the appropriate Personal Protective Equipment and Clothing (PPE & C) and enforce their use – Sensitize employees to adhere to work procedures to minimize accidents – Train workers on the equipment use – Warning & Safety signage to be displayed at strategic areas within the facility – Restrict access to the facility by the unauthorized people/persons – Register the site as a workplace with the Directorate of Occupational Safety and Health Services – Sensitize employees to adhere to work procedures to minimize accidents – Conduct first aid training among the workers and provide well-stocked first aid kits within the facility – Provide and keep an accident/incident register occurring on the facility including near misses and actions taken to prevent future occurrences – Conduct annual occupational safety and health audits – Comply with the provisions of the Occupational Safety and Health Act, 2007	The Proponent/Health and Safety advisor	100,000.00
Waste oil leaks and spills	– Pave the loading and offloading area with an impervious material to prevent any spills from contaminating ground water and soil – Construct a bund wall around the storage tanks, and loading and offloading area to prevent accidental oil leaks and spills from flowing to other areas	The proponent	50,000

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
	– Ensure that adequate spill containment is provided at all times in case of severe leakage of oils at the facility – Document and display at the facility emergency response procedures and plan for spillage incidents. – Regularly wash/desludge and maintain the oil interceptor in good working condition – Conduct regular tests on the waste oil storage tanks to curb potential tank leakages – Ensure compliance with the Technical Guidelines on the Management of Used Oil and oil Sludge in Kenya, 2016 during facility operations		
Management of sludge/waste oil at the facility	– The sludge resulting operations of the facility should be managed through incineration in compliance with accordance with the Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 – Ensure comply with the Technical Guidelines on the Management of Used Oil and oil Sludge in Kenya, 2016 during facility operations	The proponent	50,000.00
Fire risks emergencies and management	– Procure and provide adequate firefighting equipment and place them strategically within the facility – Firefighting equipment should be serviced regularly by fire service providers – Develop and implement a fire and emergency response plan – Train employees on the use of fire-fighting equipment – Develop and implement a fire and emergency response plan – Provide informative fire safety and warning signage within the facility – Enforce a 'no smoking' rule within the facility – Undertake fire safety audit (FSA) for the facility in compliance with OSHA 2007	The proponent/Accredited Fire safety advisor	60,000.00

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Impacts on Air Quality and noise at the facility	– Provide appropriate and adequate PPE to all workers within the facility and enforce on their use – Sensitize the drivers to avoid unnecessary hooting and running of vehicle engines around the facility area – Conduct air quality monitoring in collaboration with a NEMA designated laboratories – Ensure compliance with the Environmental Management and Co-ordination (Air Quality) Regulations, 2024; Legal Notice 180/2024 during facility operations	The proponent/site supervisor/Accredited NEMA laboratories	100,000.00
Impacts on solid waste generation & management	– Provide adequate solid waste collection bins with a capacity for segregation within the facility – Sensitize workers on the process of solid waste collection, segregation and proper disposal – Procure a sizeable central solid waste collection bin with chambers to accommodate separated waste – Contract a NEMA licensed waste handler to dispose solid waste from the facility – Ensure compliance with the Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024	Proponent	60,000

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Water quality and effluent management	– Create awareness among the staff on water conservation mechanisms within the facility – Monitor the quality of the domestic effluent and the discharge from the oil/water interceptor to ascertain conformity to the standards stipulated under the Environmental Management and Coordination (Water Quality) Regulations, 2024 – Apply for and obtain an Effluent Discharge License (EDL) from NEMA during facility operations – Ensure compliance with Environmental Management and Coordination (Water Quality) Regulations, 2024	Proponent/NEMA Accredited laboratories	100,000.00
Traffic management & facility accessibility	– The trucks carrying used oil will be advised to access the site at intervals to reduce traffic congestion along the access road – The operations of the site will be on contractual basis hence reducing the potential impacts of heavy traffic – Develop and implement a traffic management plan – Control entry and exit of vehicles to and from the facility – Ensure compliance with the provisions of Traffic (amendment)Act, 2022	Proponent	20,000
Increased energy demand	– Sensitize workers to switch off lights when not in use – Ensure regular servicing and maintenance of electrical appliances – Use of renewable energy sources such as solar energy	Proponent	10,000

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Heritage, Cultural and Historical values	– Prevention and restoration of cultural and heritage values of the community in the proposed project site – The site for the proposed project does not possess any cultural and heritage sites – The project should be in harmony with the cultural and social aspect of the community	Proponent	Nil
Prevalence of Infectious and Communicable diseases	– Education and sensitization of workers and the local communities on STIs and other communicable diseases – The contractor has to institute HIV/AIDS awareness and prevention campaign amongst workers for the duration of the contract e.g. erect and maintain HIV/AIDS information posters at strategic locations within the site. – The proponent has to ensure that staff are made aware of the risks of contracting or spreading sexually transmitted diseases	Proponent	20,000
The community involment	– Make sure all stakeholders and the local population is comfortable with project implementation. – Provision of employment opportunities to the local community during operations	Proponent	Nil

8.3.3 Decommissioning phase

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Occupational Health and Safety	– The process of demolition should be supervised by competent personnel – Seek the services of a licensed construction company to carry out demolitions – Ensure the protection of infrastructural facilities within the site during the decommissioning phase such as water facility – Provision adequate and appropriate PPE's and Clothing and enforce on their use for people involved – Seek demolition permit from the relevant authorities – Ensure compliance with the Occupational Safety and Health Act, 2007	Proponent/contractor	80,000.00
Waste generation	– Ensure compliance with the Waste Management Regulations, 2024 in disposing of the demolition wastes – Contract a NEMA licensed waste handler to dispose waste generated from the demolition activities – Waste recovery should be encouraged, reusable and recyclable components from the site should be conserved for secondary use – All recyclable materials should be collected and sent to NEMA licensed recyclers	Proponent/ contractor	60,000
Social and economic concerns	– Train employees on alternative livelihoods prior to decommissioning of the facility – Prepare and issue recommendation letters to the workers to seek alternative employment opportunities elsewhere – Ensure compliance with labor laws and other statutory regulations in decommissioning phase – Economic decline within the project area, look for an alternative site to set up the facility and realize the associated economic benefits	Proponent	Nil

Anticipated Impacts/environmental aspect	Recommended Mitigation Measures	Responsible Party	Estimated Cost (Ksh)
Land degradation	– Ensure environmental rehabilitation and restoration of the project site through planting of indigenous tress – Proper handling of wastes on site to reduce environmental degradation	Proponent	30,000

CHAPTER 9: ENVIRONMENTAL MONITORING PROGRAM

9.1 Overview of monitoring program

Throughout the operation phase, regular monitoring intended for proper safety and protection of the environment will be undertaken. The monitoring system will assist in observation, evaluation, assessment and reporting on the performance of different/various variables with regard to the environment.

Environmental Monitoring Plans is required to ensure full and systematic implementation of the Environmental Management Plan. It entails assessment of environmental performance of the proposed project by documenting, tracking and reporting any changes in environmental parameters in space and time. The objective of the monitoring plans is to enhance the environmental performance of the project by providing data and information on compliance with legislative standards and determining the levels of deviation from the values obtained during the baseline monitoring. This in turn informs the corrective measures if any that need to be implemented to comply with the legislative standards. For the proposed project, the following monitoring plans/parameters will be looked at;

- Occupational safety and health monitoring plan
- Wastewater quality monitoring plan
- Solid waste monitoring plan
- Air quality monitoring plan
- Noise monitoring plan

9.2 Environmental Management System

An environmental management system (EMS) is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of development management. An EMS ensures environmental considerations are a priority with other concerns such as costs, product quality, investments, productivity and strategic planning.

The proposed waste management facility will require that a comprehensive safety, occupational and public health and environmental system be formulated and maintained in accordance with the relevant legislative and regulatory requirements.

9.3 Environmental Institutional Framework

The project proponent will work with EIA/EA experts' team in identifying ways to improve environmental performance of the waste management facility setting objectives and targets, monitoring and evaluating implementation.

9.4 Monitoring schedule

The proponent will follow the monitoring schedule that will assist in observation, evaluation assessment and reporting on the performance of different/various variables. The following table summarizes the suggested monitoring schedule for the proposed Used Oil Handling and Recycling Facility.

Table 9.1: Summary of monitoring schedule

Description of parameter	Method of monitoring	Monitoring schedule and duration
Compliance by contractor and contractor staff to HSE requirements	Visual inspections against checklists containing requirements	Review daily to determine impact on quality
Public health and safety	Visual inspection and complaints from neighbors/workers Test quality of the environmental parameters such as air quality & water quality through NEMA accredited laboratories	Daily Annually/quarterly assessments

9.5 Waste tracking

In accordance with The Environmental Management and Co-ordination (Waste Management) Regulations, 2024; Legal Notice 178/2024 and the Technical Guidelines on the Management of Used Oil and oil Sludge in Kenya 2016, the proponent must ensure that tracking documents are in place and that necessary notifications to the authority are done.

CHAPTER 10: CONCLUSIONS & RECOMMENDATIONS

10.1 Conclusion

The proposed project is considered important and beneficial to the economy as it will ensure safe management of used oil through proper handling and recycling thus promoting socio-economic growth of the area through employment creation and revenue generation to the government. Main concerns that will result from the implementation of the proposed project include waste oil leaks and spillages, oil sludge management, fire risks and management, occupational safety and health risks, air and noise pollution, water demand, waste generation and management and traffic congestion.

The ESIA study proposes a suite of comprehensive Environmental and Social Management and Monitoring Plans to address the anticipated negative impacts during the entire project cycle and improve the environmental performance of the proposed project. It is on this basis that we recommend that the project be allowed to proceed alongside conditions which will ensure compliance with the provisions of the Environmental Management and Coordination Act Cap. 387 of the Laws of Kenya.

10.2 Recommendations

This ESIA report recommends issuance of a license/approval subject to the conditions that NEMA may impose during the decision-making process. The following recommendations should however be considered:

- The project does not pose any serious/irriversable environmental concerns, other than those of a minor scale that accompany similar projects
- The positive impacts of the project outweigh the negative ones, which will be adequately contained by following the prescribed environmental and social impact management plans
- As such, the project could be allowed to commence, and activities be managed within the provided ESMP and sound environmental management practices that are locally and internationally recognized.
- Comply with all pieces of regulations as documented in this report.

REFERENCE

1. Kenya National Bureau of statistics, Kenya Population and Housing Census 2019
2. National Environment Policy, 2013
3. National Energy and Petroleum Policy, 2018
4. National Land Policy, 2009
5. Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019,
6. Environmental Management and Coordination (Air Quality) Regulations, 2024
7. Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulation, 2009
8. Environmental Management and Coordination (Waste Management) Regulations, 2024
9. Environmental Management and Coordination (Water Quality) Regulations, 2024
10. The Constitution of Kenya, 2010
11. The Occupational Safety and Health Act, 2007
12. The Climate Change Act, 2016
13. Technical Guidelines on the Management of Used Oil and Oil Sludge in Kenya
14. The County Government Act, 2012
15. The Water Act, 2016
16. The Energy Act, 2019
17. National Construction Authority Act, 2014
18. The Physical and Land Use Planning Act, 2019
19. The Public Health Act, 2012
20. Occupiers Liability Act Cap 34

APPENDICES

Appendix 1: Company Certificate of Incorporation

Appendix 2: Copy of KRA PIN certificate

Appendix 3: Copy of land lease agreements

Appendix 4: Public participation minutes

Appendix 5: Approval of TOR

Appendix 6: Bill of Quantities

Appendix 7: Copy of EIA /EA experts' practising licenses & CV

MINUTES OF THE STAKEHOLDER MEETING HELD ON 6th JUNE 2025 FOR THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/MAJI YA CHUMVI/ 160,163, & 164 KWALE COUNTY AT 10:50 (A.M)

PROPOSED USED OIL HANDLING AND RECYCLING FACILITY

The meeting was called to order at 10:55(a.m.) with a prayer from Mama Agnes and introduction from the chief-Ronald Beja who introduced Mrs. Abigael Mulobi – Assistant county commissioner

ATTENDANCE SCHEDULE

1. Abigael Mulobi……. Assitantant County Commisioner
2. Fred Ojijo……..NEMA consultant
3. Mdoe D. Mdoe……..Ward Administrator
4. Ronald Beja……. Chief
5. Mwende Liz …… Attache ACC
6. Quincy Nyaboke…… attaché ACC
7. Margaret Mwamwee ……. Assistant Chief
8. Bakari Mwangadu ……. Member
9. Chigulu Nyamawi……. Member
10. Charo Kaingu……Member
11. Ndegwa Kengo…… Member
12. Samson Mwangadu……..Member
13. Bakari Ngao……..Member
14. Chamutu Joseph…….Member
15. Godfrey G Zuma……Village Elder
16. Edward Masha……
17. Hassan Mundalu…….Nyumba kumi
18. Nicholas Chaka Izah……..Village Elder
19. Mgandi Kaingu Mzungu…… Member
20. Mose Chigulu Kigamba…… Nyumba kumi
21. Surendar Kumar…… Proponent
22. Angela Olal…… NEMA Consultant
23. Jones Mwashumbe Ngoo……SC PHO
24. Salim Kalume ……..A.L.P.O
25. Palha Shanga……C.B.O Chairperson

AGENDA

1. **Meeting introduction**
2. **Project brief**
3. **Anticipated project impact**
4. **Environmental safeguards for the anticipated impact**

5. **Open questions**
6. **Stakeholders opinion determination**
7. **Adjournment**

The members agreed that the agendas were correct and the floor was open for discussion

1. MEETING INTRODUCTION

The meeting started by chief welcoming all members and there after introduced the chair (Assistant County Commissioner) who chaired the introduction of the participants. The meeting officially started after the introductions then Fred took over

2. PROJECT BRIEF

Being the first meeting, The Assistant County Commissioner briefed the members and then Fred took over and further explained on the project and how it affect the members both positive and negative

The proposed project will involve construction and subsequent operation of a used oil handling and recycling facility, comprising of 20 oil storage tanks, office block, washroom and ongoing perimeter wall

The source of raw materials are

1 .Used mobile oil (black oil) from garage services
2 Furnace oil from ship yard
3 Transformer oil and other type of oil collected in the market

There are three types of waste which is water, waste clay and sludge. Sludge and waste clay will be sold in an open market while waste water will be discharged into a NEMA designated landfill

The project aims to provide not only financial benefits but also educational opportunities

The project anticipates both negative and positive impacts to the environment and the community at large

The following will take place

- Settling
- Separation (decanting)
- Disposal of oily water (supernatant)
- Storage of waste oil
- Used oil recycling process
- Pre- treatment or Dewatering

3. ANTICIPATED PROJECT IMPACT

The project will have

1. Construction phase
2. Operation phase
3. Decommissioning phase

1. Construction phase

There is an ongoing construction of boundary wall and the plant itself, there will be creation of employment, supply of material, cooks for the workers

Negative will be dust and the mitigation will be sprinkling of water

2. Operation phase

The project will help in waste oil collection and recycling activities,

Employment: the community will get employment

Revenue to the government: Increase revenue to the government

Appreciating of the land to the community

Increased security of the place

Improved infrastrucure

Negatives

Construction phase

1. Hydrological and water degradation

The land is bare as at now but with time the water will be polluted

2. Excavation of top soil

There will be top soil which will be interfed with during construction

3. Generation of exhaust emissions

Operation phase

1. Waste oil leaks and spills
2. Oil sludge management
3. Fire risks and emergencies

The factory should operate within the stipulated working time under EMCA regulations

Mitigations

- Water analysis should be done quartely
- For waste , the proponent should have a proper waste management plan by contracting a licensed transportation company to handle it
- For noise ,the proponent should work under stipulated time according to EMCA regulations
- Oil storage tanks must be designed in accordance with SANS 100891:2008 100087-3:2008, respectively
- All oil waste must be stored in manner that prevents the establishment of fires
- No products from oil recycling process may be stored in the open and all storage containers and/ or bags must be sealed during storage and transportation. Storage must occur in Impermeable surfaces; and soil, storm water and groundwater pollution must be prevented through the correct handling, storage and disposal of cement,concrete,waste and chemicals

Fred took over and explained that there will be sample collecting of both water, soil and air for baseline information

5 Open questions

1. The community was concerned about water pollution and wanted an assurance that the operations will not lead to further contamination of the local river
2. Mr. Charo Kaingu wanted to know the initiative NEMA has taken to ensure that the smoke that does not affect the environment
3. The community was concerned on the job opportunities to the unskilled locals

The members wanted to know what will happen if the proponent didn't adhere to the EMCA rules and regulations

ANSWERS

Fred took over answered all the questions

1. There will be no any activities that will lead to pollution of the river, if there will be any non-compliance will be reported via chief's office to the appropriate regulatory authorities

2. The proponent did ensured that there will be a catalytic converter in the chimney which will reduce waste severity discharged to the environment

3. There will be job opportunities open to both skilled and unskilled labor

Mechanical engineer-Diploma

Electrical engineer- Diploma

Accounting - Diploma

6. Stakeholders opinion

Cooperate Social Responsibility - (CSR)

The ACC emphasized that the locals will be the first choice in employment

There will be food donation programs on holidays such as Ramadan and Christmas

Sponsorship opportunities for vulnerable community members

A.O.B

The members wanted to know when the construction of the facility will start and Mr. Fred answered it by saying that when all the licenses are ready

The proponent (Mr. Kumar) gave a vote of thanks to the community and thanked them for attending the first meeting as part of the requirement needed by NEMA in order to get the relevant document

The second meeting will be held on 9th June 2025

Since there was no any AOB's the meeting was adjourned with a prayer from Mr. Godfrey Zuma at 2:20(p: m)

CHAIRPERSON..ABIGAEL MULOBI.. SIGNATURE..B.8..... DATE..06-06-2025

SECRETARY..Angela Olal..... SIGNATURE..Angela..... DATE..06/06/2025

MINUTES OF THE STAKEHOLDER MEETING HELD ON 9th JUNE 2025 FOR THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/MAJI YA CHUMVI/ 160,163, & 164 KWALE COUNTY AT 12:50 (P.M)

PROPOSED USED OIL HANDLING AND RECYCLING FACILITY- 2ND MEETING

The meeting was called to order at 12:55(p.m.) with a prayer from Chamutu Joseph and introduction from the chief-Ronald Beja who introduced Mrs. Abigael Mulobi – Assistant county commissioner

ATTENDANCE SCHEDULE

1. Abigael Mulobi…….. Assitantant County Commisioner
2. Fred Ojijo……..NEMA consultant
3. Mdoe D. Mdoe……..Ward Administrator
4. Ronald Beja…… Chief
5. Mwende Liz …… Attache ACC
6. Quincy Nyaboke…… attaché ACC
7. Margaret Mwamwee ……. Assistant Chief
8. Jones Mwashumbe Ngoo……SC P.H.O
9. Salim Kalume……..A.L.P.O
10. Chari Mbuja Charo……A.A.O
11. Palha Shanga……..C.B.O Chairperson
12. Bakari Ngao……. Member
13. Chamutu Joseph……. Member
14. Edward Masha……Member
15. Joseph Menza…… Member
16. Mjape Lugwe……..Nyumba kumi
17. John Jira Chidundu……Member
18. Chamutu Joseph……Member
19. Godfrey G Zuma……Village Elder
20. Edward Masha……Member
21. Salim munao matu…… Village elder
22. Mangale Nyamawi……..Nyumba kumi
23. Agnes Kwekwe Tom…… Nyumba kumi
24. Furaha kazungu …… Nyumba kumi
25. Surendar Kumar…… Proponent
26. Mnazi Ndoro……Contractor
27. Angela Olal…… NEMA Consultant

AGENDA

1. **Meeting introduction**
2. **Project brief**
3. **Anticipated project impact**
4. **Environmental safeguards for the anticipated impact**
5. **Open questions**
6. **Stakeholders opinion determination**
7. **Adjournment**

Since it was the second meeting, the secretary, Md. Angela read out the previous minutes held on 6th June 2025 and all the stake holders agreed

The members agreed that the agendas were correct and the floor was open for discussion

1. MEETING INTRODUCTION

The meeting started by chief welcoming all members and there after introduced the chair (Assistant County Commissioner) who chaired the introduction of the participants. The meeting officially started after the introductions then Fred took over

2. PROJECT BRIEF

Being the second meeting, The Assistant County Commissioner briefed the members and then Fred took over and further explained on the project and how it affect the members both positive and negative

The proposed project will involve construction and subsequent operation of a used oil handling and recycling facility, comprising of 20 oil storage tanks, office block, parking area ,washroom and ongoing perimeter wall

The primary objective is to collect waste oil 'oil chafu' and then recycle it into renewable form

There will be storage tanks

8 tanks with a capacity of 40,000 litres

4 tanks with capacity of 14,000 litres

8 tanks with capacity of 30,000litres

Key points

Land use conversion (change of use)-It is permissible for projects to change from agricultural to industrial

Purpose of EIA- Is to assess the environmental impacts the industry will have on the environment. After the public consultation and the EIA has been submitted to NEMA Headquarters there after community communication will be conducted via locals radio stations (radio kaya) and through news papers

The source of raw materials are

1 Used mobile oil (black oil) from garage services
2 Furnace oil from ship yard
3 Transformer oil and other type of oil collected in the market

There are three types of waste which is water, waste clay and sludge. Sludge and waste clay will be sold in an open market while waste water will be discharged into a NEMA designated landfill

The project aims to provide not only financial benefits but also educational opportunities

The project anticipates both negative and positive impacts to the environment and the community at large

The following will take place

- Settling
- Separation (decanting)
- Disposal of oily water (supernatant)
- Storage of waste oil
- Used oil recycling process
- Pre- treatment or Dewatering

3. ANTICIPATED PROJECT IMPACT

The project will have

1. Construction phase- Establishment of the facility
2. Operation phase- Ongoing waste oil collection and recycling activities
3. Decommissioning phase- Closure and site restoration at the end of the project

1. Construction phase

There is an ongoing construction of boundary wall and the plant itself, there will be creation of employment, supply of material, cooks for the workers

Negative will be water demand and effluent generation

2. Operation phase

The project will help in waste oil collection and recycling activities,

Employment: the community will get employment

Increased security of the place

Improved infrastructure

Income to the proponent

Negatives

Construction phase

1. Environmental risks of obtaining raw materials
2. Water demand and effluent generation
3. Excavation of top soil
4. Generation of exhaust emissions

Operation phase

1. Water demand and effluent generation
2. Air and noise pollution
3. Occupational safety and health risks
4. Solid waste generation and management

The factory should operate within the stipulated working time under EMCA regulations

Mitigations

- Water analysis should be done quarterly
- For waste , the proponent should have a proper waste management plan by contracting a licensed transportation company to handle it
- For noise ,the proponent should work under stipulated time according to EMCA regulations

- ❖ Oil storage tanks must be designed in accordance with SANS 100891:2008 100087-3:2008, respectively
- ❖ All waste oil must be stored in manner that prevents the establishment of fires
- ❖ No products from oil recycling process may be stored in the open and all storage containers and/ or bags must be sealed during storage and transportation. Storage must occur in Impermeable surfaces; and soil, storm water and groundwater pollution must be prevented through the correct handling, storage and disposal of cement,concrete,waste and chemicals

Fred took over and explained that there will be sample collecting of both water, soil and air for baseline information

5 **Open questions**

1. The community was concerned about the employees safety be ensured and the emergency response
2. Mrs. Alice Kwekwe wanted to know the payments of the unskilled labour
3. The community was concerned about the fire preparedness when the operations start
4. The community was concerned about the slippery floor due to oil effect

The members wanted to know what will happen if the proponent didn't adhere to the EMCA rules and regulations

ANSWERS

Fred and Mr. Kumar took over answered all the questions

1. There will be education on occupational health and safety risks to all the workers

2. The proponent ensured that the unskilled will be paid well according to their skills

3. There will be quarterly education on fire preparedness

4. The proponent shall ensure all the required PPE's are available and enforce the use

6. Stakeholders opinion

Cooperate Social Responsibility - (CSR)

The ACC emphasized that the locals will be the first choice in employment

There will be investment on educational building, school renovations and local administration offices

Sponsorship opportunities for vulnerable community members

A.O.B

The members wanted to know where the process of licensing has reached since this was the second meeting and Mr. Fred answered it by saying , they report writing is on process

The proponent (Mr. Kumar) gave a vote of thanks to the community and thanked them for attending the first and the second current meeting as part of the requirement needed by NEMA in order to get the relevant document

The third meeting will be held on 12th June 2025

Since there was no any AOB's the meeting was adjourned with a prayer from Mr. Bakari Ngao at 3:20(p: m)

CHAIRPERSON... ABIGAEL MULOBI SIGNATURE... DATE... 09/06/2025

SECRETARY... Angela Olal SIGNATURE... DATE... 9/06/2025

MINUTES OF THE STAKEHOLDER MEETING HELD ON 12th JUNE 2025 FOR THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/MAJI YA CHUMVI/ 160,163, & 164 KWALE COUNTY AT 9:30 (A.M)

PROPOSED USED OIL HANDLING AND RECYCLING FACILITY–3RD MEETING

The meeting was called to order at 9:40(a.m.) with a prayer from Mdoe Mwachupa and introduction from the chief-Ronald Beja who introduced Mrs. Abigael Mulobi – Assistant county commissioner

ATTENDANCE SCHEDULE

1. Abigael Mulobi…….. Assitantant County Commisioner
2. Fred Ojijo……..NEMA consultant
3. Mdoe D. Mdoe……..Ward Administrator
4. Ronald Beja…… Chief
5. Mwende Liz …… Attache ACC
6. Quincy Nyaboke…… attaché ACC
7. Margaret Mwamwee ……. Assistant Chief
8. Jones Mwashumbe Ngoo……SC P.H.O
9. Salim Kalume……..A.L.P.O
10. Chari Mbuja Charo……A.A.O
11. Palha Shanga……..C.B.O Chairperson
12. Ndegwa Joseph…… Member
13. Chizigwa Mgandi……. Member
14. Mtune Kaingu……Member
15. Beja Nelson Menega…… Nyumba Kumi
16. Julius Mremn……..Member
17. Jonathan Menza……Nyumba Kumi
18. Fredrick Mwangulu……..Member
19. Ndegwa Ngati……Member
20. Kaingu Karisa……Member
21. Mwandaze Nyamawi……. Member
22. Tati Mpa……..Member
23. Umazi Njolowe…… …….Member
24. Luvuna Dzomo …… Member
25. Nadzwa Mgeli……Member
26. Ben Arnold Opapo……NEMA Consultant
27. Surendar Kumar…… Proponent
28. Mnazi Ndoro……Contractor
29. Angela Olal…… NEMA Consultant

AGENDA

1. **Meeting introduction**
2. **Project brief**
3. **Anticipated project impact**
4. **Environmental safeguards for the anticipated impact**
5. **Open questions**
6. **Stakeholders opinion determination**
7. **Adjournment**

Since it was the third meeting, the secretary, Md. Angela read out the previous minutes held on 9th June 2025 and all the stake holders agreed

The members agreed that the agendas were correct and the floor was open for discussion

1. MEETING INTRODUCTION

The meeting started by chief welcoming all members and there after introduced the chair(Assistant County Commissioner) who chaired the introduction of the participants. The meeting officially started after the introductions then Arnold took over

2. PROJECT BRIEF

Being the third meeting, The Assistant County Commissioner briefed the members and then Arnold took over and further explained on the project and how it affect the members both positive and negative

The locals were conversant with the project thus little description was made

Shree Shyam Petro Chemicals Limited intends to recycle used oil to produce re-fined base oil for secondary use. The facility will use used oil filtration machine. The recycling process will entail filtration and distillation to produce re-refined base oil suitable for use. Used oil recycling process will include pre-treatment

The proposed project will involve construction and subsequent operation of a used oil handling and recycling facility, comprising of 20 oil storage tanks, office block, parking area, washroom and ongoing perimeter wall

The primary objective is to collect waste oil 'oil chafu' and then recycle it into renewable form

Key points

Purpose of EIA- Is to assess the environmental impacts the industry will have on the environment. After the public consultation and the EIA has been submitted to NEMA Headquarters there after community communication will be conducted via locals' radio stations (radio kaya) and through newspapers. There will be specific conditions that will be established to guide the industry's operations

The source of raw materials are

1 Used mobile oil (black oil) from garage services
2 Furnace oil from ship yard
3 Transformer oil and other type of oil collected in the market

There are three types of waste which is water, waste clay and sludge. Sludge and waste clay will be sold in an open market while waste water will be discharged into a NEMA designated landfill

The project aims to provide not only financial benefits but also educational opportunities

The project anticipates both negative and positive impacts to the environment and the community at large

The following will take place

- Settling
- Separation (decanting)
- Disposal of oily water (supernatant)
- Storage of waste oil
- Used oil recycling process
- Pre- treatment or Dewatering

3. ANTICIPATED PROJECT IMPACT

The project will have

1. Construction phase- Establishment of the facility

2. Operation phase- Ongoing waste oil collection and recycling activities
3. Decommissioning phase- Closure and site restoration at the end of the project

1. Construction phase

There is an ongoing construction of boundary wall and the plant itself, there will be creation of employment, supply of material, cooks for the workers

Negative will be water demand and effluent generation

2. Operation phase

The project will help in waste oil collection and recycling activities

Appreciating of the land to the community

Increased security of the place

Improve living standards to locals

Income to the proponent

Negatives

Construction phase

1. Environmental risks of obtaining raw materials
2. Occupational Safety and health risks
3. Noise pollution
4. Generation of exhaust emissions

Operation phase

1. Traffic congestion
2. Energy demand
3. Occupational safety and health risks
4. Impacts at possible decommission phase

The factory should operate within the stipulated working time under EMCA regulations

Mitigations

- Water analysis should be done yearly
- For waste , the proponent should have a proper waste management plan by contracting a licensed transportation company to handle it
- For noise ,the proponent should work under stipulated time according to EMCA regulations
- Oil storage tanks must be designed in accordance with SANS 100891:2008 100087-3:2008, respectively
- All waste oil must be stored in manner that prevents the establishment of fires
- No products from oil recycling process may be stored in the open and all storage containers and/ or bags must be sealed during storage and transportation. Storage must occur in

Impermeable surfaces; and soil, storm water and groundwater pollution must be prevented through the correct handling, storage and disposal of cement,concrete,waste and chemicals

Fred took over and explained that there will be sample collecting of both water, soil and air for baseline information

5 **Open questions**

1. The community wanted to know other benefits the plant
2. Mr. Jones(P.H.O) wanted to know the ways on how the plant will manage its waste
3. The community wanted to know if there would be sign board for others to know the type of facility in place

The members wanted to know what will happen if the proponent didn't adhere to the EMCA rules and regulations

ANSWERS

Fred and Mr. Kumar took over answered all the questions

1. The other benefits were discussed in the CSR

2. The proponent will ensure that all waste will be segregated accordingly and use NEMA designated landfills.

3. There will be a sign board by the name SHREE SHYAM PETRO CHEMICALS LIMITED

6. Stakeholders opinion

Cooperate Social Responsibility- (CSR)

There will be free piped water from Samburu for community use

There will be investment on educational building, school renovations and local administration offices

CONSENSUS BUILDING

Being the las meeting, participants built consensus about the project by giving the greenlight to it under strict adherence to the applicable laws, regulations and tenets of industrialization and environment

A.O.B

The members wanted to know where the process of licensing has reached since this was the third and last meeting and Mr. Arnold answered it by saying , they report writing is on the process and Mrs. ACC emphasized that the locals should avail themselves for labor work.

The proponent (Mr. Kumar) gave a vote of thanks to the community and thanked them for attending the first, second and the current third meeting as part of the requirement needed by NEMA in order to get the relevant document

Since there was no any AOB's the meeting was adjourned with a prayer from Mr. Bakari Ngao at 11:20(a: m)

CHAIRPERSON ABIGAEL MULOBI SIGNATURE [signature] DATE 12/06/2025

SECRETARY Angela Olal SIGNATURE [signature] DATE 12/06/2025

PUBLIC / STAKEHOLDER PARTICIPATION LIST

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

6TH JUNE 2025

NO	NAME	DESIGNATION	TEL	SIGN
1	ABIGAEL MULOBI	ACC	0728071790	
2	MDOE D. MDOE	W/ADMIN	0721814956	
3	RONALD BEJA	CHIEF	0728488807	
4	Mwende Liz	Attachee Acc	0707843019	
5	Quincy Nyaboke	Attachee ACC	0796868267	
6	MARGARET MWAMWEE	ASST. CHIEF	0726878296	
7	OSOJO F. OMOHDI	LEAD EXPERT	0719235833	
8	BAKARI - MWANGADU	Member	0790592986	
9	Chigulu Nyamawi	Member	0769739378	
10	Charo Kaingu	Member	0707050413	
11	Adegina KENGO	Member	0769521264	
12	SAMSON MWADIGADU	Member	0748606074	
13	BAKARI NGAO	Member	0758640635	
14	CHAMUTO JOSEPH	member	0768088031	
15	GODFREY -G- ZUMA	V/ELDER	0720694291	
16	EDWARD Masha	S/Vendee	0723104402	
17	HASSAN MUNDALU	NYUMBA KUMI	0790355766	
18	NICHOLAS CHAKA IZAH	V/ELDER	0712171633	
19	MGANDI KAINGU MZUNGU		0792658216	MGANDI
20	MOSE CHIGULU KIGAMBA	NYUMBA 10		

Surender Kumar proponent 0719722982

PUBLIC / STAKEHOLDER PARTICIPATION LIST

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9TH JUNE 2025.

NO	NAME	DESIGNATION	TEL	SIGN
1	ABIGAEL MULOBI	ACC	0728011790	
2	MDOE D. MDOE	W/ADMIN	0721814956	
3	RONALD BEJA	CHIEF	0728488807	
4	JONES MWASHUMBE NGAO	SC PHO	0721752332	
5	SALIM KALUME	A.L.P.O	0745836976	
6	CHARI MBUJA CHARO	A.A.O	0701764986	
7	PALHA SHANGA	CBO CHAIRPERSON	0723141969	
8	OSIJO F. OMONDI	EXPERT	0719235253	
9	SAMSON MWANGADU		0748606074	
10	BAKARI NGAO		0758740635	
11	CHAMUTU JOSEPH		0768088031	
12	GODFREY G. ZUMA	V/ELDER	0720694291	
13	EDWARD MASHA	S/holder	0723104402	
14	JOSHUA MENZA		0705 492746	
15	MYAPE LUGWE	NYUMBA KUMI	0790470898	
16	John JIRA Chidundo		0714324023	
17	SALIM MUNAO MATU	V/ELDER	0713190806	
18	MANGALE NYAMAWI	NYUMBA KUMI	0700359657	
19	AGNES KWEKWE TOM	NYUMBA KUMI	0768846213	
20	FURAHA KAZUNGU	NYUMBA KUMI	0717812694	

Surender Kumar proponent 0719722982

MWAZI NDOR CONSULTANT 0703518020

PUBLIC / STAKEHOLDER PARTICIPATION LIST

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12TH JUNE 2025

NO	NAME	DESIGNATION	TEL	SIGN
1	ABIGAEL MULOBI	ACC	0728071790	[signature]
2	MDOE D. MDOE	W/ADMIN	0721814956	[signature]
3	RONALD BEJA	CHIEF	0728488807	[signature]
4	MARGARET MWAMWEE	ASST. CHIEF	0726878296	[signature]
5	Quincy Nyaboke	Attachee ACC	0796868267.	[signature]
6	Chari Mbuja Charo	A.A.O	0701764986	[signature]
7	SALIM KALUME	A.L.P.O	0745836976	[signature]
8	JONES MWASHUMBE NGDO	SCPHO	072175 2332	[signature]
9	OJIJO F. OMONDI	LEAD EXPERT	0719235 053	[signature]
10	NDEGWA JOSEPH	MEMBER	0759760441	[signature]
11	CHIZIGWA MGANDI	MEMBER	0795925933	[signature]
12	MDOE MWACHUPA	MEMBER	0797063823	[signature]
13	MTUNE KAINGU	C/NYUMBAK	0723035269	[signature]
14	BEJA NELSON MWNGGA	NYUMBA/K	071129366 1	[signature]
15	JULIUS MREMA	member	0907647261	[signature]
16	JONATHAN MENZA	NYUMBA/K	0712441275	[signature]
17	FREDRICK MWANZEWU	MEMBER	0724426059	[signature]
18	NDEGWA NGATI	MEMBER	0714142960	[signature]
19	KAINGU KARISA	MEMBER	07014966%	KAINGU
20	MKANDAZE NYAMAWI	Resident	—	[signature]

Surendar Kumar Proponent 0719722982 [signature]

MKOMBA LODORO CONTRACTOR 0703518020 [signature]

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name: ABIGAEL MULOSI Gender M ☐ F ☑ (Put a Tick against the correct gender)

Phone No: 0728071790 Village: SAMBURU Distance from the site: 1.3KM

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)
   YES ☑ NO ☐
   I) It will create employment to the locals I) .....
   ii) ..... ii) .....
   iii) It will open the doors for future development iii) .....
2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. Crime reduction since some of the youths will get employed
   ii. Improved living standards of the community around through employment & CSR.
   iii. .....
   iv. CSR projects
3. Highlight the potential negative impacts associated with the proposed Project
   i. Inadequate safety standards within the company
   ii. Air & environmental pollution outside the company.
   iii. .....
   iv. .....
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. Maji ya chumvi stream/river
   ii. .....
   iii. .....
5. What are the issues you would like to be addressed concerning the proposed project
   i. CSR Projects
   ii. .....
   iii. .....
   iv. .....
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. .....
   ii. .....
   iii. .....
   iv. .....
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain None

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name... MARGARET MWAMWEE ... Gender M ☐ F ☑ (Put a Tick against the correct gender)

Phone No: 0726878296 ... Village: DERI ... Distance from the site: 2Kms

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)

YES ☑	NO ☐
i) Job opportunities	i)
ii) Development of the area.	ii)
iii)	iii)

2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. The CSR to the community.
   ii. Job opportunities.
   iii.
   iv.
3. Highlight the potential negative impacts associated with the proposed Project
   i. The smoke
   ii. The waste products (dumping sites)
   iii.
   iv.
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. N/A
   ii.
   iii.
5. What are the issues you would like to be addressed concerning the proposed project
   i. The follow what has been agreed between
   ii. the community & the company.
   iii. The negative effects of the project.
   iv.
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Agriculture.
   ii. Quarrying
   iii.
   iv.
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain No.

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name RONALD BEJA Gender M [✓] F [ ] (Put a Tick against the correct gender)

Phone No: 0728488807 Village: CHENGONI Distance from the site: 14 KM

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)

YES [✓]	NO [ ]
I) Job recruitment	I)
ii) Support projects	ii)
iii)	iii)

2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. .....
   ii. .....
   iii. .....
   iv. .....
3. Highlight the potential negative impacts associated with the proposed Project
   i. Air pollution
   ii. Water pollution
   iii. .....
   iv. .....
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. .....
   ii. .....
   iii. .....
5. What are the issues you would like to be addressed concerning the proposed project
   i. Water to be treated.
   ii. Hold oil to underground
   iii. .....
   iv. .....
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Quarrying, the project provide job
   ii. to better livelihood
   iii. .....
   iv. .....
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain No.

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name CHARI MBUJA CHARO ..... Gender M ☐ F ☑ (Put a Tick against the correct gender)

Phone No: 0701764486 ..... Village: KINANGONI ..... Distance from the site: 16KM

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)
   YES ☑ NO ☐
   I) Creation of job opportunities I) .....
   ii) improving living standard ii) .....
   iii) prevent dirtying of Environment iii) .....
2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. Employment
   ii. .....
   iii. .....
   iv. .....
3. Highlight the potential negative impacts associated with the proposed Project
   i. Environment pollution
   ii. water pollution
   iii. .....
   iv. .....
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. None
   ii. .....
   iii. .....
5. What are the issues you would like to be addressed concerning the proposed project
   i. Ways on the prevention of water pollution
   ii. .....
   iii. .....
   iv. .....
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Farming practices - Low production of farm produce.
   ii. .....
   iii. .....
   iv. .....
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain

   NO

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name: ALHA - B SHANGA Gender M [✓] F [ ] (Put a Tick against the correct gender)

Phone No: 0723141965 Village: MWANGOLOTO Distance from the site: 2½ Km

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)
   YES [✓] NO [ ]
   i) It will provide employment
   ii) Community will benefit
   iii) Impact on social economic (positive)
2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. Community will benefit in terms of labour
   ii. Social economic change of the community
   iii. Impact on education of the Community
   iv. The Developer should Partner with the Community in terms of development of the area.
3. Highlight the potential negative impacts associated with the proposed Project
   i. Polution of the environment
   ii. Consideration of the community in terms of employment
   iii. Emmission from the Project might be hazardous to the community
   iv.
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. Polution of the Environment
   ii. Emmission might be poisonous
   iii.
5. What are the issues you would like to be addressed concerning the proposed project
   i. Through public participation of the Project
   ii. The Developer must also consider the Community living near
   iii. The developer must also take care of the Education of the Community
   iv.
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Quary Extraction
   ii. Direct impact on social economic of the Community
   iii. By providing scholarships in terms of Education.
   iv.
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name Mwende liz ..... Gender M ☐ F ☑ (Put a Tick against the correct gender)

Phone No: 0707863019 ..... Village: Chamoni ..... Distance from the site: .....

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)

YES ☑ NO ☐

i) It will creat job opportunities — i) .....

ii) Urbanization — ii) .....

iii) Preserve envt - Recycling — iii) .....

2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. Job opportunities
   ii. .....
   iii. .....
   iv. .....
3. Highlight the potential negative impacts associated with the proposed Project
   i. Environmental pollution ⇒ Water & Air.
   ii. Health risks
   iii. Political Interests
   iv. Land depletion
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. Rivers.
   ii. .....
   iii. .....
5. What are the issues you would like to be addressed concerning the proposed project
   i. How the waste would be handled.
   ii. How immediate people will benefit.
   iii. Benefits to the girl
   iv. .....
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Farming
   ii. Local jobs - day
   iii. Positive - Creating Job opportunities
   iv. .....
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain

   No.

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name QUINCT NYABOKE. Gender M [ ] F [✓] (Put a Tick against the correct gender)

Phone No: 0796852607 Village: Chomoni Distance from the site: .....

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)
   YES [✓] NO [ ]
   I) Creat Job opportunities. I) .....
   ii) Promote Urbanization. ii) .....
   iii) ..... iii) .....
2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. Urbanization.
   ii. Creating Job opportunities.
   iii. .....
   iv. .....
3. Highlight the potential negative impacts associated with the proposed Project
   i. Polution.
   ii. Political intrests.
   iii. .....
   iv. .....
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. Livestocks
   ii. Rivers available
   iii. .....
5. What are the issues you would like to be addressed concerning the proposed project
   i. Availability of local's job opportunities
   ii. Insurance policy for workers available.
   iii. .....
   iv. .....
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Farming.
   ii. Local jobs.
   iii. .....
   iv. .....
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain
   NO.

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

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Name: Jones Mwachhumbe Ngao Gender M [✓] F [ ] (Put a Tick against the correct gender)

Phone No: 0721752332 Village: Samawa Distance from the site: 15 km

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)

   YES [✓] NO [ ]

   I) So long as Environment is protected I) .....

   ii) So long as all the NEMA ii) .....

   iii) and Health provisions are adhered to iii) .....

2. What positive impacts do you anticipate during the implementation phase of the proposed project

   i. Job creation

   ii. Clean environment as waste oil is recycled

   iii. Corporate social responsibility activities to the Community

   iv. .....

3. Highlight the potential negative impacts associated with the proposed Project

   i. Air pollution from smoke (burning of bio diesel)

   ii. Water pollution from spillages

   iii. Land/ soil pollution from spillages

   iv. Accidents in the factory

4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project

   i. - Vegetation and soil and air - long term

   ii. Water Contamination

   iii. .....

5. What are the issues you would like to be addressed concerning the proposed project

   i. proper waste disposal

   ii. protection of workers from accidents and smoke

   iii. .....

   iv. .....

6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?

   i. N/A

   ii. .....

   iii. .....

   iv. .....

7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain

   N/A

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

This questionnaire is an ESIA tool for collecting information. We request you to contribute any information that would help in providing proper guideline in the project. This information will help us in writing the ESIA report and keep track of the project's environmental efforts. All information given in this questionnaire will be treated as **CONFIDENTIAL**

Name SALIM KALUME ..... Gender M [✓] F [ ] (Put a Tick against the correct gender)

Phone No: 0715836976 ..... Village: KIBAONI ..... Distance from the site: 7Km

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)

   YES [✓] NO [ ]

   I) Creation of employment. I) .....

   ii) Improvement on Infrastructure. ii) .....

   iii) Increase the life standards. iii) .....

2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. Creation of employment to many youths.
   ii. Reduce the rate of crimes.
   iii. Community intergration.
   iv. .....
3. Highlight the potential negative impacts associated with the proposed Project
   i. Noise pollution from the Industry.
   ii. land degradation may occure
   iii. Increase in population may lead to increase in crime.
   iv. .....
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. Oil spillage may affect soil fertility.
   ii. .....
   iii. .....
5. What are the issues you would like to be addressed concerning the proposed project
   i. Industry should ensure proper handling of waste.
   ii. To employ the youth from the area first.
   iii. .....
   iv. .....
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Employed.
   ii. .....
   iii. .....
   iv. .....
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain NO

Thank you for taking your time to do the survey, we highly appreciate your contribution.

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (CPR) FOR PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/ MAJI YA CHUMVI/ 160,163 & 164 KWALE COUNTY

This questionnaire is an ESIA tool for collecting information. We request you to contribute any information that would help in providing proper guideline in the project. This information will help us in writing the ESIA report and keep track of the project's environmental efforts. All information given in this questionnaire will be treated as **CONFIDENTIAL**

Name MDOE D. MDOE ..... Gender M ☑ F ☐ (Put a Tick against the correct gender)

Phone No: 0721814956 ..... Village: MATOPE ..... Distance from the site: 1.5 KM ...

1. Do you support the proposed project? (Tick appropriately and give reasons for your choice)

YES ☑	NO ☐
i) Job Creation	i) .....
ii) Economic Improvement	ii) .....
iii)	iii) .....

2. What positive impacts do you anticipate during the implementation phase of the proposed project
   i. Food Security to nearby household as a result of wages.
   ii. Improvement to business opportunities
   iii. .....
   iv. .....
3. Highlight the potential negative impacts associated with the proposed Project
   i. Destruction of the natural habitat
   ii. Dust arising from Operation of the Project.
   iii. .....
   iv. .....
4. List any sensitive environment, cultural, scientific sites or threatened species that would be interfered with permanently/temporarily by the implementation of the proposed project
   i. Destruction of the natural environment and
   ii. Affecting the natural species.
   iii. .....
5. What are the issues you would like to be addressed concerning the proposed project
   i. Proper an explanation on how the Project Operates.
   ii. Environmental destruction
   iii. Disposal of Industrial wastes
   iv. .....
6. What are your sources of livelihood? How is the proposed project likely to affect your lifestyle?
   i. Farming (Growing of Subsistence Crops like maize, green grams.
   ii. Fishing along the river most likely to be affected
   iii. .....
   iv. .....
7. Are there any social issues related to the proposed site for the project i.e. land conflicts, social conflicts, different interests, etc? If **YES** explain No.

Thank you for taking your time to do the survey, we highly appreciate your contribution.

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(*No.* 3 *of* 2012, *section* 108)

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number KINANGO/MAJI YA CHUMVI /160

Approximate Area 0.38 Ha

Registry Map Sheet No 31

This is to certify that NDAIKWA JONDA KALAMA ID 21456542

P.O BOX 187 MARIAKANI

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 28 of the Land Registration Act (No. 3 of 2012) as may for the time being subsist and affect the land.

GIVEN under my hand and the seal of the

KWALE ..... District Land Registry

this 18 day of February 2022

R. K. Kalama 072

Land Registrar

(to be completed only when the applicant has paid the fee)

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

EDITION: 1	PART A-PROPERTY SECTION	
OPENED: 8.1.2021		
REGISTRATION SECTION MAJI YA CHUMVI	EASEMENTS, ETC	TITLE NATURE
PARCEL NO 160		ABSOLUTE
APPROXIMATE AREA 0.38 Ha.		
REGISTRY MAP SHEET NO 31		

PART B-PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
1	8.1.2021	NDAIKWA JONDA KALAMA ID 21456542	P.O BOX 187 MARIAKANI		
2	18.2.2022	TITLE	DEED	ISSUED	

PART C-ENCUMBRANCES SECTION

ENTRY NO.	DATE	NATURE OF ENCUMBRANCE	FURTHER PARTICULARS	SIGNATURE OF REGISTRAR

R. K. Kalama 072

Land Registrar

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(*No.* 3 *of* 2012, *section* 108)

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

23022964842160

80B6D3B6-25F5-4BC7-9C9F-17C340124305

MLS/TD/02/A2/02

No. 1728198

GPK (SP) 7057—300m—7/2018

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(*No.* 3 *of* 2012, *section* 108)

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number KINANGO/MAJI YA CHUMVI /163

Approximate Area 0.49 Ha

Registry Map Sheet No 31

This is to certify that MANGALE JONDA KALAMA ID 9771835

P.O BOX 187 MARIAKANI

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 28 of the Land Registration Act (No. 3 of 2012) as may for the time being subsist and affect the land.

GIVEN under my hand and the seal of the

KWALE District Land Registry

this 18 day of February 2022

R. K. Kalama 072

(to be completed only when the applicant has paid the fee)

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

EDITION: 1	PART A-PROPERTY SECTION	
OPENED: 8.1.2021		
REGISTRATION SECTION MAJI YA CHUMVI	EASEMENTS, ETC	TITLE NATURE
PARCEL NO 163		ABSOLUTE
APPROXIMATE AREA 0.49 Ha.		
REGISTRY MAP SHEET NO 31		

PART B-PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
1	8.1.2021	MANGALE JONDA KALAMA ID 9771835	P.O BOX 187 MARIKANI		
2	18.2.2022	TITLE	DEED	ISSUED	

PART C-ENCUMBRANCES SECTION

ENTRY NO.	DATE	NATURE OF ENCUMBRANCE	FURTHER PARTICULARS	SIGNATURE OF REGISTRAR

R. K. Kalaya 072

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(*No. 3 of* 2012, *section* 103)

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

23022964840163

F47CD985-364C-47C0-9FB5-7ABIC00C0881

MLS/TD/02/A2/02 No. 1728197

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(*No.* 3 *of* 2012, *section* 108)

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number KINANGO/MAJI YA CHUMVI/164

Approximate Area 1.58 Ha

Registry Map Sheet No 31

This is to certify that NDEGWA JONDA KALAMA

P.O BOX 187 MARIAKANI

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 28 of the Land Registration Act (No. 3 of 2012) as may for the time being subsist and affect the land.

GIVEN under my hand and the seal of the

KWALE ..... District Land Registry

this 18 day of February 2022

R. K. Kalama ORR

Land Registrar

(to be completed only when the applicant has paid the fee)

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

EDITION: 1	PART A-PROPERTY SECTION	
OPENED: 8.1.2021		
REGISTRATION SECTION MAJI YA CHUMVI	EASEMENTS, ETC	TITLE NATURE
PARCEL NO 164		ABSOLUTE
APPROXIMATE AREA 1.58 Ha.		
REGISTRY MAP SHEET NO 31		

PART B-PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
1	8.1.2021	NDEGWA JONDA KALAMA	P.O BOX [illegible]		
2	18.2.2022	TITLE	DEED	ISSUED	

PART C-ENCUMBRANCES SECTION

ENTRY NO.	DATE	NATURE OF ENCUMBRANCE	FURTHER PARTICULARS	SIGNATURE OF REGISTRAR

R. K. Kalama 072

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(*No. 3 of 2012, section 108*)

THE REGISTERED LAND ACT

(*Chapter 300*) (REPEALED).

Title Deed

23022965242164

C3E5C559-539B-4F03-8651-FB26D9AC3EA3

MLS/TD/02/A2/02 No. 1728196

DATED 19TH MARCH 2025

AGREEMENT FOR SALE

BETWEEN

NDAIKWA JONDA KALAMA

-TO-

SHREE SHYAM PETRO CHEMICALS LIMITED

- IN RESPECT OF –

TITLE NUMBER KINANGO/MAJI YA CHUMVI/160

Daly Inamdar Advocates LLP
Sea View Plaza
Mama Ngina Drive
P. O. Box 80483-80100
MOMBASA
Telephone No: 0716430651/0734606070/(020)2443829
E-Mail address: DI@cms-di.com
Ref: NDM/S/4565/1/NAS (S.640)

THIS AGREEMENT is made as of the 19th day of MARCH 2025

BETWEEN:

1) **NDAIKWA JONDA KALAMA** (National ID No. 21456542) of Post Office Box Number 3325-80100, Mombasa, in the Republic of Kenya (hereinafter called the **"Vendor"**); and

2) **SHREE SHYAM PETRO CHEMICALS LIMITED** (Compay Registration Number PVT-EYU3R6M9) of Post Office Box Number 717, Kilifi aforesaid (hereinafter called the "**Purchaser**").

WHEREAS:

(A) The Vendor is the registered and beneficial proprietor of all that property known as Title Number Kinango/Maji Ya Chumvi/160 measuring Nought decimal Three Eight Hectares (0.38 Ha) or thereabouts (the "**Property**").

(B) The Vendor has agreed to sell and the Purchaser has agreed to purchase the Property on the terms and conditions of this Agreement.

IT IS AGREED AND DECLARED as follows:

1 Definitions and Interpretation

1.1 In this Agreement, unless the context otherwise requires, the following expressions shall have the following meanings:

1.1.1 "**Completion Date**" means the date stipulated in or ascertained in accordance with the provisions of Condition 5.1 and being the date on which completion shall take place;

1.1.2 "**Deposit**" means the sum of Kenya Shillings One Hundred and Fifty Thousand (Kshs.150,000.00);

1.1.3 "**LSK Conditions**" means the Law Society of Kenya Conditions of Sale (2015 Edition) as the same may be amended or varied from time to time;

1.1.4 "**Outgoings**" means County Government rates, land rent and conservancy and service charges insofar as any of these are applicable;

1.1.5 "**Purchase Price**" means Kenya Shillings Nine Hundred Thousand (Kshs.900,000.00);

1.1.6 "**Purchaser's Advocates**" means Daly Inamdar Advocates LLP, 1st Floor, Sea View Plaza, Mama Ngina Drive, P. O. Box 80483-80100, Mombasa;

1.1.7 "**Vendor's Advocates**" means C.O Tolo & Co. Advocates, 11th Floor, Suite 1117, Social Security House, Nkrumah Road, P. O. Box 3325-80100, Mombasa;

1.1.8 **"Vendor's Advocates Account"** means:

BANK: COOPERATIVE BANK OF KENYA LIMITED
BRANCH CODE : 060
BENEFICIARY: C. O. TOLO & CO ADVOCATES
BENEFICIARY 01192764711100

1.2 In this Agreement, unless the context otherwise requires, reference to:

1.2.1 the "**Vendor**" includes the Vendor's personal representatives, permitted successors and permitted assigns and the "**Purchaser**" includes the Purchaser's permitted successors and permitted assigns;

1.2.2 words importing the singular number only shall include the plural number also and vice versa and words importing the masculine gender includes the feminine gender and neuter and vice versa;

1.2.3 Conditions and Sections shall be construed as references to Conditions and Sections of this Agreement;

1.2.4 the expression "**person**" shall include any legal or natural person, partnership, trust, company, joint venture, agency, government or local authority department or other body (whether corporate or unincorporate);

1.2.5 the expression "**registration**" means due and effective registration of the formal Transfer of the Property at the Kwale District Lands Registry in favour of the Purchaser and/or its nominee(s);

1.2.6 the word "**tax**" shall be construed so as to include any tax, levy, impost, assessment, duty or other charge of a similar nature (including, without limitation, value added tax, stamp duty and any penalty or interest payable in connection with any failure to pay or any delay in paying any of the same) and "taxation" shall be construed accordingly and the expression "competent taxing authority" means, in respect of any state or administrative division thereof, any governmental or local authority, monetary agency or central bank having power to collect or levy taxes;

1.2.7 any statute or any provision of any statute shall be deemed to refer to any statutory modification or re-enactment thereof and to any statutory instrument, order or regulation made thereunder or under any such re-enactment;

1.2.8 indemnifying any person against any circumstance includes indemnifying and keeping him harmless from all actions, claims and proceedings from time to time made against that person and all loss or damage and all payments, costs and expenses made or incurred by that person as a consequence of or which would not have arisen but for that circumstance;

1.2.9 costs, charges, expenses or remuneration shall be deemed to include, in addition, references to any value added tax or similar tax charged or chargeable in respect thereof; and

1.2.10 the expression "**month**" means a calendar month.

1.3 Headings to sections are for convenience only and shall not affect the construction or interpretation of this Agreement.

1.4 In this Agreement any reference to any document means that document as is supplemented, amended or varied from time to time between the parties thereto in accordance with the terms (if applicable) hereof and thereof.

2 Law Society Conditions of Sale

2.1 The sale and purchase of the Property is subject to the LSK Conditions which shall be deemed incorporated herein in extenso save in so far as the LSK Conditions are not consistent with the provisions of this Agreement or are varied or excluded by the terms of this Agreement.

3 Agreement for Sale

3.1 The Vendor hereby agrees to sell and the Purchaser hereby agrees to purchase the Property at the Purchase Price and upon the terms and conditions set out in this Agreement.

3.2 The interest in the Property being sold is Freehold.

4 Deposit

4.1 The Purchaser shall on or before the date of this Agreement, release of the original title document with respect to the Property to the Purchaser's Advocates, pay the Deposit directly to the Vendor (Receipt whereby is hereby acknowledged).

4.2 For the avoidance of doubt, the Purchaser's Advocates shall hold the original title document for Property as stakeholders pending registration and otherwise in accordance with this Agreement.

4.3 The Vendor shall permit the Purchaser to erect a chain link fence on the Property and complete the survey process referred in Clause 5, which costs shall be incurred by the Purchaser.

5 Survey and Change of User

5.1 The sale of the Property is subject to the Purchaser procuring, entirely at its own cost and expense, a change of user of the Property from Agricultural to Industrial with the result that a new title document is issued for the Property (the "**Change of User**").

5.2 The Vendor and the Vendor's Advocates shall fully co-operate with and provide all necessary assistance to the Purchaser's Advocates in the Change of User process and upon all approvals and consents being obtained, the Purchaser's Advocates are hereby permitted unconditionally surrender the title document for the Property, and take all necessary steps, in order to complete the said change of user process.

5.3 The Purchaser shall also procure a survey over the Property to establish the correct acreage of the Property and the beacons therein. For the avoidance of doubt, in the event the survey results in an acreage which is different from the one that appears in the title document, then the Purchase Price shall be adjusted pro rata, either way, at the agreed rate of Kenya Shillings One Million Two Hundred Thousand (Kshs.1,200,000.00) per acre,

6 Pre-Completion Conditions

6.1 The Completion shall be subject to the following conditions:

6.1.1 The Vendor executing and returning to the Purchaser's Advocates (together with the Completion Documents) a Lease over the Property to the Purchaser, which Lease shall be for a term of Two (2) years from the Completion Date and for a monthly rent of Kenya Shillings One Hundred (Kshs.100.00);

6.1.1 erection of a chain link fence in accordance with clause 4.3; and

6.1.2 Removal of any graves on the Property (if any).

7 Completion

7.1 Subject always to Clause 6 above, the Completion Date shall be 20th March 2025.

7.2 Completion shall take place at the office of the Vendor's Advocates.

7.3 On or before the Completion Date:

7.3.1 the Purchaser shall pay the balance of the Purchase Price in the sum of **Kenya Shillings Seven Hundred and Fifty Thousand (Kshs.750,000.00)** to the Vendor's Advocates Account who shall hold the same as stakeholders pending the handover of vacant possession of the Property (all structures having been removed) to the Purchaser and receipt of Completion Documents by the Purchaser's Advocates in accordance with Clause 7.3.2.

7.3.2 subject to the Purchaser having complied in full with their obligations under 7.3.1, the Vendor shall deliver to the Purchaser's Advocates the following documents:

7.3.2.1 the duly executed Transfer (in triplicate) in respect of the Property in favour of the Purchaser and/or its nominee;

7.3.2.2 Account Transfer Letters in respect of the electricity, water and other utility accounts in respect of the Property together with the last payment receipts in respect of each of them (if applicable);

7.3.2.3 Statutory Declaration as to the marital status of the Vendor/Spousal Consent by the Vendor's Spouse (whichever is applicable);

7.3.2.4 copies of the Identity Card and PIN Certificate of the Vendor;

7.3.2.5 three passport size photographs of each of the Vendor;

7.3.2.6 all other documents in the Vendor's possession relating to the Property that the Purchaser may reasonably require for the purpose of giving effect to this Agreement.

8 Disclaimer and Warranties

8.1 Save as expressly provided in this Agreement, the Purchaser agrees that:

8.1.1 any condition or warranty whatsoever as to the condition of the Property or its fitness for any purpose is hereby excluded;

8.1.2 it has inspected and surveyed the Property and purchases the Property with full knowledge of its actual state and condition and shall take the Property as it stands at the Completion Date;

8.1.3 it enters into this Agreement solely as a result of its own survey and inspection and on the basis of the terms of this Agreement and not in reliance upon any representation either written or oral or implied or made by or on behalf of the Vendor; and

8.1.4 this Agreement constitutes the whole and any agreement between the parties hereto relating to the sale and purchase of the Property and supercedes and extinguishes any prior agreements, undertakings, representations, warranties and arrangements of any nature whatsoever whether or not in writing relating to the sale and purchase of the Property.

8.2 In consideration of the Purchaser entering into this Agreement and in consideration of the Purchaser agreeing to pay the Vendor the Purchase Price in accordance with the provisions of this Agreement, the Vendors warrants and agrees with the Purchaser that to the best of their information, belief and knowledge:

8.2.1 the Vendor is the registered legal and beneficial owner of the Property and has full and unrestricted power to sell and transfer the Property to the Purchaser and the Property was acquired by the Vendor in accordance and in compliance with the terms of all approvals, consents, permissions and authorisations required from any Competent Authority;

8.2.2 this Agreement constitutes and the other documents executed by the Vendor which are to be delivered at or prior to Completion will, when executed, constitute binding obligations of the Vendor in accordance with their respective terms;

8.2.3 the execution and delivery of this Agreement, will not:

8.2.3.1 result in a breach of, or constitute a default under, any agreement or instrument to which the Vendor is a party or by which the Vendor is bound; or

8.2.3.2 result in a breach of any order judgment or decree of any court or Government agency or Competent Authority to which the Vendor is a party or by which the Vendor is bound

8.2.4 there is no encumbrance or equity on over or affecting the whole or any part of the Property and there is no agreement or commitment to give or create any and no claim has been made by any person to be entitled to any;

8.2.5 The Vendor is not in breach of The Environmental Management and Co-ordination Act, 1999 (No. 8 of 1999) or the Physical Planning Act (Cap. 286, Laws of Kenya) and the rules and regulations promulgated thereunder including any directive of a Competent Authority in relation to the Property;

8.2.6 there are no boundary disputes relating to or regarding the Property;

8.2.7 the description of the Property set out herein are correct in all respects;

8.2.8 there are no pending suits, administrative actions, judicial actions or any other actions or proceedings of or by any government or other Competent Authority or any agency or any other third party in relation to or affecting the Property;

8.2.9 the Vendor has not received any notice from any Competent Authority informing them that the Property has been set aside for any public purpose or that the Commission intends to compulsorily acquire the Property nor is the Property subject to the Land Control Act (Cap 302), the Forest Act (Cap. 385) or the National Museum and Heritage Act (No.6 of 2006);

8.2.10 the Vendor is not entering into this Agreement with the intention of delaying or defeating or hindering the exercise by a creditor of any right of recourse to the Property;

8.2.11 the Vendor has a good and marketable title to the Property, free and clear of all encumbrances.

8.3 The Vendor hereby accepts that the Purchaser is entering into this Agreement in reliance upon each of the Warranties and undertakes to disclose to the Purchaser anything which is or may be inconsistent with any of the Warranties immediately it comes to its notice.

8.4 The Vendor hereby represents warrants and undertakes to the Purchaser for the benefit of the Purchaser that each of the Warranties referred to in this Clause 12 is true and accurate. Each of the Warranties shall be construed as a separate warranty and (save as expressly provided to the contrary) shall not be limited or restricted by reference to or inference from the terms of any other Warranty or any other term of this Agreement.

8.5 The Vendor hereby undertakes to the Purchaser that as from the date of this Agreement up to (and including) completion the Vendor will procure that the Warranties will not be untrue, misleading or breached if they were repeated as at the time of completion and on the basis that

a reference to the actual time of completion was substituted for an express or implied reference to the time of this Agreement, and the Warranties shall be deemed to be given by the Vendor at the time of completion as well as at the time of this Agreement accordingly.

8.6 If any fact which is inconsistent with any of the Warranties or which would cause any of them to be untrue, misleading or breached if the Warranties were given at completion comes to the knowledge of the Purchaser prior to completion (whether it does so by reason of any disclosure made pursuant to Clause 12.2 or not), the Purchaser shall be entitled to treat this Agreement as discharged by breach of condition.

8.7 The Purchaser shall be entitled to claim both before and after completion that any of the Warranties is or was untrue or misleading or has or had been breached even if the Purchaser knew or could have discovered on or before completion that the Warranty in question was misleading or had been breached and completion shall not in any way constitute a waiver of any of the Purchasers' rights.

8.8 The Vendor undertakes to the Purchaser that the Vendor shall on first written demand by the Purchaser indemnify the Purchasers for breach of any Warranty and pay to the Purchaser an amount equal to any losses claims damages suffered or incurred by the Purchaser as a result of or in relation to any act, thing or circumstance constituting a breach of any Warranty; and

8.9 all costs, expenses and disbursements suffered or incurred by the Purchaser as a result of or in relation to any breach of any Warranty.

9 Movables

9.1 The sale includes no movables.

10 Possession

10.1 Subject to compliance with the Purchaser's payment obligations herein, the Property is sold with vacant possession to be given to the Purchaser on the Completion Date.

11 Matters affecting the Property

11.1 The Property is sold subject to the entries on the Land Register relating to the Property, to such overriding interests set out in Section 28 of the Land Registration Act, 2012 as affect the Property and any informal charges (as defined in Section 79 of the Land Act, 2012) but otherwise free from any other charges or other encumbrances.

12 Outgoings of the Property

12.1 All Outgoings, if any, in respect of the Property shall be apportioned as at the Completion Date.

13 Assignment

13.1 The Transfer shall be in the name of the Purchaser and/or the Purchaser's nominee(s) provided always that:

13.1.1 such nomination shall not absolve the Purchaser from the Purchaser's liabilities under this Agreement the provisions of which shall be binding on the Purchaser regardless of such power to nominate and/or any such nomination; and

13.1.2 the Vendor shall not be responsible for any stamp duty implications occasioned by such nomination and the Purchaser shall indemnify the Vendor against any losses or costs or expenses incurred by the Vendor by reason of any stamp duty implications occasioned by any such nomination.

14 Non-Merger

14.1 This Agreement shall not merge on completion of the sale and purchase of the Property and completion shall not limit cancel or extinguish the performance of any outstanding duties or obligations under this Agreement.

15 Legal and Other Costs

15.1 Each party will bear its own legal costs in respect of this transaction.

15.2 The Vendor shall be responsible for declaring and paying any Capital Gains Tax payable in respect of this transaction.

15.3 The Vendor shall be responsible for payment of any outstanding county rates or government levies and this regard the Vendor hereby authorizes the Purchaser the pay the same (if any) from the balance of the Purchase Price.

15.4 All valuation fees, stamp duty and registration fees payable on the transfer of the Property to the Purchaser shall be for the account of the Purchaser.

16 Special Conditions

16.1 Time shall be of the essence of all obligations of the Parties in this Agreement.

16.2 if the Purchaser fails or has failed to comply in any respect with its obligations under clause 7.3.1 on the Completion Date (or such later date as the parties may agree in writing), the Vendor may:

16.2.1 defer Completion on such terms as it may require (and the provisions of this clause shall apply to such Completion);

16.2.2 proceed to Completion so far as practicable but without prejudice to its rights hereunder or otherwise; or

16.2.3 being otherwise ready willing and able to complete and without prejudice to any other rights and remedies that may be available to it rescind this Agreement upon having given not less than Twenty One (21) days written notice of its intention to do so to the

Purchaser and the Purchaser shall have failed to perform its obligations with regard to Completion prior to expiry of such notice.

16.3 If the Vendor shall rescind this Agreement in accordance with Clause 16.2.3, the Purchaser shall be deemed to have forfeited the Deposit to the Vendor who shall be entitled to retain the same and to re-sell the Property to any person.

16.4 If the Vendor fails or has failed to comply in any respect with any of his obligations under this Agreement the Purchaser may:

16.4.1 defer Completion on such terms as they may require (and the provisions of this clause shall apply to such Completion);

16.4.2 proceed to Completion so far as practicable but without prejudice to their rights hereunder or otherwise; or

16.4.3 being otherwise ready willing and able to complete and without prejudice to any other rights and remedies that may be available to their rescind this Agreement upon having given not less than Twenty One (21) days written notice of their intention to do so to the Vendor and the Vendor shall have failed to perform their obligations with regard to Completion prior to expiry of such notice.

16.5 If the Purchaser shall rescind this Agreement in accordance with Clause 16.4.3:

16.5.1 the Vendor shall return/refund to the Purchaser:

16.5.1.1 all monies, including the deposit, without interest, paid by the Purchaser by virtue of the terms of this Agreement within seven (7) days from the date of the notice of rescission;

16.5.1.2 the cost incurred by the Purchaser in undertaking the Change of User; and

16.5.1.3 the cost of erecting the chain- link fence on the Property

16.5.2 Upon compliance with clause 16.5.1 by the Vendor, the Purchaser's Advocates shall return the original document of title to the Vendor's Advocates. Thereafter neither party shall have a claim against the other whatsoever and the Vendor shall be at liberty to sell the Property to any other person.

17 General

17.1 All payments due to be made by the Purchaser hereunder and all costs, charges, expenses or remuneration shall be deemed to be exclusive of any value added tax or similar tax charged or chargeable in respect thereof and for which the Purchaser shall be liable to account

17.2 No failure or delay to exercise any power, right or remedy by the Vendor shall operate as a waiver of that right, power or remedy and no single or partial exercise by the Vendor of any

right, power or remedy shall preclude its further exercise or the exercise of any other right, power or remedy.

17.3 The rights and remedies of the Vendor provided in this Agreement are cumulative and not exclusive of any rights or remedies provided by law.

17.4 Each of the provisions of this Agreement is severable and distinct from the others and, if at any time one or more of these provisions is or becomes invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired.

17.5 No amendment or variation to this Agreement shall be effectual or binding on the parties hereto unless it is in writing and duly executed by or on behalf of the parties hereto.

18 **Acceptance**

18.1 Each of the parties hereto hereby agrees and confirms that it has executed this Agreement with the intention to bind itself to the contents hereof.

IN WITNESS WHEREOF this Agreement has been duly executed by the parties hereto as of the day and year first above written.

***** the remainder of this page is deliberately left blank*****

EXECUTION

The Vendor

SIGNED by)
NDAIKWA JONDA KALAMA)
in the presence of:-)

CLIFFORD O. TOLO
ADVOCATE &
COMMISSIONER FOR OATHS
P. O. Box 3325 - 80100,
MOMBASA

ADVOCATE)

I CERTIFY that the above-named **NDAIKWA JONDA KALAMA**, being the Vendor herein appeared before me on the 11th day of March Two Thousand and Twenty five and being known to me/being identified by his National ID Card Number **21456542**, acknowledged the above signature or mark to be his and that he has freely and voluntarily executed this agreement and understood its contents.

CLIFFORD O. TOLO
ADVOCATE &
COMMISSIONER FOR OATHS
P. O. Box 3325 - 80100,
MOMBASA

ADVOCATE

The Purchaser

SIGNED by the duly authorized Signatory of)
SHREE SHYAM PETRO CHEMICALS)
LIMITED) x stamp
in the presence of:-)

NABILA SAID ABDALLA
ADVOCATE
ADMISSION NO: P.105/16319/19
P O Box 80483 - 80100
MOMBASA, KENYA

ADVOCATE)

I CERTIFY that the above-named authorized Signatory of the Purchaser, **SHREE SHYAM PETRO CHEMICALS LIMITED**, herein appeared before me on the 19th day of March Two Thousand and Twenty Five and being known to me/being identified by his ~~National ID Card~~ Passport Number U7932265, acknowledged the above signature or mark to be his and that he has freely and voluntarily executed this agreement and understood its contents.

NABILA SAID ABDALLA
ADVOCATE
ADMISSION NO: P.105/16319/19
P O Box 80483 - 80100
MOMBASA, KENYA

ADVOCATE

Drawn by:
Daly Inamdar Advocates LLP
Sea View Plaza, 1st Floor
Mama Ngina Drive
P O Box 80483-80100
MOMBASA

DATED 25TH NOVEMBER **2024**

AGREEMENT FOR SALE

BETWEEN

MANGALE JONDA KALAMA

-TO-

SHREE SHYAM PETRO CHEMICALS LIMITED

- IN RESPECT OF –

TITLE NUMBER KINANGO/MAJI YA CHUMVI/163

Daly Inamdar Advocates LLP
Sea View Plaza
Mama Ngina Drive
P. O. Box 80483-80100
MOMBASA
Telephone No: 0716430651/0734606070/(020)2443829
E-Mail address: DI@cms-di.com
Ref: NDM/S/4565/1/NAS (S.640)

THIS AGREEMENT is made as of the 25th day of November 2024

BETWEEN:

1) **MWANGALE JONDA KALAMA** (National ID No. 9771835) of Post Office Box Number 3325-80100, Mombasa, in the Republic of Kenya (hereinafter called the **"Vendor"**); and

2) **SHREE SHYAM PETRO CHEMICALS LIMITED** (Compay Registration Number PVT-EYU3R6M9) of Post Office Box Number 717, Kilifi aforesaid (hereinafter called the "**Purchaser**").

WHEREAS:

(A) The Vendor is the registered and beneficial proprietor of all that property known as Title Number Kinango/Maji Ya Chumvi/163 measuring nought decimal Four Nine Hectares (0.49 Ha) or thereabouts (the "**Property**").

(B) The Vendor has agreed to sell and the Purchaser has agreed to purchase the Property on the terms and conditions of this Agreement.

IT IS AGREED AND DECLARED as follows:

1 Definitions and Interpretation

1.1 In this Agreement, unless the context otherwise requires, the following expressions shall have the following meanings:

1.1.1 "**Completion Date**" means the date stipulated in or ascertained in accordance with the provisions of Condition 5.1 and being the date on which completion shall take place;

1.1.2 "**Deposit**" means the sum of Kenya Shillings One Hundred and Eighty Six Thousand (Kshs.186,000.00);

1.1.3 "**LSK Conditions**" means the Law Society of Kenya Conditions of Sale (2015 Edition) as the same may be amended or varied from time to time;

1.1.4 "**Outgoings**" means County Government rates, land rent and conservancy and service charges insofar as any of these are applicable;

1.1.5 "**Purchase Price**" means Kenya Shillings One Million Eight Hundred and Sixty Thousand (Kshs.1,860,000.00);

1.1.6 "**Purchaser's Advocates**" means Daly Inamdar Advocates LLP, 1st Floor, Sea View Plaza, Mama Ngina Drive, P. O. Box 80483-80100, Mombasa;

1.1.7 "**Vendor's Advocates**" means C.O Tolo & Co. Advocates, 11th Floor, Suite 1117, Social Security House, Nkrumah Road, P. O. Box 3325-80100, Mombasa;

1.1.8 **"Vendor's Advocates Account"** means:

BANK: COOPERATIVE BANK OF KENYA LIMITED
BRANCH CODE : 060
BENEFICIARY: C. O. TOLO & CO ADVOCATES
BENEFICIARY 01192764711100

1.2 In this Agreement, unless the context otherwise requires, reference to:

1.2.1 the "**Vendor**" includes the Vendor's personal representatives, permitted successors and permitted assigns and the "**Purchaser**" includes the Purchaser's permitted successors and permitted assigns;

1.2.2 words importing the singular number only shall include the plural number also and vice versa and words importing the masculine gender includes the feminine gender and neuter and vice versa;

1.2.3 Conditions and Sections shall be construed as references to Conditions and Sections of this Agreement;

1.2.4 the expression "**person**" shall include any legal or natural person, partnership, trust, company, joint venture, agency, government or local authority department or other body (whether corporate or unincorporate);

1.2.5 the expression "**registration**" means due and effective registration of the formal Transfer of the Property at the Kwale District Lands Registry in favour of the Purchaser and/or its nominee(s);

1.2.6 the word "**tax**" shall be construed so as to include any tax, levy, impost, assessment, duty or other charge of a similar nature (including, without limitation, value added tax, stamp duty and any penalty or interest payable in connection with any failure to pay or any delay in paying any of the same) and "taxation" shall be construed accordingly and the expression "competent taxing authority" means, in respect of any state or administrative division thereof, any governmental or local authority, monetary agency or central bank having power to collect or levy taxes;

1.2.7 any statute or any provision of any statute shall be deemed to refer to any statutory modification or re-enactment thereof and to any statutory instrument, order or regulation made thereunder or under any such re-enactment;

1.2.8 indemnifying any person against any circumstance includes indemnifying and keeping him harmless from all actions, claims and proceedings from time to time made against that person and all loss or damage and all payments, costs and expenses made or incurred by that person as a consequence of or which would not have arisen but for that circumstance;

1.2.9 costs, charges, expenses or remuneration shall be deemed to include, in addition, references to any value added tax or similar tax charged or chargeable in respect thereof; and

1.2.10 the expression "**month**" means a calendar month.

1.3 Headings to sections are for convenience only and shall not affect the construction or interpretation of this Agreement.

1.4 In this Agreement any reference to any document means that document as is supplemented, amended or varied from time to time between the parties thereto in accordance with the terms (if applicable) hereof and thereof.

2 Law Society Conditions of Sale

2.1 The sale and purchase of the Property is subject to the LSK Conditions which shall be deemed incorporated herein in extenso save in so far as the LSK Conditions are not consistent with the provisions of this Agreement or are varied or excluded by the terms of this Agreement.

3 Agreement for Sale

3.1 The Vendor hereby agrees to sell and the Purchaser hereby agrees to purchase the Property at the Purchase Price and upon the terms and conditions set out in this Agreement.

3.2 The interest in the Property being sold is Freehold.

4 Deposit

4.1 The Purchaser shall on or before the date of this Agreement, and subject to prior procurement of a Search over the Property and release of the original title document with respect to the Property to the Purchaser's Advocates, pay the Deposit directly to the Vendor's Advocates, who may release the same unconditionally to the Vendor.

4.2 For the avoidance of doubt, the Purchaser's Advocates shall hold the original title document for Property as stakeholders pending registration and otherwise in accordance with this Agreement.

4.3 Upon payment of the Deposit in accordance with Clause 4.1 above, the Vendor shall permit the Purchaser to erect a chain link fence on the Property and complete the survey process referred in Clause 5, which costs shall be incurred by the Purchaser.

5 Survey and Change of User

5.1 The sale of the Property is subject to the Purchaser procuring, entirely at its own cost and expense, a change of user of the Property from Agricultural to Industrial with the result that a new title document is issued for the Property (the "**Change of User**").

5.2 The Vendor and the Vendor's Advocates shall fully co-operate with and provide all necessary assistance to the Purchaser's Advocates in the Change of User process and upon all approvals and consents being obtained, the Purchaser's Advocates are hereby permitted unconditionally surrender the title document for the Property, and take all necessary steps, in order to complete the said change of user process.

5.3 The Purchaser shall also procure a survey over the Property to establish the correct acreage of the Property and the beacons therein. For the avoidance of doubt, in the event the survey results in an acreage which is different from the one that appears in the title document, then the Purchase Price shall be adjusted pro rata, either way, at the agreed rate of Kenya Shillings One Million Two Hundred Thousand (Kshs.1,200,000.00) per acre,

6 Pre-Completion Conditions

6.1 The Completion shall be subject to the following conditions:

6.1.1 Survey and Change of User in accordance with Clause 5;

6.1.2 procurement of a post-Change of User Search over the Property;

6.1.3 erection of a chain link fence in accordance with clause 4.3; and

6.1.4 Removal of any graves on the Property (if any).

7 Completion

7.1 Subject always to Clause 6 above, the Completion Date shall be 31st January 2025 or Fifteen (15) days from the date of the receipt of the new title following completion of the Change of User process, whichever is later.

7.2 Completion shall take place at the office of the Vendor's Advocates.

7.3 On or before the Completion Date:

7.3.1 the Purchaser shall, subject to the Vendor's Advocates issuing an appropriate professional undertaking, pay the balance of the Purchase Price in the sum of **Kenya Shillings One Million Six Hundred and Seventy-Four Thousand (Kshs.1,674,000.00)** to the Vendor's Advocates Account to be held by them as stakeholders pending:

7.3.1.1 registration; and

7.3.1.2 hand over of vacant possession of the Property (all structures having been removed) to the Purchaser.

7.3.2 subject to the Purchaser having complied in full with their obligations under 7.3.1, the Vendor shall deliver to the Purchaser's Advocates the following documents:

7.3.2.1 the duly executed Transfer (in triplicate) in respect of the Property in favour of the Purchaser and/or its nominee;

7.3.2.2 Account Transfer Letters in respect of the electricity, water and other utility accounts in respect of the Property together with the last payment receipts in respect of each of them (if applicable);

7.3.2.3 Statutory Declaration as to the marital status of the Vendor/Spousal Consent by the Vendor's Spouse (whichever is applicable);

7.3.2.4 copies of the Identity Card and PIN Certificate of the Vendor;

7.3.2.5 three passport size photographs of each of the Vendor;

7.3.2.6 all other documents in the Vendor's possession relating to the Property that the Purchaser may reasonably require for the purpose of giving effect to this Agreement.

8 Disclaimer and Warranties

8.1 Save as expressly provided in this Agreement, the Purchaser agrees that:

8.1.1 any condition or warranty whatsoever as to the condition of the Property or its fitness for any purpose is hereby excluded;

8.1.2 it has inspected and surveyed the Property and purchases the Property with full knowledge of its actual state and condition and shall take the Property as it stands at the Completion Date;

8.1.3 it enters into this Agreement solely as a result of its own survey and inspection and on the basis of the terms of this Agreement and not in reliance upon any representation either written or oral or implied or made by or on behalf of the Vendor; and

8.1.4 this Agreement constitutes the whole and any agreement between the parties hereto relating to the sale and purchase of the Property and supercedes and extinguishes any prior agreements, undertakings, representations, warranties and arrangements of any nature whatsoever whether or not in writing relating to the sale and purchase of the Property.

8.2 In consideration of the Purchaser entering into this Agreement and in consideration of the Purchaser agreeing to pay the Vendor the Purchase Price in accordance with the provisions of this Agreement, the Vendors warrants and agrees with the Purchaser that to the best of their information, belief and knowledge:

8.2.1 the Vendor is the registered legal and beneficial owner of the Property and has full and unrestricted power to sell and transfer the Property to the Purchaser and the Property was acquired by the Vendor in accordance and in compliance with the terms of all approvals, consents, permissions and authorisations required from any Competent Authority;

8.2.2 this Agreement constitutes and the other documents executed by the Vendor which are to be delivered at or prior to Completion will, when executed, constitute binding obligations of the Vendor in accordance with their respective terms;

8.2.3 the execution and delivery of this Agreement, will not:

8.2.3.1 result in a breach of, or constitute a default under, any agreement or instrument to which the Vendor is a party or by which the Vendor is bound; or

8.2.3.2 result in a breach of any order judgment or decree of any court or Government agency or Competent Authority to which the Vendor is a party or by which the Vendor is bound

8.2.4 there is no encumbrance or equity on over or affecting the whole or any part of the Property and there is no agreement or commitment to give or create any and no claim has been made by any person to be entitled to any;

8.2.5 The Vendor is not in breach of The Environmental Management and Co-ordination Act, 1999 (No. 8 of 1999) or the Physical Planning Act (Cap. 286, Laws of Kenya) and the rules and regulations promulgated thereunder including any directive of a Competent Authority in relation to the Property;

8.2.6 there are no boundary disputes relating to or regarding the Property;

8.2.7 the description of the Property set out herein are correct in all respects;

8.2.8 there are no pending suits, administrative actions, judicial actions or any other actions or proceedings of or by any government or other Competent Authority or any agency or any other third party in relation to or affecting the Property;

8.2.9 the Vendor has not received any notice from any Competent Authority informing them that the Property has been set aside for any public purpose or that the Commission intends to compulsorily acquire the Property nor is the Property subject to the Land Control Act (Cap 302), the Forest Act (Cap. 385) or the National Museum and Heritage Act (No.6 of 2006);

8.2.10 the Vendor is not entering into this Agreement with the intention of delaying or defeating or hindering the exercise by a creditor of any right of recourse to the Property;

8.2.11 the Vendor has a good and marketable title to the Property, free and clear of all encumbrances.

8.3 The Vendor hereby accepts that the Purchaser is entering into this Agreement in reliance upon each of the Warranties and undertakes to disclose to the Purchaser anything which is or may be inconsistent with any of the Warranties immediately it comes to its notice.

8.4 The Vendor hereby represents warrants and undertakes to the Purchaser for the benefit of the Purchaser that each of the Warranties referred to in this Clause 12 is true and accurate. Each of the Warranties shall be construed as a separate warranty and (save as expressly provided to the

contrary) shall not be limited or restricted by reference to or inference from the terms of any other Warranty or any other term of this Agreement.

8.5 The Vendor hereby undertakes to the Purchaser that as from the date of this Agreement up to (and including) completion the Vendor will procure that the Warranties will not be untrue, misleading or breached if they were repeated as at the time of completion and on the basis that a reference to the actual time of completion was substituted for an express or implied reference to the time of this Agreement, and the Warranties shall be deemed to be given by the Vendor at the time of completion as well as at the time of this Agreement accordingly.

8.6 If any fact which is inconsistent with any of the Warranties or which would cause any of them to be untrue, misleading or breached if the Warranties were given at completion comes to the knowledge of the Purchaser prior to completion (whether it does so by reason of any disclosure made pursuant to Clause 12.2 or not), the Purchaser shall be entitled to treat this Agreement as discharged by breach of condition.

8.7 The Purchaser shall be entitled to claim both before and after completion that any of the Warranties is or was untrue or misleading or has or had been breached even if the Purchaser knew or could have discovered on or before completion that the Warranty in question was misleading or had been breached and completion shall not in any way constitute a waiver of any of the Purchasers' rights.

8.8 The Vendor undertakes to the Purchaser that the Vendor shall on first written demand by the Purchaser indemnify the Purchasers for breach of any Warranty and pay to the Purchaser an amount equal to any losses claims damages suffered or incurred by the Purchaser as a result of or in relation to any act, thing or circumstance constituting a breach of any Warranty; and

8.9 all costs, expenses and disbursements suffered or incurred by the Purchaser as a result of or in relation to any breach of any Warranty.

9 Movables

9.1 The sale includes no movables.

10 Possession

10.1 Subject to compliance with the Purchaser's payment obligations herein, the Property is sold with vacant possession to be given to the Purchaser upon successful registration of the Transfer in favour of the Purchaser.

11 Matters affecting the Property

11.1 The Property is sold subject to the entries on the Land Register relating to the Property, to such overriding interests set out in Section 28 of the Land Registration Act, 2012 as affect the Property and any informal charges (as defined in Section 79 of the Land Act, 2012) but otherwise free from any other charges or other encumbrances.

12 Outgoings of the Property

12.1 All Outgoings, if any, in respect of the Property shall be apportioned as at the Completion Date.

13 Assignment

13.1 The Transfer shall be in the name of the Purchaser and/or the Purchaser's nominee(s) provided always that:

13.1.1 such nomination shall not absolve the Purchaser from the Purchaser's liabilities under this Agreement the provisions of which shall be binding on the Purchaser regardless of such power to nominate and/or any such nomination; and

13.1.2 the Vendor shall not be responsible for any stamp duty implications occasioned by such nomination and the Purchaser shall indemnify the Vendor against any losses or costs or expenses incurred by the Vendor by reason of any stamp duty implications occasioned by any such nomination.

14 Non-Merger

14.1 This Agreement shall not merge on completion of the sale and purchase of the Property and completion shall not limit cancel or extinguish the performance of any outstanding duties or obligations under this Agreement.

15 Legal and Other Costs

15.1 Each party will bear its own legal costs in respect of this transaction.

15.2 The Vendor shall be responsible for declaring and paying any Capital Gains Tax payable in respect of this transaction.

15.3 The Vendor shall be responsible for payment of any outstanding county rates or government levies and this regard the Vendor hereby authorizes the Purchaser the pay the same (if any) from the balance of the Purchase Price.

15.4 All valuation fees, stamp duty and registration fees payable on the transfer of the Property to the Purchaser shall be for the account of the Purchaser.

16 Special Conditions

16.1 Time shall be of the essence of all obligations of the Parties in this Agreement.

16.2 if the Purchaser fails or has failed to comply in any respect with its obligations under clause 7.3.1 on the Completion Date (or such later date as the parties may agree in writing), the Vendor may:

16.2.1 defer Completion on such terms as it may require (and the provisions of this clause shall apply to such Completion);

16.2.2 proceed to Completion so far as practicable but without prejudice to its rights hereunder or otherwise; or

16.2.3 being otherwise ready willing and able to complete and without prejudice to any other rights and remedies that may be available to it rescind this Agreement upon having given not less than Twenty One (21) days written notice of its intention to do so to the Purchaser and the Purchaser shall have failed to perform its obligations with regard to Completion prior to expiry of such notice.

16.3 If the Vendor shall rescind this Agreement in accordance with Clause 16.2.3, the Purchaser shall be deemed to have forfeited the Deposit to the Vendor who shall be entitled to retain the same and to re-sell the Property to any person.

16.4 If the Vendor fails or has failed to comply in any respect with any of his obligations under this Agreement the Purchaser may:

16.4.1 defer Completion on such terms as they may require (and the provisions of this clause shall apply to such Completion);

16.4.2 proceed to Completion so far as practicable but without prejudice to their rights hereunder or otherwise; or

16.4.3 being otherwise ready willing and able to complete and without prejudice to any other rights and remedies that may be available to their rescind this Agreement upon having given not less than Twenty One (21) days written notice of their intention to do so to the Vendor and the Vendor shall have failed to perform their obligations with regard to Completion prior to expiry of such notice.

16.5 If the Purchaser shall rescind this Agreement in accordance with Clause 16.4.3:

16.5.1 the Vendor shall return/refund to the Purchaser:

16.5.1.1 all monies, including the deposit, without interest, paid by the Purchaser by virtue of the terms of this Agreement within seven (7) days from the date of the notice of rescission;

16.5.1.2 the cost incurred by the Purchaser in undertaking the Change of User; and

16.5.1.3 the cost of erecting the chain- link fence on the Property

16.5.2 Upon compliance with clause 16.5.1 by the Vendor, the Purchaser's Advocates shall return the original document of title to the Vendor's Advocates. Thereafter neither party shall have a claim against the other whatsoever and the Vendor shall be at liberty to sell the Property to any other person.

17 **General**

17.1 All payments due to be made by the Purchaser hereunder and all costs, charges, expenses or remuneration shall be deemed to be exclusive of any value added tax or similar tax charged or chargeable in respect thereof and for which the Purchaser shall be liable to account

17.2 No failure or delay to exercise any power, right or remedy by the Vendor shall operate as a waiver of that right, power or remedy and no single or partial exercise by the Vendor of any right, power or remedy shall preclude its further exercise or the exercise of any other right, power or remedy.

17.3 The rights and remedies of the Vendor provided in this Agreement are cumulative and not exclusive of any rights or remedies provided by law.

17.4 Each of the provisions of this Agreement is severable and distinct from the others and, if at any time one or more of these provisions is or becomes invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired.

17.5 No amendment or variation to this Agreement shall be effectual or binding on the parties hereto unless it is in writing and duly executed by or on behalf of the parties hereto.

18 **Acceptance**

18.1 Each of the parties hereto hereby agrees and confirms that it has executed this Agreement with the intention to bind itself to the contents hereof.

IN WITNESS WHEREOF this Agreement has been duly executed by the parties hereto as of the day and year first above written.

***** the remainder of this page is deliberately left blank*****

EXECUTION

The Vendor

SIGNED by)
MANGALE JONDA KALAMA)
in the presence of:-)
)
)
)
)
)
)
)
)
)
ADVOCATE)

I CERTIFY that the above-named **MANGALE JONDA KALAMA**, being the Vendor herein appeared before me on the 25th day of November Two Thousand and Twenty Four (4) and being known to me/being identified by his National ID Card Number **9771835**, acknowledged the above signature or mark to be his and that he has freely and voluntarily executed this agreement and understood its contents.

ADVOCATE

The Purchaser

SIGNED by the duly authorized Signatory of)
SHREE SHYAM PETRO CHEMICALS)
LIMITED)
in the presence of:-)
)
)
)
)
)
)
)
)
)

x stamp
SHREE SHYAM PETRO CHEMICALS LIMITED

DIRECTOR

NABILA SAID ABDALLA
ADVOCATE
ADMISSION NO: P.105/16319/19
P O Box 80483 - 80100
MOMBASA, KENYA
ADVOCATE

I CERTIFY that the above-named authorized Signatory of the Purchaser, **SHREE SHYAM PETRO CHEMICALS LIMITED**, herein appeared before me on the 15th day of November Two Thousand and Twenty Four and being known to me/being identified by his ~~National ID Card~~ Passport Number UK932265, acknowledged the above signature or mark to be his and that he has freely and voluntarily executed this agreement and understood its contents.

NABILA SAID ABDALLA
ADVOCATE
ADMISSION NO: P.105/16319/19
P O Box 80483 - 80100
MOMBASA, KENYA
ADVOCATE

Drawn by:
Daly Inamdar
Advocates LLP
Sea View Plaza, 1st Floor
Mama Ngina Drive
P O Box 80483-80100
MOMBASA

DATED 25TH NOVEMBER **2024**

AGREEMENT FOR SALE

BETWEEN

NDEGWA JONDA KALAMA

-TO-

SHREE SHYAM PETRO CHEMICALS LIMITED

- IN RESPECT OF –

TITLE NUMBER KINANGO/MAJI YA CHUMVI/164

Daly Inamdar Advocates LLP
Sea View Plaza
Mama Ngina Drive
P. O. Box 80483-80100
MOMBASA
Telephone No: 0716430651/0734606070/(020)2443829
E-Mail address: DI@cms-di.com
Ref: NDM/S/4565/1/NAS (S.640)

THIS AGREEMENT is made as of the 25th day of November 2024

BETWEEN:

1) **NDEGWA JONDA KALAMA** (National ID No. 9874234) of Post Office Box Number 3325-80100, Mombasa, in the Republic of Kenya (hereinafter called the **"Vendor"**); and

2) **SHREE SHYAM PETRO CHEMICALS LIMITED** (Compay Registration Number PVT-EYU3R6M9) of Post Office Box Number 717, Kilifi aforesaid (hereinafter called the "**Purchaser**").

WHEREAS:

(A) The Vendor is the registered and beneficial proprietor of all that property known as Title Number Kinango/Maji Ya Chumvi/164 measuring One decimal Five Eight Hectares (1.58 Ha) or thereabouts (the "**Property**").

(B) The Vendor has agreed to sell and the Purchaser has agreed to purchase the Property on the terms and conditions of this Agreement.

IT IS AGREED AND DECLARED as follows:

1 Definitions and Interpretation

1.1 In this Agreement, unless the context otherwise requires, the following expressions shall have the following meanings:

1.1.1 "**Completion Date**" means the date stipulated in or ascertained in accordance with the provisions of Condition 5.1 and being the date on which completion shall take place;

1.1.2 "**Deposit**" means the sum of Kenya Shillings Four Hundred and Fourteen Thousand (Kshs.414,000.00);

1.1.3 "**LSK Conditions**" means the Law Society of Kenya Conditions of Sale (2015 Edition) as the same may be amended or varied from time to time;

1.1.4 "**Outgoings**" means County Government rates, land rent and conservancy and service charges insofar as any of these are applicable;

1.1.5 "**Purchase Price**" means Kenya Shillings Four Million One Hundred and Forty Thousand (Kshs.4,140,000.00);

1.1.6 "**Purchaser's Advocates**" means Daly Inamdar Advocates LLP, 1st Floor, Sea View Plaza, Mama Ngina Drive, P. O. Box 80483-80100, Mombasa;

1.1.7 "**Vendor's Advocates**" means C.O Tolo & Co. Advocates, 11th Floor, Suite 1117, Social Security House, Nkrumah Road, P. O. Box 3325-80100, Mombasa;

1.1.8 **"Vendor's Advocates Account"** means:

BANK: COOPERATIVE BANK OF KENYA LIMITED
BRANCH CODE : 060
BENEFICIARY: C. O. TOLO & CO ADVOCATES
BENEFICIARY 01192764711100

1.2 In this Agreement, unless the context otherwise requires, reference to:

1.2.1 the "**Vendor**" includes the Vendor's personal representatives, permitted successors and permitted assigns and the "**Purchaser**" includes the Purchaser's permitted successors and permitted assigns;

1.2.2 words importing the singular number only shall include the plural number also and vice versa and words importing the masculine gender includes the feminine gender and neuter and vice versa;

1.2.3 Conditions and Sections shall be construed as references to Conditions and Sections of this Agreement;

1.2.4 the expression "**person**" shall include any legal or natural person, partnership, trust, company, joint venture, agency, government or local authority department or other body (whether corporate or unincorporate);

1.2.5 the expression "**registration**" means due and effective registration of the formal Transfer of the Property at the Kwale District Lands Registry in favour of the Purchaser and/or its nominee(s);

1.2.6 the word "**tax**" shall be construed so as to include any tax, levy, impost, assessment, duty or other charge of a similar nature (including, without limitation, value added tax, stamp duty and any penalty or interest payable in connection with any failure to pay or any delay in paying any of the same) and "taxation" shall be construed accordingly and the expression "competent taxing authority" means, in respect of any state or administrative division thereof, any governmental or local authority, monetary agency or central bank having power to collect or levy taxes;

1.2.7 any statute or any provision of any statute shall be deemed to refer to any statutory modification or re-enactment thereof and to any statutory instrument, order or regulation made thereunder or under any such re-enactment;

1.2.8 indemnifying any person against any circumstance includes indemnifying and keeping him harmless from all actions, claims and proceedings from time to time made against that person and all loss or damage and all payments, costs and expenses made or incurred by that person as a consequence of or which would not have arisen but for that circumstance;

1.2.9 costs, charges, expenses or remuneration shall be deemed to include, in addition, references to any value added tax or similar tax charged or chargeable in respect thereof; and

1.2.10 the expression "**month**" means a calendar month.

1.3 Headings to sections are for convenience only and shall not affect the construction or interpretation of this Agreement.

1.4 In this Agreement any reference to any document means that document as is supplemented, amended or varied from time to time between the parties thereto in accordance with the terms (if applicable) hereof and thereof.

2 Law Society Conditions of Sale

2.1 The sale and purchase of the Property is subject to the LSK Conditions which shall be deemed incorporated herein in extenso save in so far as the LSK Conditions are not consistent with the provisions of this Agreement or are varied or excluded by the terms of this Agreement.

3 Agreement for Sale

3.1 The Vendor hereby agrees to sell and the Purchaser hereby agrees to purchase the Property at the Purchase Price and upon the terms and conditions set out in this Agreement.

3.2 The interest in the Property being sold is Freehold.

4 Deposit

4.1 The Purchaser shall on or before the date of this Agreement, and subject to prior procurement of a Search over the Property and release of the original title document with respect to the Property to the Purchaser's Advocates, pay the Deposit directly to the Vendor's Advocates, who may release the same unconditionally to the Vendor.

4.2 For the avoidance of doubt, the Purchaser's Advocates shall hold the original title document for Property as stakeholders pending registration and otherwise in accordance with this Agreement.

4.3 Upon payment of the Deposit in accordance with Clause 4.1 above, the Vendor shall permit the Purchaser to erect a chain link fence on the Property and complete the survey process referred in Clause 5, which costs shall be incurred by the Purchaser.

5 Survey and Change of User

5.1 The sale of the Property is subject to the Purchaser procuring, entirely at its own cost and expense, a change of user of the Property from Agricultural to Industrial with the result that a new title document is issued for the Property (the "**Change of User**").

5.2 The Vendor and the Vendor's Advocates shall fully co-operate with and provide all necessary assistance to the Purchaser's Advocates in the Change of User process and upon all approvals and consents being obtained, the Purchaser's Advocates are hereby permitted unconditionally surrender the title document for the Property, and take all necessary steps, in order to complete the said change of user process.

5.3 The Purchaser shall also procure a survey over the Property to establish the correct acreage of the Property and the beacons therein. For the avoidance of doubt, in the event the survey results in an acreage which is different from the one that appears in the title document, then the Purchase Price shall be adjusted pro rata, either way, at the agreed rate of Kenya Shillings One Million Two Hundred Thousand (Kshs.1,200,000.00) per acre,

6 Pre-Completion Conditions

6.1 The Completion shall be subject to the following conditions:

6.1.1 Survey and Change of User in accordance with Clause 5;

6.1.2 procurement of a post-Change of User Search over the Property;

6.1.3 erection of a chain link fence in accordance with clause 4.3; and

6.1.4 Removal of any graves on the Property (if any).

7 Completion

7.1 Subject always to Clause 6 above, the Completion Date shall be 31st January 2025 or Fifteen (15) days from the date of the receipt of the new title following completion of the Change of User process, whichever is later.

7.2 Completion shall take place at the office of the Vendor's Advocates.

7.3 On or before the Completion Date:

7.3.1 the Purchaser shall, subject to the Vendor's Advocates issuing an appropriate professional undertaking, pay the balance of the Purchase Price in the sum of **Kenya Shillings Three Million Seven Hundred and Twenty Six Thousand (Kshs.3,726,000.00)** to the Vendor's Advocates Account to be held by them as stakeholders pending:

7.3.1.1 registration; and

7.3.1.2 hand over of vacant possession of the Property (all structures having been removed) to the Purchaser.

7.3.2 subject to the Purchaser having complied in full with their obligations under 7.3.1, the Vendor shall deliver to the Purchaser's Advocates the following documents:

7.3.2.1 the duly executed Transfer (in triplicate) in respect of the Property in favour of the Purchaser and/or its nominee;

7.3.2.2 Account Transfer Letters in respect of the electricity, water and other utility accounts in respect of the Property together with the last payment receipts in respect of each of them (if applicable);

7.3.2.3 Statutory Declaration as to the marital status of the Vendor/Spousal Consent by the Vendor's Spouse (whichever is applicable);

7.3.2.4 copies of the Identity Card and PIN Certificate of the Vendor;

7.3.2.5 three passport size photographs of each of the Vendor;

7.3.2.6 all other documents in the Vendor's possession relating to the Property that the Purchaser may reasonably require for the purpose of giving effect to this Agreement.

8 Disclaimer and Warranties

8.1 Save as expressly provided in this Agreement, the Purchaser agrees that:

8.1.1 any condition or warranty whatsoever as to the condition of the Property or its fitness for any purpose is hereby excluded;

8.1.2 it has inspected and surveyed the Property and purchases the Property with full knowledge of its actual state and condition and shall take the Property as it stands at the Completion Date;

8.1.3 it enters into this Agreement solely as a result of its own survey and inspection and on the basis of the terms of this Agreement and not in reliance upon any representation either written or oral or implied or made by or on behalf of the Vendor; and

8.1.4 this Agreement constitutes the whole and any agreement between the parties hereto relating to the sale and purchase of the Property and supercedes and extinguishes any prior agreements, undertakings, representations, warranties and arrangements of any nature whatsoever whether or not in writing relating to the sale and purchase of the Property.

8.2 In consideration of the Purchaser entering into this Agreement and in consideration of the Purchaser agreeing to pay the Vendor the Purchase Price in accordance with the provisions of this Agreement, the Vendors warrants and agrees with the Purchaser that to the best of their information, belief and knowledge:

8.2.1 the Vendor is the registered legal and beneficial owner of the Property and has full and unrestricted power to sell and transfer the Property to the Purchaser and the Property was acquired by the Vendor in accordance and in compliance with the terms of all approvals, consents, permissions and authorisations required from any Competent Authority;

8.2.2 this Agreement constitutes and the other documents executed by the Vendor which are to be delivered at or prior to Completion will, when executed, constitute binding obligations of the Vendor in accordance with their respective terms;

8.2.3 the execution and delivery of this Agreement, will not:

8.2.3.1 result in a breach of, or constitute a default under, any agreement or instrument to which the Vendor is a party or by which the Vendor is bound; or

8.2.3.2 result in a breach of any order judgment or decree of any court or Government agency or Competent Authority to which the Vendor is a party or by which the Vendor is bound

8.2.4 there is no encumbrance or equity on over or affecting the whole or any part of the Property and there is no agreement or commitment to give or create any and no claim has been made by any person to be entitled to any;

8.2.5 The Vendor is not in breach of The Environmental Management and Co-ordination Act, 1999 (No. 8 of 1999) or the Physical Planning Act (Cap. 286, Laws of Kenya) and the rules and regulations promulgated thereunder including any directive of a Competent Authority in relation to the Property;

8.2.6 there are no boundary disputes relating to or regarding the Property;

8.2.7 the description of the Property set out herein are correct in all respects;

8.2.8 there are no pending suits, administrative actions, judicial actions or any other actions or proceedings of or by any government or other Competent Authority or any agency or any other third party in relation to or affecting the Property;

8.2.9 the Vendor has not received any notice from any Competent Authority informing them that the Property has been set aside for any public purpose or that the Commission intends to compulsorily acquire the Property nor is the Property subject to the Land Control Act (Cap 302), the Forest Act (Cap. 385) or the National Museum and Heritage Act (No.6 of 2006);

8.2.10 the Vendor is not entering into this Agreement with the intention of delaying or defeating or hindering the exercise by a creditor of any right of recourse to the Property;

8.2.11 the Vendor has a good and marketable title to the Property, free and clear of all encumbrances.

8.3 The Vendor hereby accepts that the Purchaser is entering into this Agreement in reliance upon each of the Warranties and undertakes to disclose to the Purchaser anything which is or may be inconsistent with any of the Warranties immediately it comes to its notice.

8.4 The Vendor hereby represents warrants and undertakes to the Purchaser for the benefit of the Purchaser that each of the Warranties referred to in this Clause 12 is true and accurate. Each of the Warranties shall be construed as a separate warranty and (save as expressly provided to the contrary) shall not be limited or restricted by reference to or inference from the terms of any other Warranty or any other term of this Agreement.

8.5 The Vendor hereby undertakes to the Purchaser that as from the date of this Agreement up to (and including) completion the Vendor will procure that the Warranties will not be untrue, misleading or breached if they were repeated as at the time of completion and on the basis that a reference to the actual time of completion was substituted for an express or implied reference to the time of this Agreement, and the Warranties shall be deemed to be given by the Vendor at the time of completion as well as at the time of this Agreement accordingly.

8.6 If any fact which is inconsistent with any of the Warranties or which would cause any of them to be untrue, misleading or breached if the Warranties were given at completion comes to the knowledge of the Purchaser prior to completion (whether it does so by reason of any disclosure made pursuant to Clause 12.2 or not), the Purchaser shall be entitled to treat this Agreement as discharged by breach of condition.

8.7 The Purchaser shall be entitled to claim both before and after completion that any of the Warranties is or was untrue or misleading or has or had been breached even if the Purchaser knew or could have discovered on or before completion that the Warranty in question was misleading or had been breached and completion shall not in any way constitute a waiver of any of the Purchasers' rights.

8.8 The Vendor undertakes to the Purchaser that the Vendor shall on first written demand by the Purchaser indemnify the Purchasers for breach of any Warranty and pay to the Purchaser an amount equal to any losses claims damages suffered or incurred by the Purchaser as a result of or in relation to any act, thing or circumstance constituting a breach of any Warranty; and

8.9 all costs, expenses and disbursements suffered or incurred by the Purchaser as a result of or in relation to any breach of any Warranty.

9 Movables

9.1 The sale includes no movables.

10 Possession

10.1 Subject to compliance with the Purchaser's payment obligations herein, the Property is sold with vacant possession to be given to the Purchaser upon successful registration of the Transfer in favour of the Purchaser.

11 Matters affecting the Property

11.1 The Property is sold subject to the entries on the Land Register relating to the Property, to such overriding interests set out in Section 28 of the Land Registration Act, 2012 as affect the Property and any informal charges (as defined in Section 79 of the Land Act, 2012) but otherwise free from any other charges or other encumbrances.

12 Outgoings of the Property

12.1 All Outgoings, if any, in respect of the Property shall be apportioned as at the Completion Date.

13 Assignment

13.1 The Transfer shall be in the name of the Purchaser and/or the Purchaser's nominee(s) provided always that:

13.1.1 such nomination shall not absolve the Purchaser from the Purchaser's liabilities under this Agreement the provisions of which shall be binding on the Purchaser regardless of such power to nominate and/or any such nomination; and

13.1.2 the Vendor shall not be responsible for any stamp duty implications occasioned by such nomination and the Purchaser shall indemnify the Vendor against any losses or costs or expenses incurred by the Vendor by reason of any stamp duty implications occasioned by any such nomination.

14 Non-Merger

14.1 This Agreement shall not merge on completion of the sale and purchase of the Property and completion shall not limit cancel or extinguish the performance of any outstanding duties or obligations under this Agreement.

15 Legal and Other Costs

15.1 Each party will bear its own legal costs in respect of this transaction.

15.2 The Vendor shall be responsible for declaring and paying any Capital Gains Tax payable in respect of this transaction.

15.3 The Vendor shall be responsible for payment of any outstanding county rates or government levies and this regard the Vendor hereby authorizes the Purchaser the pay the same (if any) from the balance of the Purchase Price.

15.4 All valuation fees, stamp duty and registration fees payable on the transfer of the Property to the Purchaser shall be for the account of the Purchaser.

16 Special Conditions

16.1 Time shall be of the essence of all obligations of the Parties in this Agreement.

16.2 if the Purchaser fails or has failed to comply in any respect with its obligations under clause 7.3.1 on the Completion Date (or such later date as the parties may agree in writing), the Vendor may:

16.2.1 defer Completion on such terms as it may require (and the provisions of this clause shall apply to such Completion);

16.2.2 proceed to Completion so far as practicable but without prejudice to its rights hereunder or otherwise; or

16.2.3 being otherwise ready willing and able to complete and without prejudice to any other rights and remedies that may be available to it rescind this Agreement upon having given not less than Twenty One (21) days written notice of its intention to do so to the Purchaser and the Purchaser shall have failed to perform its obligations with regard to Completion prior to expiry of such notice.

16.3 If the Vendor shall rescind this Agreement in accordance with Clause 16.2.3, the Purchaser shall be deemed to have forfeited the Deposit to the Vendor who shall be entitled to retain the same and to re-sell the Property to any person.

16.4 If the Vendor fails or has failed to comply in any respect with any of his obligations under this Agreement the Purchaser may:

16.4.1 defer Completion on such terms as they may require (and the provisions of this clause shall apply to such Completion);

16.4.2 proceed to Completion so far as practicable but without prejudice to their rights hereunder or otherwise; or

16.4.3 being otherwise ready willing and able to complete and without prejudice to any other rights and remedies that may be available to their rescind this Agreement upon having given not less than Twenty One (21) days written notice of their intention to do so to the Vendor and the Vendor shall have failed to perform their obligations with regard to Completion prior to expiry of such notice.

16.5 If the Purchaser shall rescind this Agreement in accordance with Clause 16.4.3:

16.5.1 the Vendor shall return/refund to the Purchaser:

16.5.1.1 all monies, including the deposit, without interest, paid by the Purchaser by virtue of the terms of this Agreement within seven (7) days from the date of the notice of rescission;

16.5.1.2 the cost incurred by the Purchaser in undertaking the Change of User; and

16.5.1.3 the cost of erecting the chain- link fence on the Property

16.5.2 Upon compliance with clause 16.5.1 by the Vendor, the Purchaser's Advocates shall return the original document of title to the Vendor's Advocates. Thereafter neither party shall have a claim against the other whatsoever and the Vendor shall be at liberty to sell the Property to any other person.

17 **General**

17.1 All payments due to be made by the Purchaser hereunder and all costs, charges, expenses or remuneration shall be deemed to be exclusive of any value added tax or similar tax charged or chargeable in respect thereof and for which the Purchaser shall be liable to account

17.2 No failure or delay to exercise any power, right or remedy by the Vendor shall operate as a waiver of that right, power or remedy and no single or partial exercise by the Vendor of any right, power or remedy shall preclude its further exercise or the exercise of any other right, power or remedy.

17.3 The rights and remedies of the Vendor provided in this Agreement are cumulative and not exclusive of any rights or remedies provided by law.

17.4 Each of the provisions of this Agreement is severable and distinct from the others and, if at any time one or more of these provisions is or becomes invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired.

17.5 No amendment or variation to this Agreement shall be effectual or binding on the parties hereto unless it is in writing and duly executed by or on behalf of the parties hereto.

18 **Acceptance**

18.1 Each of the parties hereto hereby agrees and confirms that it has executed this Agreement with the intention to bind itself to the contents hereof.

IN WITNESS WHEREOF this Agreement has been duly executed by the parties hereto as of the day and year first above written.

***** the remainder of this page is deliberately left blank*****

EXECUTION

The Vendor

SIGNED by)
NDEGWA JONDA KALAMA)
in the presence of:-)
)
)
)
)
)
)
)
)
)
ADVOCATE)

I CERTIFY that the above-named **NDEGWA JONDA KALAMA**, being the Vendor herein appeared before me on the 25th day of November Two Thousand and Twenty four(24) and being known to me/being identified by his National ID Card Number **9874234**, acknowledged the above signature or mark to be his and that he has freely and voluntarily executed this agreement and understood its contents.

ADVOCATE

The Purchaser

SIGNED by the duly authorized Signatory of)
SHREE SHYAM PETRO CHEMICALS)
LIMITED)
in the presence of:-)
)
)
)
)
)
)
)
)
)
)
ADVOCATE)

x stamp
SHREE SHYAM PETRO CHEMICALS LIMITED

DIRECTOR

NABILA SAID ABDALLA
ADVOCATE
ADMISSION NO: P.105/16319/19
P O Box 80483 - 80100
MOMBASA, KENYA

I CERTIFY that the above-named authorized Signatory of the Purchaser, **SHREE SHYAM PETRO CHEMICALS LIMITED**, herein appeared before me on the 15th day of November Two Thousand and Twenty Four and being known to me/being identified by his ~~National ID Card~~ Passport Number U1932265, acknowledged the above signature or mark to be his and that he has freely and voluntarily executed this agreement and understood its contents.

NABILA SAID ABDALLA
ADVOCATE
ADMISSION NO: P.105/16319/19
P O Box 80483 - 80100
MOMBASA, KENYA

ADVOCATE

Drawn by:
Daly Inamdar
Advocates LLP
Sea View Plaza, 1st Floor
Mama Ngina Drive
P O Box 80483-80100
MOMBASA

AMBIENT ATMOSPHERIC QUALITY MONITORING REPORT

ENVIRONMENTAL BASELINE STUDY REPORT FOR AMBIENT ATMOSPHERIC QUALITY MONITORING OF THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT L.R No. KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY

PROJECT INFORMATION:

PREPARED FOR:
SHREE SHYAM PETRO CHEMICLAS LIMITED,
P.O BOX 717-00100,
KWALE COUNTY, KENYA.

CLIENT ADDRESS:

PREPARED BY:
LAHVENS LIMITED
P.O BOX 34153, 80118.
DESIGNATION LAB REF. NO. NEMA/21/2/LAB77/LLL
EMAIL: lahvens@lahvens.com

TESTING CONSULTANTS:

DOCUMENT ID: 50125-0045 A
TEST DATES: MAY 25TH 2025
(FINAL) REPORT ISSUED: JUNE 17TH, 2025

DOCUMENT INFORMATION:

DOCUMENT REVIEW PAGE

This Technical report titled ENVIRONMENTAL BASELINE STUDY REPORT FOR AMBIENT ATMOSPHERIC QUALITY MONITORING OF THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY was authorized by Lahvens Limited in accordance to the EMC (Air Quality) Regulations 2024, Legal Notice 180

REVISION HISTORY

03	17.06.2025	Issuance of Final Report
02	03-06-2025	Re-submission to close the given comments and approvals
01	30-05-2024	1st draft issue of the soft copy submitted for review
REV	**DATE**	DESCRIPTION

Accepted by			
Approved by	LOVANS ROBERT SPOO (LABORATORY DIRECTOR) N.E.R. NO.: 7165		17.06.2025
Reviewed by	EDNAH MACHARIA: QUALITY MANAGEMENT REPRESENTATIVE		17.06.2025
Prepared by	VINCENT AGIN- FIELD ATTENDANT		17.06.2025
PROJECT	Name	Signature	Date

DOCUMENT & PROJECT PARTICULARS

DOCUMENT REF: 50124-0045 B	CLASSIFICATION: A – UNCLASSIFIED (OPEN REPORT)	CONTRACT NO. AS PER SPL TOR.	REVISION: 00 FINAL

TEST FIRM CONTACT PERSON: LOVANS SPOO: (254 – 728716948)	PROJECT: PROPOSED USED OIL HANDLING AND RECYCLING FACILITY	NUMBER OF PAGES: 40

AUTHOR(S): VINCENT OKUMU, VALENTINE AGUTU	QUALITY CONTROLLER: EDNAH MACHARIA

ABSTRACT (ENGLISH TITTLE):
Shree Shyam Petro Chemicals Limited contracted Lahvens Limited to form part of the Project's Environmental Team (ET). LAHVENS Limited was commissioned to provide consulting services of environmental baseline atmospheric quality concentrations assessment before implementation of the proposed USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY.

KEY WORDS:
EBS Acoustic Emissions Level Monitoring and Consultant Reporting.

ABSTRACT (in ENGLISH)	PUBLICATION TYPE: Digital document (pdf)

REVIEW AND CERTIFICATION FROM THE TESTING CONSULTANTS

All work, calculations, other activities, and tasks performed and documented in this report were carried out under my direction and supervision. This test project conforms to the requirements of Lahvens Limited's quality manual and **EMC (Air Quality) Regulation 2024, Legal Notice 180.**

Team Leader: VALENTINE ODUOR

Signature:

Date: 17.06.2025

I have reviewed all testing details, calculations, results, conclusions and other appropriate written material contained herein, and hereby certify that the presented material is authentic and accurate.

Reviewer: LOVANS ROBERT SPOO

Title: LABORATORY DIRECTOR

Signature:

Date: 17.06.2025

CERTIFICATION FROM THE LEGAL ENTITY OF THE TESTING FACILITY:

I have reviewed the information being submitted in its entirety. Based on the information and belief formed after reasonable inquiry, I certify that the statements and information contained in this submittal are true, accurate and complete.

_____ _____

Signature Date

_____ _____

Name Printed Tittle

_____ _____

Company Name Company stamp

EXECUTIVE SUMMARY

Environmental atmospheric measurement was undertaken for the proposed USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY on the 25th May 2025.

Atmospheric Environment survey was conducted to determine the EXISTING (Do minimum) air pollution around the proposed project for Environmental, Health, Safety and compliance purposes. Air quality remains a valued component in this environmental assessment because of their fundamental significance to the well-being of humans, wildlife and vegetation.

Used oil handling and recycling process can contribute to noise pollution primarily through the operation of equipment other machinery. It can have significant impacts on air quality, mainly due to the emission of various pollutants including volatile organic compounds (VOCs), nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter, and greenhouse gases like carbon dioxide (CO2) and methane (CH4). While used oil recycling offers potential for waste management and energy recovery, optimizing operating conditions and implementing effective emission control technologies are crucial to mitigate its negative impact on air quality.

In order to address the above environmental challenges during the operational phase, a study of the status quo “do minimum” was conducted in order to record the baseline / background conditions. The client contracted Lahvens Limited to form part of the Project’s Environmental Team (ET). LAHVENS Limited was commissioned to provide consulting services of environmental baseline atmospheric quality concentrations assessment before implementation of the proposed USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY on the 25th May 2025.
The report of atmospheric results will form part of the Environmental & Social Impact Assessment (ESIA).

The objectives of environmental atmospheric baseline monitoring will be as follows;

To monitor the existing state of atmospheric air quality environment at predetermined survey locations of the proposed project site.

The results of these tests shall be used to demonstrate compliance with a set of emission concentration limit values for prescribed pollutants as specified in the EMC (Air quality) regulations 2024 during licensing and continuous assessments.

Report the findings of the survey in a report which will also form part of the ESIA report on need basis

The baseline air quality report includes the National and local assessments. At the National scale the assessment considers the total mass emission of general pollutants associated with construction activities. These are sulfur dioxide (SO_2), Nitrogen oxide (NO_x), Ozone (O_3), Particulate Matter (PM_{10} and $PM_{2.5}$) – particles with aerodynamic diameters of less than 10 and 2.5 microns respectively

The current concentrations of these pollutants are at risk of exceeding their respective Air Quality Limit Values during construction, commissioning and decommissioning phases. The estimates of the existing concentrations will be measured and compared to any relevant existing information and when the project commences, will be used as the background data. Relevant available information related to the pre-development ambient air concentration in the environment was looked into while identifying the major

existing air emission sources in the environment and the existing sensitive pollution areas in the environment.

This Environmental Baseline Study is designed to characterize the atmospheric resources at the proposed site prior to establishment of the used oil handling and recycling facility development in Maji ya Chumvi area. EBS will provide a benchmark and reference against which to compare the environmental conditions influenced by the construction, operation and closure phases of the proposed used oil handling and recycling facility development. The information will be used to assess the effectiveness of any proposed mitigation measures and to implement adaptive management, if need be.

The environmental baseline study will collect, assess, and interpret enough physical and chemical atmospheric information to: support the characterization of the atmospheric resource; enable determination of possible impacts; help predict the significance of impacts and the effectiveness of any proposed mitigation; establish thresholds for indicators of ecosystem health; and facilitate the design of monitoring programs.

Well-developed EBS often alleviate heightened perceived concerns within the community during the initial phases of any proposed development, before issues become a serious risk to the project. EBS also creates reassurance in the minds of the public and jurisdictional decision makers that key environmental issues have been identified and will be monitored and mitigated, during and after the project is approved. EBS monitoring can be looked at as an early warning system of impacts that could potentially affect the environment during the project operation phase and long after the project is decommissioned.

It is important to accurately determine prevailing air quality conditions against which predicted effects can be gauged and assessed for any environmental effects' assessment.
Ambient air quality survey for this study consists of **FOUR** representative monitoring locations. Information for the report is presented based on air monitoring completed for 4-hour weighted average. For the purpose of the baseline investigation, monitoring of air pollutants was achieved on the 25th day of May 2025 and thereafter the results were compared against the guidelines and standards while attention given to relevant referencing sites of similar nature. Ambient air quality data were obtained from a validated and approved air quality monitoring program.

Mobile and active monitoring was done by use of real time equipment AQM-09 which integrates the main ambient gases and meteorological parameters and particulate counter meter. Temperature is measured by way of a highly accurate Air Chip 3000 while humidity is measured using a capacitive humidity sensor (accuracy < 0.8 % / 0.1 K). The gas detector and particulate matter meters were mounted at about 1 – 2 M above the ground surface. The duration information was used to calculate the gas / pm concentrations.

FIELD NOTES AND OBSERVATIONS:

Ambient air quality measurements were taken for short term exposure levels. It should however be noted that this exercise is only applicable to the time period when sampling took place and does not take into account seasonal and other local various that might occur during other months and times. However, it is still a good general overview of the existing air quality environment.

Sensitive receptors:

The proposed project site neighborhood comprises undeveloped lands with the vegetation cover dominated by indigenous trees of acacia species and bush. The neighborhood is also characterized by residential facilities identified as sensitive receptors.

Potential and existing Pollution causes;

From the site visits and background site description, the following sources have been identified as potential pollution causes at the proposed site;

Exhaust gases:

The survey location will be accessible to motor vehicles that utilize diesel and petrol. Vehicle and motorcycle exhausts contain a number of pollutants including carbon dioxide (CO_2), carbon monoxide (CO), hydrocarbons, oxides of nitrogen (NOx), sulphur and PM_{10}. The quantity of each pollutant emitted depends upon the type and quantity of fuel used, engine size, speed of the vehicle and abatement equipment fitted. Once emitted, the pollutants are diluted and dispersed in the ambient air.

Vehicular movement;

Re-suspension of roadside dust from movement of vehicles will result in generation of relatively higher fraction of finer dust ($PM_{2.5}$). Significant atmospheric dust arise from the mechanical disturbance of granular soils materials exposed to the air from motor vehicle / cycle movement. Pulverization and abrasion of surface materials by application of vehicular mechanical forces generate substantial amount of dust.

Transfer of construction materials;

Transfer of construction materials from load-out section to storage yards (during active construction) by tipper trucks will emit emissions of dust particles and gaseous emissions from the mode of transfer i.e. trucks and tippers and during offloading.

Air Quality Survey Conclusions:

Baseline Atmospheric Environment Monitoring was conducted to characterize the existing environment before implementation (DO MINIMUM) of the proposed used oil handling and recycling facility development. The conclusions below were drawn as follows:

Gaseous Parameters:

All gaseous parameters (carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone and total volatile organic compounds) were measured and quantified at all the four survey locations.

Before the project implementation of the proposed used oil handling and recycling facility development, all measured gaseous parameters COMPLIED with the EMC (Air quality) regulations 2024 limits.

The ambient air quality data (gaseous) measured around the monitoring locations are considered to be within a typical range of emissions for such neighborhood.

The findings of the gaseous monitoring program indicate that the air quality at the proposed used oil handling and recycling facility development is generally good before its commissioning. All pollutants measured are at levels that do not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

Meteorological Parameters:

The monitoring locations in general showed Standard atmospheric environment before project implementation due to the combination of good climate and ambient conditions. Weather and Climatic conditions of the proposed used oil handling and recycling facility development provided good dispersion of air contaminants.

Particulate Matter (PM_{10} and $PM_{2.5}$):

Particulate parameters concentrations (PM_{10} and $PM_{2.5}$) were measured and quantified across the survey stations.

Before the project implementation of the proposed used oil handling and recycling facility development, all measured particulate parameters COMPLIED with the EMC (Air quality) regulations 2024 limits.

The $PM_{2.5}$ and PM_{10} concentration levels recorded were within the typical range of emissions for similar neighborhood.

The findings of the monitoring program indicate that the particulate matter environment is generally good before the proposed used oil handling and recycling facility development implementation. Particulate pollutants measured are at levels that do not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

Once construction and operations begin, the client is expected to maintain the background / baseline levels or formulate a robust control plan.

Recommendations:

A used oil handling and recycling facility can be a blessing to our economy and at the same time a challenge to our environmental sustainability and health curse. Sustainable construction can however be achieved through effective emission reduction vide influencing government, industry and stakeholders to ensure **compliance** with current legislation, to encourage **adoption** of low emission approaches, and to develop a pathway to enhanced **regulation**.

Compliance:

Ensuring **compliance** with existing regulation is the most effective way to reduce local emissions. This could take the form of an enhanced and consistent air quality measurement (dust & gaseous measurement), reporting system, ensuring compliance with set dust management emission policies and plans.

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DEFINITIONS.

Table 1: List of acronyms

µg/m^3	Microgram per cubic meter
AAQTL	Ambient Air Quality Threshold Limits
AQG	Air Quality Guidelines
CBS	Comprehensive Baseline Study
CO	Carbon monoxide
CO_2	Carbon dioxide
EA	Environmental Audits
EIA	Environmental Impact Assessment
EMC	Environmental Management and Coordination
EPA	Environmental Protection Authority
GPS	Geographic Positioning System
hpa	Hectopascal
Km/hr	Kilometer per hour
mg/m3	Milligram per cubic meter
NEMA	National Environment Management Authority
NO_x	Oxides of Nitrogen
NO_2	Nitrogen dioxide
PM_{10}	Particulate matter (<10 microns)
$PM_{2.5}$	Particulate matter (<2.5 microns)
SO_2	Sulfur dioxide
QAQC	Quality Assurance / Quality Control
TVOC	Total volatile Organic compounds
TWA	Time Weighted Average
WB	World bank
WHO	World Health Organization
µg/m^3	Micro gram per cubic meter
VOCs	Volatile organic compounds

1. INTRODUCTION

1.1. Project Summary and Objectives

Environmental atmospheric measurement was undertaken for the proposed USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY on the 25th May 2025.

Atmospheric Environment survey was conducted to determine the EXISTING (Do minimum) air pollution around the proposed project for Environmental, Health, Safety and compliance purposes. Air quality remains a valued component in this environmental assessment because of their fundamental significance to the well-being of humans, wildlife and vegetation.

Used oil handling and recycling process can contribute to noise pollution primarily through the operation of equipment other machinery. It can have significant impacts on air quality, mainly due to the emission of various pollutants including volatile organic compounds (VOCs), nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter, and greenhouse gases like carbon dioxide (CO2) and methane (CH4). While used oil recycling offers potential for waste management and energy recovery, optimizing operating conditions and implementing effective emission control technologies are crucial to mitigate its negative impact on air quality.

In order to address the above environmental challenges during the operational phase, a study of the status quo “do minimum” was conducted in order to record the baseline / background conditions. The client contracted Lahvens Limited to form part of the Project’s Environmental Team (ET). LAHVENS Limited was commissioned to provide consulting services of environmental baseline atmospheric quality concentrations assessment before implementation of the proposed USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA KWALE COUNTY on the 25th MAY 2025. The report of atmospheric results will form part of the Environmental & Social Impact Assessment (ESIA).

The objectives of environmental atmospheric baseline monitoring will be as follows;

To monitor the existing state of atmospheric air quality environment at predetermined survey locations of the proposed project site.

The results of these tests shall be used to demonstrate compliance with a set of emission concentration limit values for prescribed pollutants as specified in the EMC (Air quality) regulations 2024 during licensing and continuous assessments.

Report the findings of the survey in a report which will also form part of the ESIA report on need basis

1.2. Facility Description;

The proponent, Shree Shyam Petrol Chemicals Limited, proposes to set up used oil handling and recycling facility and associated amenities.

1.3. Appraisal Framework Requirements

Under the Second Schedule of the Environmental Management and Coordination Act (EMCA), Cap 387 of the Laws of Kenya, the project is categorized as a High Risk and thus should undergo an Environmental Impact Assessment (EIA) Study process.

Air quality monitoring is enshrined in the environmental Management Coordination (Air quality) regulations 2024 framework legal notice 180. According to EMC (Air quality) regulations 2024 framework legal notice 180 under preliminary, the interpretation of *"monitoring" means any periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements or pollutant levels in various media or in humans, animal, and other living things*.

The Constitution of Kenya provides that *"every person has a right to a clean and healthy environment and this includes the right to have the environment protected for the benefit of present and future generations."* The prevention of atmospheric pollution is recognized as a component of a clean and healthy environment. All development therefore that are proposed to be established should comply with this provisions when their operational phase commences. It is essential therefore to take note through measurement the current / existing air quality conditions before implementation of the proposed project to justify during operations that the environmental media / parameter was not deteriorated as a consequence of the project implementation. Once the baseline values are determined, the industries are then allowed to operate in a manner that does not cause pollution, that might not lead to injury of the body and disruption of peace and comfort enjoyed by the employees and workers in the industrial areas. It is for this reason that there is a need to regulate the levels of air emissions. These regulations are set out by the National Environmental Management Authority (NEMA) to protect people from air pollution and odor.

Environmental Management Coordination (Air quality) regulations 2024 framework legal notice 180, PART XIII-MISCELLANEOUS – section 75 states that *"The Authority may in consultation with the relevant lead agencies establish **baseline levels of priority air pollutants set out in the Second Schedule***.

In addition, Environmental Audit is required for all existing projects in compliance with Section 54 (A)(2) of the Environmental Impact Assessment (EIA) regulations, 2014 (as amended), promulgated under the National Environmental Management Act, 1998 (act No. 107 of 1998; NEMA). Air quality monitoring is captured as an environmental aspect that needs to be monitored under the Environmental Monitoring and Management plan (EMMP).

According to the EMC (IMPACT ASSESSMENT AND AUDIT) regulations 2003 framework legal notice 101 PART IV, THE ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT section 18 which states that *(1) A proponent shall submit to the Authority, an environmental contents of impact assessment study report incorporating but not limited to the environmental following information; – (b) a concise description of the national environmental legislative and regulatory framework, **baseline information.*** PART VI - MISCELLANEOUS PROVISIONS section 43 (2) states that *the proposed policy, programme or plan specified in this regulation shall state – (d) an environmental analysis covering: (i**) baseline information focusing on areas potentially affected***.

The client in adhering to the above extracts as part of this authorization process contracted an environmental team (ET). Lahvens Limited was responsible for providing consulting services of existing atmospheric concentrations / environment before implementation of the proposed project.

1.4. Scope of Baseline Air Quality Assessment;

The baseline air quality report includes the National and local assessments. At the National scale the assessment considers the total mass emission of general pollutants associated with construction activities. These are sulfur dioxide (SO_2), Nitrogen oxide (NO_x), Ozone (O_3), Particulate Matter (PM_{10} and $PM_{2.5}$) – particles with aerodynamic diameters of less than 10 and 2.5 microns respectively. Background information on these pollutants and why they are of concern is summarized in section 2 'CONTEXT OF THE AIR QUALITY & MONITORING NETWORK'. The current concentrations of these pollutants are at risk of exceeding their respective Air Quality Limit Values during construction, commissioning and decommissioning phases. The estimates of the existing concentrations will be measured and compared to any relevant existing information and when the project commences, will be used as the background data. Relevant available information related to the pre-development ambient air concentration in the environment was looked into while identifying the major existing air emission sources in the environment and the existing sensitive pollution areas in the environment.

1.5. Terms of Reference

As part of the Terms of Reference (ToR), ambient air quality measurements were undertaken in compliance with the EMC (Air quality) regulations 2024 framework legal notice 180.
The following forms the TOR of the air quality survey:

Review of the legal context relating to air pollutants;
Evaluation of site meteorology;
Monitoring of background air quality:
Particulate Matter (PM) - particulate matter with aerodynamic diameter less than 10 microns and 2.5 microns (PM_{10} and $PM_{2.5}$).
Gases - sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon dioxide (CO_2) Total Volatile Organic Compounds (TVOC) and Ozone (O_3).

1.6. Justification of EBS

This Environmental Baseline Study is designed to characterize the atmospheric resources at the proposed site prior to establishment of the proposed USED OIL HANDLING AND RECYCLING FACILITY. EBS will provide a benchmark and reference against which to compare the environmental conditions influenced by the construction, operation and closure phases of the used oil handling and recycling facility and other associated facilities. The information will be used to assess the effectiveness of any proposed mitigation measures and to implement adaptive management, if need be.

The environmental baseline study will collect, assess, and interpret enough physical and chemical atmospheric information to: support the characterization of the atmospheric resource; enable determination of possible impacts; help predict the significance of impacts and the effectiveness of any proposed mitigation; establish thresholds for indicators of ecosystem health; and facilitate the design of monitoring programs.

Well-developed EBS often alleviate heightened perceived concerns within the community during the initial phases of any proposed development, before issues become a serious risk to the project. EBS also creates reassurance in the minds of the public and jurisdictional decision makers that key environmental issues have been identified and will be monitored and mitigated, during and after the project is approved. EBS monitoring can be looked at as an early warning system of impacts that could potentially affect the environment during the project operation phase and long after the project is decommissioned.

Environmental Baseline Study is a significant component of monitoring programs for some successful development activities.

2. CONTEXT OF THE AIR QUALITY & MONITORING NETWORKS

The areas closest to the used oil handling and recycling facilities are the most affected by the pollution generated during used oil handling and recycling operations. The significance of used oil recycling in addressing climate change must be considered.

Emissions stemming from used oil recycling facilities exhibit intricacy and capriciousness, depending upon various factors, encompassing the feedstock's characteristics and nature, the recycling temperature and duration, the plant's design and operational aspects, and the employed emission control technologies. For example, combustion of used oil - a process often carried out for energy recovery - can result in significant NOx and SO2 emissions. Moreover, emissions from these plants can include particulate matter, volatile organic compounds (VOCs), and carbon monoxide (CO). These pollutants can have various adverse effects, including respiratory problems, cardiovascular disease, and climate change.

The emission of fine particulate matter ($PM_{2.5}$ and PM_{10}), nitrogen oxides (NOx), sulphur dioxide (SO_2) and greenhouse gases such as carbon dioxide (CO_2) are the main pollutants responsible for altering air quality. Reducing these emissions is essential for mitigating climate change and improving public health.

Impact of used oil handling and recycling on health and the environment:
Exposure to pollutants emitted by the used oil recycling process has serious consequences for human health and the environment. The most noticeable effects include:

a. **Respiratory problems / Impact on public health:**

The pollutants released into the atmosphere during recycling cause **health conditions** such as asthma, chronic bronchitis, and obstructive pulmonary diseases. Exposure to VOCs from pyrolysis can lead to respiratory problems like asthma, bronchitis, and other pulmonary ailments. VOCs can also cause skin irritation upon contact. Some VOCs, like benzene, ethylene oxide, and formaldehyde, are classified as carcinogens or suspected carcinogens, raising the risk of cancer with chronic or occupational exposure. Biochar dust, a byproduct of pyrolysis, can cause respiratory issues and potential damage to human lung cells, especially at high temperatures. Inhalation of certain pyrolysis products, like those from micro-tobacco stem biochar (mTBCs), can lead to oxidative stress and inflammation in lung cells.

b. **Impacts on climate change / Climate connection:**

While used oil recycling can reduce waste volume and create valuable byproducts like bio-oil, it also generates gas emissions and requires energy, potentially leading to increased greenhouse **gas emissions**. Pyrolysis produces gas emissions, including carbon dioxide (CO2), methane (CH4), and other pollutants which are the **main drivers of climate change**.

c. **Acidification of soil and water bodies / Ecological impacts:**

These are environmental problems caused by **SO_2 and NO_x emissions** from recycling process that lead to **acid rain** that affects both soil **composition, water bodies,** and **vegetation**. Biochar can also affect soil pH. Biochar, particularly that produced at lower temperatures (350-550°C), can increase the pH of acidic soils that in turn can affect the soil biota. Recycling temperatures can influence the structure of biochar, which in turn affects soil structure. For example, biochar produced at 450-550°C can improve the structure of soil by boosting organo–mineral complexes, while higher temperatures can lead to increased hydrophobicity.

Clean air is essential to human health and ecosystems. Five categories of general pollutants were measured at the monitoring networks at the proposed site in Kwale county. The monitored categories of pollutants were sulphur dioxide (SO_2); oxides of nitrogen (NO_x) (which includes nitric oxide (NO) and nitrogen dioxide (NO_2)); carbon monoxide (CO); Total Volatile Organic Compounds (TVOC); ozone (O_3); particulate matter (PM) (which includes particles less or equal to than 2.5 microns ($PM_{2.5}$), particles less than or equal to 10 microns (PM_{10}). The EB study includes monitoring over a 4-hour period for the above pollutants.

Having clean air to breathe is necessary for good health. Poor air quality reduces quality of life. Some air pollutants are irritants. Some have odor. Some air pollutants can cause respiratory disease or even cancer. Air quality is important both indoors and outdoors. Ground level ozone, particulate matter and allergens are common outdoor air pollutants. Air in its purest state is best suited for the essential task sustaining life. Air pollution is a major environmental risk to health. Air pollution can trigger heart attacks or strokes. In fact, one in three persons who have heart disease can be potentially worsened by air pollution. Breathing clean air can lessen the possibility of disease from stroke, heart disease, lung cancer as well as chronic and acute respiratory illnesses such as asthma. Lower levels of air pollution are better for heart and respiratory health both long- and short-term.

The pollutants generated during pyrolysis originate from feedstocks, various process stages and temperature variance. The main pollutants emitted during pyrolysis include:

2.1. Oxides of Nitrogen (NOx)

Nitrogen oxide (NO_x) gases, composed of nitric oxide (NO) and nitrogen dioxide (NO_2), are produced during used oil recycling processes due to high-temperature reactions involving nitrogen-containing compounds. The N content of the feedstock is a primary determinant of NO_x formation. During recycling the breakdown of N-containing compounds releases N as molecular N and other reactive N species. Studies have shown that rapid heating rates and short residence times may favor NO_x formation. At the same time, surface reactions involving N-containing compounds on the char surface, especially in the presence of reactive C radicals, can also contribute to NO_x emissions. NO_x emissions contribute notably to environmental degradation, inducing smog formation that hampers air quality and visibility. Additionally, these gases undergo atmospheric reactions, generating nitrogen-based aerosols that contribute to the formation of acid rain, harming soil, water bodies, and vegetation. Furthermore, NO_x gases play a role in the creation of secondary organic aerosols, exacerbating air quality issues and influencing atmospheric processes. Investigations into NO_x-related atmospheric transformations highlight their significance in atmospheric chemistry, impacting environmental health and ecological systems. Anthropogenic NO_x and VOCs are widely acknowledged as precursors that contribute to the formation of near-ground O_3. Analyzing the interconnected patterns among the time series of O_3 and its precursors alongside their temporal changes, nonlinear techniques like the empirical kinetic modeling approach (EKMA) and air quality models (AQM) offer insights into how O_3 reacts to its precursors across various time scales.

Exposure to NO_x emissions from used recycling poses significant health risks to human populations. Inhalation of these gases can trigger respiratory issues, worsen asthma, and cause irritation in the respiratory tract. Consistent epidemiological studies link NO_x exposure to increased occurrences of respiratory ailments and exacerbation of existing conditions. Additionally, NO_x exposure can heighten susceptibility to respiratory infections, lung diseases, and potentially cancer. It also contributes to the formation of the brownish haze observed in overcrowded regions and plays a role in the occurrence of acid rain.

2.2. Carbon dioxide (CO_2) & Carbon Monoxide (CO)

Carbon monoxide (CO) and carbon dioxide (CO_2) are commonly produced as byproducts of incomplete combustion or recycling processes. While CO is a colorless, odorless gas posing severe health risks when inhaled due to its interference with the bloodstream's oxygen-carrying capacity, CO_2 functions as a greenhouse gas, significantly influencing climate change.

During used oil recycling operations, especially those involving biomass or fossil fuel feedstocks, significant emissions of CO can occur. Similarly, when waste materials are burned or subjected to incomplete combustion during recycling processes, elevated levels of CO_2 emissions are observed, impacting both local air quality and global climate dynamics.

Robust control measures and the adoption of cleaner pyrolysis technologies are imperative to mitigate CO and CO_2 emissions, addressing their detrimental impacts on both local air quality and global climate stability. For instance, ongoing research focuses on optimizing pyrolysis conditions to minimize CO emissions and developing carbon capture and storage techniques to mitigate CO_2 release, aiming to promote environmentally sustainable used oil recycling practices.

2.3. Sulphur Dioxide (SO2)

Sulfur compounds present in specific feedstocks have the potential to emit gases like hydrogen sulfide (H_2S) during used oil recycling, significantly contributing to air pollution while often carrying a distinct and unpleasant odor.

Additionally, studies focused on waste materials, such as used oil, tires or rubber-based compounds, have demonstrated the liberation of sulfur compounds, notably H_2S, when subjected to recycling conditions. These findings emphasize the diverse sources of sulfur emissions in recycling and their consequential impact on air quality.

The emissions of sulfur compounds like H_2S not only contribute to air pollution but also possess an identifiable odor that serves as a marker for environmental contamination. The odoriferous nature of these emissions signals their potential adverse effects on both environmental and human health. Prolonged exposure levels below 10 ppm have long been linked to odor aversion, along with ocular, nasal, respiratory, and neurological effects. Remarkably, exposure to even lower levels, under 0.03 ppm (30 ppb), has shown an increased incidence of neurological effects, while concentrations below 0.001 ppm (1 ppb) of H_2S have been linked to ocular, nasal, and respiratory effects.

Efforts to curtail the release of sulfur-containing gases during recycling are paramount to prevent air quality degradation. Ongoing research is focusing on refining techniques to handle sulfur-rich feedstocks more efficiently and innovating recycling methodologies aimed at minimizing the liberation of sulfur compounds. These advancements aim to mitigate the negative implications of sulfur emissions on air quality and their associated risks to human health, aligning with sustainable recycling practices

2.4. Ozone (O_3)

Ground-level ozone is not directly emitted into the air, but rather is formed by chemical reactions between NOx and volatile organic compounds (VOCs) in the presence of ultraviolet (UV) radiation. Ozone is a primary component of smog.

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can also worsen bronchitis, emphysema, and asthma as well as reduce lung function and inflame the linings of the lungs, permanently scarring lung tissue under repeated exposure.

2.5. Volatile Organic Compounds

Volatile organic compounds (VOCs) released during used oil recycling constitute a diverse array of organic chemicals that readily vaporize at ambient temperatures. Benzene, toluene, xylene, and other VOCs contribute significantly to air pollution and entail potential health hazards. VOCs discharged during recycling actively partake in air pollution by interacting with nitrogen oxides and sunlight, culminating in the formation of ground-level ozone and secondary organic aerosols. These compounds hold a critical role in fostering smog and instigating photochemical smog incidents. Extensive research in urban and industrial locales affected by recycling activities substantiates the correlation between VOC emissions and escalated concentrations of ground-level ozone, highlighting their contribution to regional air pollution. Furthermore, VOCs are capable of long-range dispersion, contributing to the genesis of atmospheric particulate matter. Research instances accentuate the involvement of VOCs in the creation of secondary organic aerosols, impacting atmospheric visibility and influencing climate dynamics. Investigations were conducted in regions affected by biomass burning to elucidate how VOC emissions influence aerosol formation, thereby shaping atmospheric processes and impacting environmental health.

Exposure to VOCs emanating from used oil recycling poses substantial health risks to individuals through inhalation or skin contact, leading to adverse health outcomes. Epidemiological studies consistently associate VOC exposure with respiratory issues, exacerbating asthma, bronchitis, and other pulmonary ailments. For instance, research in proximity to recycling facilities underscores elevated respiratory symptoms and heightened hospital admissions among exposed populations. Moreover, several VOCs, such as benzene, ethylene oxide, and formaldehyde, are classified as carcinogens or suspected carcinogens by regulatory agencies. A plethora of studies establish the nexus between occupational or chronic exposure to specific VOCs and heightened cancer risks. This underscores the pressing need for stringent regulatory interventions and control measures to mitigate these health risks associated with VOC emissions. Continued research aimed at elucidating VOC composition, exposure levels, and their variable impacts across diverse pyrolysis settings is imperative in safeguarding environmental quality and human health.

2.6. Particulate Matter (PM)

Used oil recycling process generates particulate matter (PM) emissions comprising carbonaceous particles, ash, and solid residues. These diverse particles, varying in size and composition, wield significant implications for both air quality and human health. Recognizing the environmental and health impacts of PM emissions from recycling is pivotal in implementing effective mitigation strategies and fostering sustainable biochar production practices.

The PM emissions from used oil recycling constitute a complex amalgamation of carbonaceous particles, ash, and solid residues derived from the feedstock. The composition and size distribution of PM exhibit variability influenced by distinct feedstock properties, recycling conditions, and reactor designs. For instance, studies on different feedstocks such as wood, agricultural residues, or waste materials showcase the

diverse composition and emission levels of PM, highlighting the nuanced impact of operational parameters on PM characteristics.

These emissions significantly contribute to air pollution, influencing atmospheric visibility and contributing to smog formation. PM can undergo long-range transport, affecting regional air quality and ecosystems. For example, research demonstrates the role of PM in altering precipitation patterns, influencing cloud formation, and impacting environmental health and ecological systems. Instances of PM's impact on atmospheric processes, especially in regions affected by biomass burning or industrial recycling, underline its far-reaching consequences on ecosystems and human health.

The health risks associated with exposure to PM emissions from used oil recycling are substantial. Fine and ultrafine particles possess the ability to penetrate the respiratory system deeply, leading to respiratory diseases, cardiovascular issues, and heightened mortality rates. Numerous studies establish the direct correlation between PM exposure and various adverse health outcomes, emphasizing the urgent need to mitigate PM emissions from recycling operations.

Efficient mitigation strategies demand technological advancements, enhanced reactor designs, and stringent emission control measures. Research initiatives focusing on refining recycling technologies, optimizing operational parameters, and implementing robust particle capture and filtration systems are pivotal. Developing cleaner recycling methodologies and efficient filtration systems, as evidenced by studies exploring advanced filtration materials or modified reactor designs, illustrates the potential for reducing PM emissions and associated environmental and health impacts.

3. LEGISLATIVE AND ENVIRONMENTAL POLICY FRAMEWORK

3.1. Environmental Management Coordination (Air Quality) regulations 2024

The Kenya Air Quality Regulations 2024 impose limit values as detailed in the SPECIAL ISSUE Kenya Gazette Supplement No.198, Legislative Supplement No.180, Legal Notice No. 180, compliance with the objectives (prevention, control and abatement of air pollution to ensure clean and healthy ambient air) is a legal requirement in Kenya.

Part 65 and 66 details the requirements on monitoring and assessment of ambient air quality, part 85 shows the need for establishment of baseline levels of priority air pollutants listed in the first schedule of the guideline and included PM_{10}, $PM_{2.5}$, SO_2, NO_2, 0_3 and CO. Statutory requirements relevant to this study FIRST SCHEDULE are detailed in Table 2 below:

Table 2: Ambient Air Quality Tolerance Limits

	Pollutant	Time weighted Average	Industrial area	Residential, Rural & Other area	Controlled areas***
1.	Respirable particulatematter (<10 µg/m^3) (RPM)	24 hours**	150µg/Nm^3	100µg/Nm^3	75µg/Nm^3
2.	$PM_{2.5}$	24 hours	75 µg/m^3	-	-
3.	Sulphur dioxide	Instant Peak		500 µg/m^3	-
4.		Instant peak (10min)		0.191 ppm	-
5.	Non-methane hydrocarbons	instant Peak	700ppb	-	-
6.	Total VOC	24 hours**	600 µg/m^3	-	-
7.	Oxides of Nitrogen	24 hours	100 µg/m^3	0.1 PPM	-
8.		Instant peak		0.5 PPM	-
9.	Nitrogen dioxide	One hour		0.2 ppm	-
10.	Carbon monoxide / carbon dioxide	Instant peak		0.5 ppm	-
		One Hour	10 mg/m^3	4.0 mg/m^3	10 mg/m^3
11.	Ozone	24-hour	200 µg/m3	0.12 PPM	-

Extract from the Ambient EMC Air Quality regulations, 2024 (Tolerance Limits)

4. MONITORING METHODOLOGY

It is important to accurately determine prevailing air quality conditions against which predicted effects can be gauged and assessed for any environmental effects' assessment.
Ambient air quality survey for this study consists of **FOUR** representative monitoring locations. Information for the report is presented based on air monitoring completed for 8-hour weighted average. For the purpose of the baseline investigation, monitoring of air pollutants was achieved on the 25th day of May 2025 and thereafter the results were compared against the guidelines and standards while attention given to relevant referencing sites of similar nature.
Ambient air quality data were obtained from a validated and approved air quality monitoring program.

4.1. Baseline Study Area;

4.1.1. Sensitive Receptors

The geographical scope of the baseline assessment is currently defined as the proposed used oil handling and recycling facility located in Maji ya Chumvi area and environs, including potentially high-risk zones along the routes of any existing surface access. High risk zones include locations with the potential for exceedance of regulatory standards for the protection of human health and / or **sensitive habitats**, in the initial and / or mature operations years.

The issue of pollutants is particularly pertinent in areas sensitive to change, often referred to as **sensitive receptors.** Locations for the protection of human health are areas of long term exposure which are more susceptible and shall be considered to include residential properties, hospitals and schools; whereas locations for the protection of sensitive habitats / ecosystems shall be considered to include statutory designated sites (such as sites of special scientific interest (SSSIs), special areas of conservation (SACs) and special protection areas (SPAs) which contain habitat types that are also sensitive to atmospheric quality changes.

The proposed project site neighborhood comprises undeveloped lands with the vegetation cover dominated by indigenous trees of acacia species and bush. The neighborhood is also characterized by few residential facilities identified as sensitive receptors.

Close proximity of the emission source to the 'sensitive receptor' causes poor air quality because there is less opportunity for dispersion of emissions between the source and receptor resulting in greater concentrations of pollutants. Air quality is evaluated by comparing concentrations of pollutants against the EMC (Air Quality) regulations 2024 Legal Notice 180 first schedule of the Ambient Air Quality Tolerance Limits set at locations where exposure harm to human health and ecosystems is thought to occur.

4.1.2. Existing Atmospheric Environment

The neighborhood depicts mixed land use from residential to transport. The main source of existing air pollution are diffuse and fugitive emissions of dust particles and gaseous emissions from the mobile sources including motor vehicles / trucks as well as environmental sources such as wind. The anthropogenic emission sources directly associated with the proposed project will be the main concern of the appraisal framework and will be emitted from various sources including; mobile sources (trucks that will be accessing the site to offload materials during construction, source emissions (generator), other related source, fugitive and diffuse sources.

The emissions concentrations reported herein, will be a combination of the total emissions from the sources and the distance to the receptor which influences the concentrations of pollutants in the air and impacts air quality. As such, the most common ambient atmospheric emission source causing poor air quality within close proximity to sensitive receptors and the site in general will be source / stack diffuse and fugitive emissions as the dominant emission sources.

4.1.3. Monitoring Locations

Baseline atmospheric quality monitoring locations were selected based on the existing facility that could or have the potential to influence the proposed project atmospheric environment. The monitoring locations at the proposed project site were determined at four stations.

Table 3: Description of the measurement locations

Measurement Sites	Description of monitoring Locations	Dates of sampling
East Project Boundary 1 (EPB-1)	The proposed project site neighborhood comprises of undeveloped lands with vegetation cover dominated by indigenous trees of acacia species and bush. The neighborhood is also characterized by few residential facilities identifies as receptors	25TH MAY 2025.
West Project Boundary 2 (WPB-2)		25TH MAY 2025.
South Project Boundary 3 (SPB-3)		25TH MAY 2025.
North Project Boundary 4 (NPB-2)		25TH MAY 2025.

4.2. Baseline Air Quality Assessment process

The National and Local baseline assessments have been undertaken following the processes shown in Figure 1 and Figure 2 below.

Figure 1: National Baseline Assessment Process

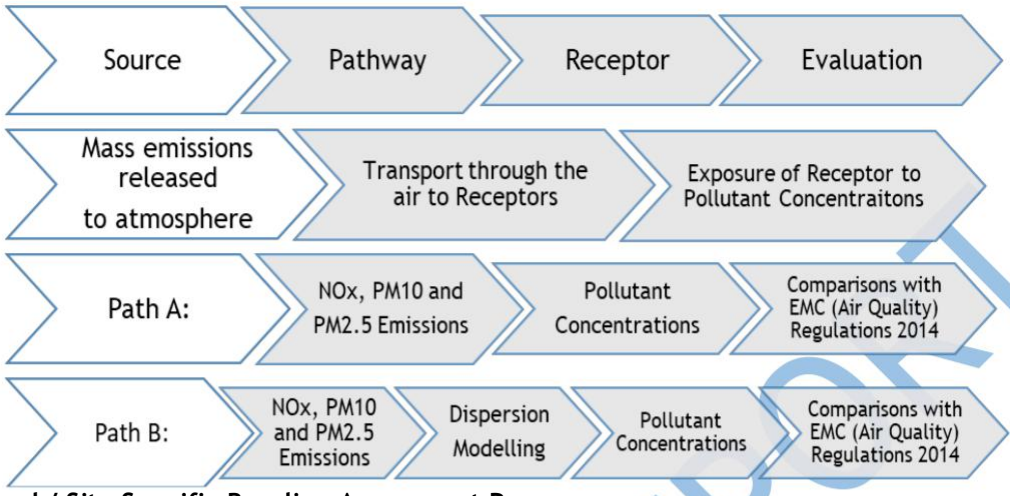


Figure 2: Local / Site Specific Baseline Assessment Process

The local baseline assessment has been undertaken following Process Path A for the first stage assessment.

4.3. Assessment Criteria for gaseous and particulate parameters

Sampling of gases was done using a 24-hour AQM-09 is a device which can monitor the air quality via the value of O_3, SO_2, NO_2, CO, $PM_{2.5}$, PM_{10}, etc. The target value is converted into voltage signal by operational amplifier circuit, and then filtered through high-precision AD data acquisition system. Finally, the gas concentration is calculated by CPU. Particulates mainly use laser scattering method to produce different scattering light according to different particle diameters under laser scattering conditions. The scattered light intensity is collected by a response device, and the particle 4 concentration is obtained after amplification, filtering and AD acquisition. The obtained gas concentration and particulate matter concentration can be displayed on LCD screen in real time, and can also be transmitted to cloud platform or environmental protection platform through GPRS, 4G LTE and other network signals, so as to realize the monitoring of regional environmental quality. The gas meters were mounted at about 1 – 2 M above the ground surface. The results and sampling duration information were used to calculate the gaseous concentrations.

Ongoing atmospheric assessment

Ongoing atmospheric assessment

4.3.1. Carbon monoxide (CO)

CO monitoring instruments were predominantly gas filter correlation infrared (GFC-IR) absorption analyzers and the electrochemical sensor systems.

Ambient air was continuously sampled using a pump unit and the CO concentration in the sample air was measured by the absorption of infrared radiation at 4.5 to 4.9 nanometers (nm) wavelength. A reference detection system was used to alternately measure absorption due to CO in the ambient air stream and absorption by interfering species. An infrared detector and amplification system produced output voltages proportional to the CO concentration. The concentration was derived from the Beer-Lambert relation:

$$I1 = I0\ e\text{-}alc$$

where the sample was passed through a cell tube of length 'l'. The analyzer alternately measured the absorption I_0 of the air path with no CO present and the absorption I_1 of the ambient sample, with 'a' being the absorption coefficient, to provide the CO concentration, 'c'.

4.3.2. Nitrogen dioxide (NO2)

Nitric oxide (NO) in the sample air stream was reacted with ozone (O_3) in an evacuated chamber to produce activated NO_2:

$$NO + O_3 \rightarrow NO_2 + O_2 \rightarrow NO_2 + O_2 + hv$$

The intensity of the chemiluminescent radiation (hv) produced is measured using a photomultiplier tube (PMT) or photodiode detector. The detector output voltage is proportional to the NO concentration. The ambient air sample is divided into two streams; in one, ambient NO_2 is reduced to NO using a molybdenum catalyst before reaction. The molybdenum converter should be at least 95 per cent efficient at converting NO_2 to NO. This gas stream gives total NOx. The second stream measures NO directly by not passing through the molybdenum converter.

Separate measurements are made of total oxides of nitrogen NOx (= NO + NO_2) and NO. The ambient NO_2 concentration is calculated from the difference (NO_2= NOx – NO). This is an important point to remember because the contaminant of interest (NO_2), is actually measured by inference rather than directly, and the efficiency of the molybdenum converter should be checked on a regular basis.

In a chemiluminescent analyzer, ambient air is drawn through the system via a pump and permapure drier unit. NOx analyzers are equipped with either a single or a double reaction chamber and PMT system. A solenoid valve is used to alternately switch between NO and NOx measurements, typically at 15-second intervals.

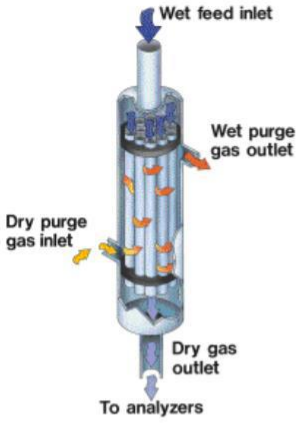


Figure 3: Permapure drier unit

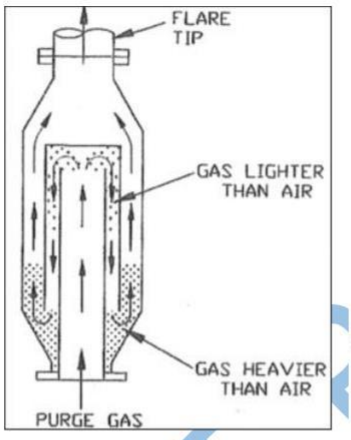


Figure 4: Air purge gas

4.3.3. Sulphur dioxide (SO2)

SO_2 monitoring instruments are predominantly molecular UV fluorescence analyzers. This is the recommended SO_2 monitoring method. UV fluorescence systems operate on the principle that an ambient air sample stream exposed to UV light excites SO_2 molecules in the sample to higher, but unstable, excited states. These excited states decay, giving rise to the emission of secondary (fluorescent) radiation:

$$SO_2 + h\nu \rightarrow SO_2 \rightarrow SO_2 + h\nu \text{ (fluorescence)}.$$

The fluorescent radiation is detected by a PMT, causing an output voltage proportional to the SO_2 concentration. A permeable membrane 'kicker' is used to remove interfering hydrocarbons (aromatic hydrocarbons also fluoresce) before reaction. Ambient air is drawn through the system via a pump unit, and the analyzer continuously displays current SO_2 concentrations.

4.3.4. Ozone (O_3)

Ozone was measured using a direct reading using the flame-ionisation detector (FID). In the FID, an organic compound is burned in a hydrogen flame giving rise to ions which are attracted to a collector electrode. The resulting electric current is amplified and recorded. The intensity of the signal depends primarily on the number of carbon atoms of the molecule, but to some extent it is also influenced by the character or structure of the chemical. Therefore, the same number of molecules of two different ozone with the same number of carbon atoms can give rise to two different signals. The FID is very stable.

4.3.5. Total Volatile Organic Compounds (TVOC)

Optical gas detection using absorption spectroscopy is based on the Lambert-Beer law (1,2):

$$( ) = {}_0( ) \exp[- ( ) \cdot] \qquad [cm^{-1}]$$

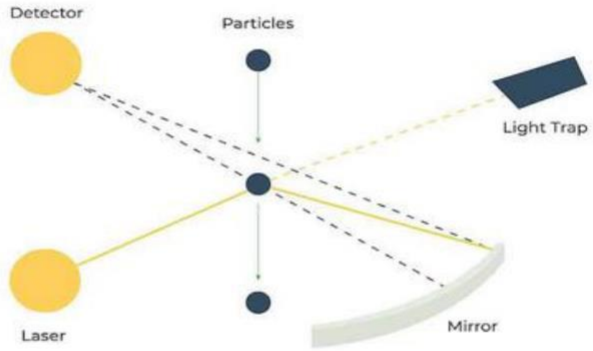
$$( ) = {}_0( ) \exp[- ( ) \cdot \cdot] \qquad [ppm \cdot cm^{-1}]$$

where: I—light intensity transmitted by the medium with the gas, I_0—intensity of light incident on the medium, C—concentration, a, α—absorption coefficients, and L—optical path length, gas concentration.

The optical methods for volatile organic compounds detection use its absorption characteristics in the infrared range. The strongest bands occur in the area of deformation vibrations and then valence; they are weaker in the range of overtones.

4.3.6. Total Suspended Particulate matter (TSP, $PM_{2.5}$ & PM_{10}):

AQM 09 is an online particulate monitoring system that measures the concentration of various particulate sizes ranging from 2.5 micron to TSP such as $PM_{2.5}$, PM_{10}, and TSP in the ambient air. The PM sensor works on the principle of laser scattering hence, the active sampling-powered sensor-based air quality monitor. The PM monitor based on the physical principle of light scattering, also known as optical particle counter (OPC), measures dust particles illuminated by laser light at a 90° angle. Whereas, the light scattered from each particle is collected at approximately 90° by a mirror and detected by a photo-diode. This signal is then fed into a multi-channel size classifier where a pulse height analyzer is used to classify each pulse that is proportional to the particle size. As a result, the counts in the channel corresponding to PM2.5 convert to the concentration of $PM_{2.5}$ and same applies to other fractions.



4.4. Tools Equipment and materials used

Below is the equipment used during air monitoring survey:

- Air quality multiparameter meter.
- Geographic Positioning System (GPS)
- Digital camera
- Calibration certificates
- Standard Reference materials & Standard operating procedures
- Equipment manuals.
- Terms of Reference & Maps of the project area

4.5. Monitoring Frequency

Monitoring of air quality test parameters was done for 4 hours in the study location. Once construction works are underway, monitoring of air quality parameters should be tested at quarterly intervals.

4.6. Assumptions

The 5-hour exposure levels of data collection for PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO_2, O_3 and H2S data collected is considered sufficient to understand the state of atmospheric air quality environment before implementation of the used oil handling and recycling facility development.

4.7. Data Validity and Acceptability

All data monitored in the study was taken through data replications and quality assurance procedure to ensure that any anomalous readings or questionable data is not incorporated in the final results.

Elements of this procedure account for:

- Routine calibration and auditing of the analyzers
- Statistical rendering of outliers

5. PRESENTATION, DISCUSSION & CONCLUSION OF THE AIR QUALITY SURVEY RESULTS

5.1. Presentation of Results

5.1.1. Summary of singular Air quality measurements

Table 4: Summary results for air quality and environmental measurements

Monitoring Locations	$PM_{2.5}$ $\mu g/m^3$	PM_{10} $\mu g/m^3$	CO mg/m^3	SO_2 ppm	NO_2 ppm	O_3 ppm	TVOC $\mu g/m^3$	HUMIDITY %	TEMPS ^0C
East Project Boundary 1 (EPB-1)	15.88	41.22	0.313	0.012	0.0263	0.0177	<0.01	61	29.2
West Project Boundary 2 (WPB-2)	12.95	33.37	0.221	0.010	0.0259	0.0169	<0.001	62	29.5
South Project Boundary 3 (SPB-3)	15.03	35.70	0.205	0.015	0.0255	0.0154	<0.001	63	29.7
North Project Boundary 4 (NPB-2)	14.85	36.44	0.195	0.013	0.0253	0.0150	<0.001	63	29.8

(Source: Site monitoring in April 2025).

5.1.2. Gaseous parameters

Table 5: Average results for gaseous parameters

Monitoring Locations	*NO_2*		*SO_2*		*CO*		*Ozone*		*TVOC*		*REMARKS*
	Conc. (ppm)	EMC AQR guide 2024 (ppm)	Conc. (ppm)	EMC AQR guide 2024 (ppm)	Conc. (mg/m^3)	EMC AQR guide 2024 (mg/m^3)	Conc. (ppm)	EMC AQR guide 2024 (ppm)	Conc. ($\mu g/m^3$)	EMC AQR guide 2024 ($\mu g/m^3$)	
EPB-1	0.0263	0.2	0.012	0.191	0.313	4.0	0.0177	0.12	<0.01	-	Complies
WPB-2	0.0259	0.2	0.010	0.191	0.221	4.0	0.0169	0.12	<0.001	-	Complies
SPB-3	0.0255	0.2	0.015	0.191	0.205	4.0	0.0154	0.12	<0.001	-	Complies
NPB-4	0.0253	0.2	0.013	0.191	0.195	4.0	0.0150	0.12	<0.001	-	Complies

5.1.3. Particulate matter (PM_{10})

Table 6: Results for Particulate matter (<10 microns)

Monitoring Locations	*PARTICULATE MATTER ≤10 (PM_{10})*			
	Sampling time	Concentration ($\mu g/m^3$)	Guideline ($\mu g/m^3$)	Remarks
EPB-1	1 hour	41.22	-	No 1-Hr guideline for residential, rural and other areas
WPB-2	1 hour	33.37	-	No 1-Hr guideline for residential, rural and other areas
SPB-3	1 hour	35.70	-	No 1-Hr guideline for residential, rural and other areas
NPB-4	1 hour	36.44	-	No 1-Hr guideline for residential, rural and other areas

5.1.4. Particulate matter ($PM_{2.5}$)

Table 7: Results for Particulate matter (<2.5 microns)

Monitoring Locations	*PARTICULATE MATTER ≤2.5 ($PM_{2.5}$)*			
	Sampling time	Concentration ($\mu g/m^3$)	Guideline ($\mu g/m^3$)	Remarks
EPB-1	1 hour	15.88	-	No 1-Hr guideline for residential, rural and other areas
WPB-2	1 hour	12.95	-	No 1-Hr guideline for residential, rural and other areas
SPB-3	1 hour	15.03	-	No 1-Hr guideline for residential, rural and other areas
NPB-4	1 hour	14.85	-	No 1-Hr guideline for residential, rural and other areas

5.1.5. Environmental parameters

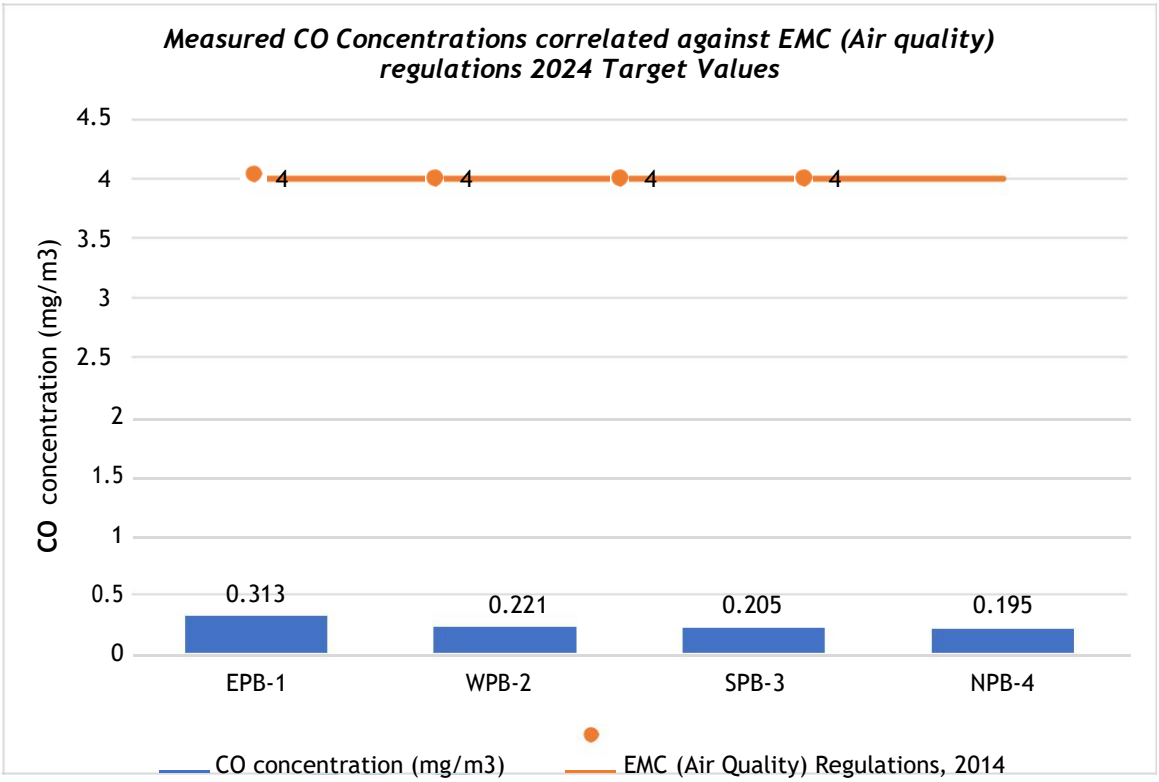
Table 8: Results for Environmental parameters

Monitoring Locations	Environmental parameters				*Remarks*
	Air temps °C	Pressure hPa	Humidity %	Wind Speed km/hr	
EPB-1	29.2	960	61	14.1 km/hr South West wind	Ambient conditions present
WPB-2	29.5	960	62	13.9 km/hr South West wind	Ambient conditions present
SPB-3	29.7	960	63	14.2 km/hr South West wind	Ambient conditions present
NPB-4	29.8	960	63	14.0 km/hr South West wind	Ambient conditions present
AVERAGES	29.55	**960**	**62.25**	14.05 km/hr South West wind	Ambient conditions present

5.2. Discussions of air quality survey results

Air quality survey was completed for 4-hr exposure levels as the preferred time weighted averages in order to measure and quantify the air pollutant levels so as to determine the current existing conditions. Results of the gaseous concentrations and particulate parameters were thereafter correlated against the Environmental Management Coordination (Air quality) regulations of 2024 as follows:

5.2.1. Carbon Monoxide



The above combined graph was drawn from statistical analysis for 1-hr monitoring per location of atmospheric Carbon monoxide environment as per the requirement of TOR.

It is observed that the maximum 1-hour CO average concentration extended to levels 0.313 mg/m^3 at the East project Boundary -1 (EPB-1) while the minimum 1-hour CO average concentration extended to levels of 0.195 mg/m^3 at the North Project boundary -4 (NPB-4). The average CO concentration at the study area extended to levels of 0.2335 mg/m^3. There was no peak exceedance of the AAQTL of 4.0 mg/m^3 thus the frequency of exceedance was zero.

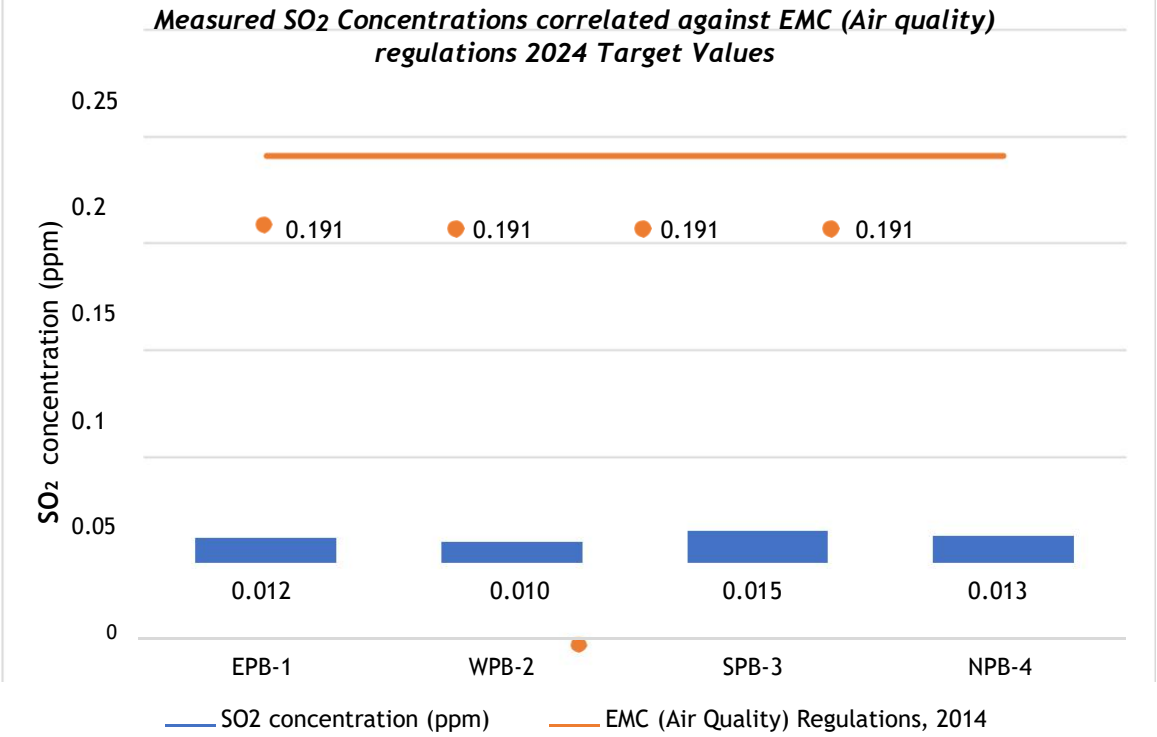
All CO concentrations recorded in the sites before implementation of the proposed used oil recycling facility development COMPLIED with the EMC (Air quality) regulations 2024 of 4.0 mg/m^3.

Low carbon monoxide concentration levels did not pose Environmental, sustainability, health and safety concerns. Carbon monoxide is a gas formed by the incomplete combustion of fuels containing carbon.

The main outdoor source of carbon monoxide recorded during the baseline assessment are related to fugitive emissions from the trucks nearing the site and plying along the Mombasa Nairobi highway, in particular petrol-engine vehicles.

From the above combined graph results, the levels of Carbon monoxide concentrations released before implementation of the proposed construction of the pyrolysis plant development did not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

5.2.2. Sulfur dioxide



The above combined graph was drawn from statistical analysis for 1-hr monitoring per location of atmospheric sulfur dioxide environment as per the requirement of TOR.

It is noted from the above graph that the maximum 1-hour SO_2 average concentration extended to levels 0.015 ppm at the South project Boundary -3 (SPB-3) while the minimum 1-hour SO_2 average concentration extended to levels of 0.010 ppm at the West project Boundary -2 (WPB-2). The average SO_2 concentration at the study area extended to levels of 0.0125 ppm. There was no peak exceedance of the AAQTL of 0.191 ppm thus the frequency of exceedance was zero.

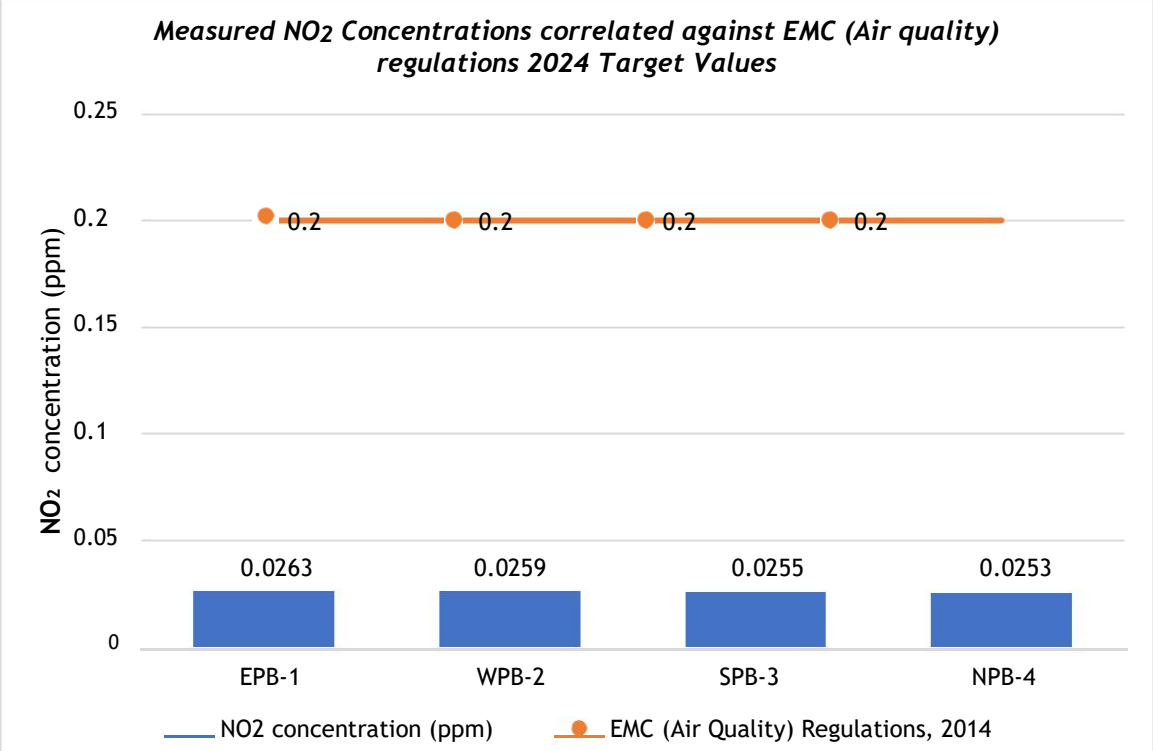
The sulfur dioxide concentrations recorded across all survey locations had concentrations levels within / below the ambient sulfur dioxide levels of 0.02ppm.

The resultant sulfur dioxide concentrations were correlated with the limit value EMC (Air quality) regulations 2024 maximum limits) for short term exposures. Results showed 100% COMPLIANCE with the limit values.

Fugitive and diffuse sources i.e. trucks, motor vehicles / cycles fuel combustion around the project area contribute about 90% of sulfur dioxide at the proposed site.

From the above combined graph results, the levels of sulfur dioxide concentrations released before implementation of the proposed construction of the used oil handling and recycling facility development did not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers

5.2.3. Nitrogen dioxides



The above combined graph was drawn from statistical analysis for 1-hr monitoring per location of atmospheric nitrogen dioxides environment as per the requirement of TOR.

We note from the NO_2 combined graph that the maximum 1-hour NO_2 concentration extended to levels of 0.0263 ppm at the East project Boundary -1 (EPB-1) while the minimum 1-hour NO_2 concentration extended to levels of 0.0253 ppm at the North Project boundary -4 (NPB-4). The average NO_2 concentration at the study area extended to levels of 0.02575 ppm. There was no peak exceedance of the AAQTL of 0.2 ppm thus the frequency of exceedance was zero.

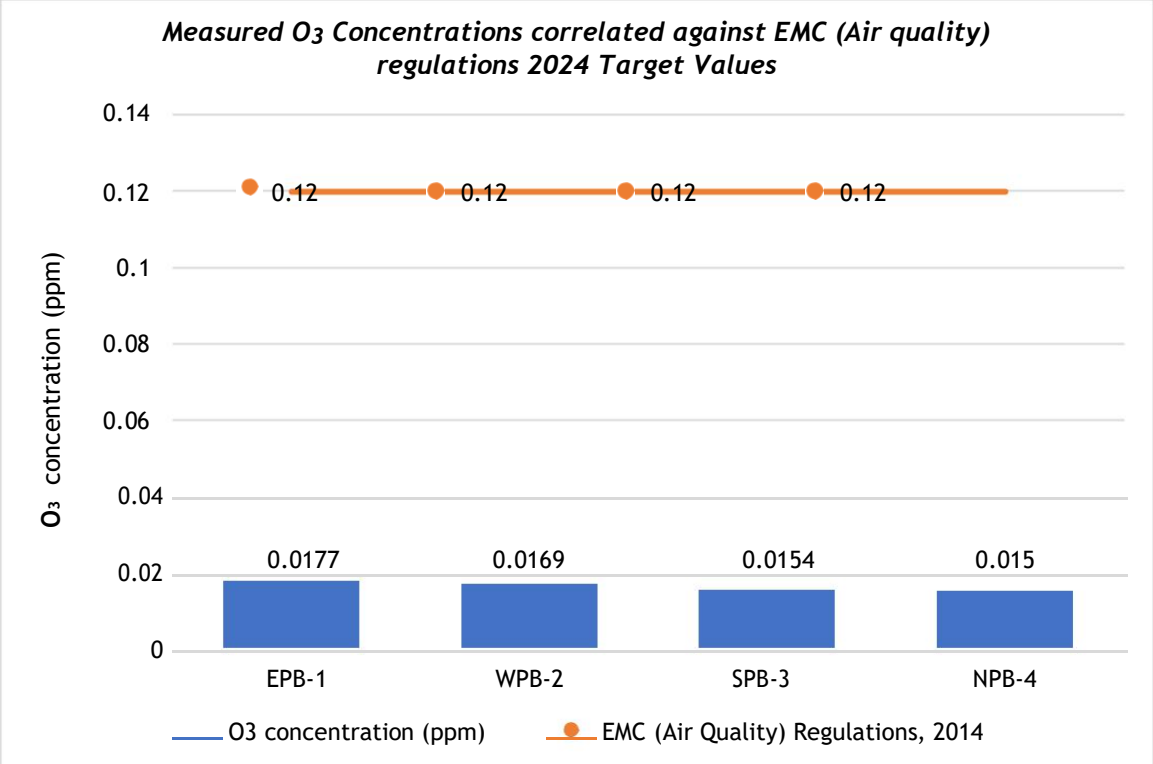
The concentration levels of recorded nitrogen dioxide gas across all survey locations were WITHIN the ambient levels (0.05ppm). The uniform distribution of the Nitrogen dioxide concentration reveals that there were no outlier sources that influenced the NO_2 concentration.

The results for the nitrogen dioxide (NO_2) concentrations measured below the air quality guidelines limits. The concentration of NO_2 at the survey locations were 100.00% in COMPLIANCE with the EMC (Air quality) regulations 2024 maximum limits.

NO_2 is generated due to the oxidation of N2 in the atmosphere at high temperature and due to oxidation of nitrogen compounds in used fuel or due to the reaction of nitrogen radical with hydrocarbons. 90% of the NO_2 at the proposed project site is attributed to fugitive and diffuse motor vehicles combustion of fuel accessing the neighboring facilities and plying the Mombasa – Nairobi Highway.

From the above combined graph results, the levels of Nitrogen dioxide concentrations released before implementation of the proposed construction of the used oil handling and recycling facility development did not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers

5.2.4. Ozone



The statistical analysis for 1-hr monitoring of ozone as outlined in the TOR was completed at four boundary monitoring locations. The maximum 1-hour ozone concentration extended to levels of 0.0177 ppm at the East project Boundary -1 (EPB-1) while the minimum 1-hour ozone concentration extended to levels of 0.0150 ppm at the North Project boundary -4 (NPB-4). The average O_3 concentration at the study area extended to levels of 0.01625 ppm. There was no exceedance of the 1-hour AAQTL of 0.12 ppm thus the frequency of exceedance was zero.

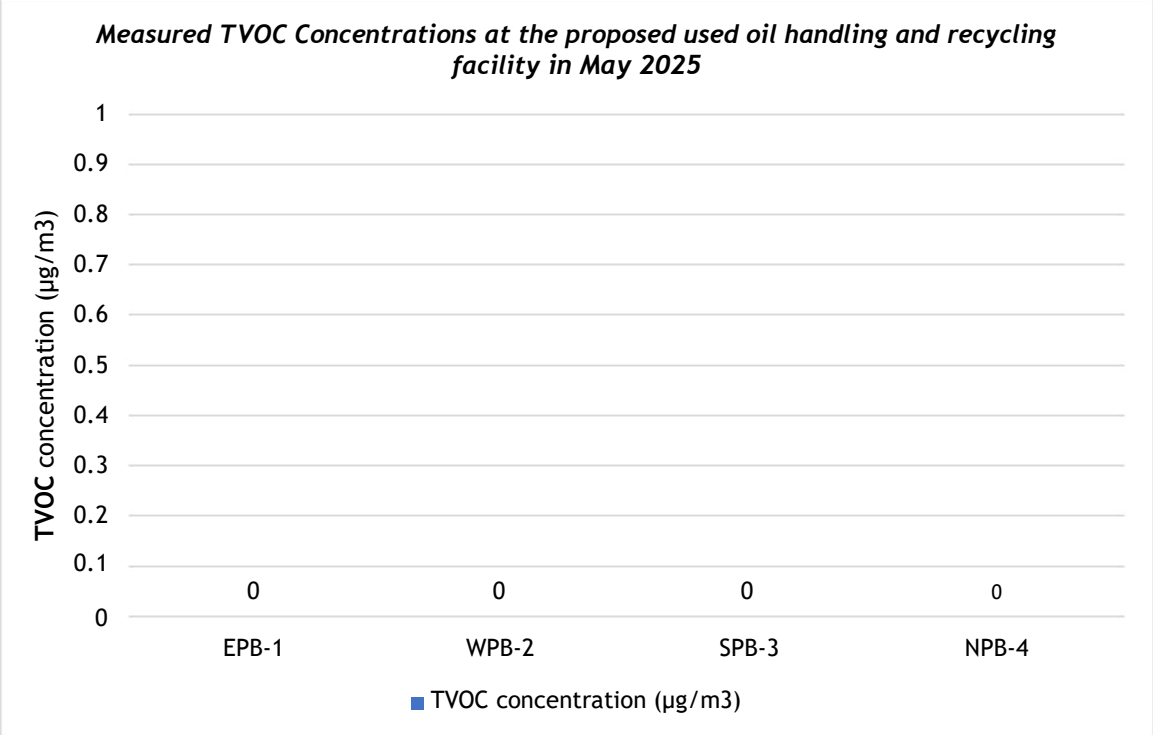
All ozone concentrations recorded in the project sites COMPLIED with the EMC (Air quality) regulations 2024.

The primary natural source of surface O_3 is the subsidence of stratospheric O_3 from the upper atmosphere. In contrast, the primary anthropogenic source of surface O_3 is photochemical reactions involving the atmospheric pollutant carbon monoxide (CO). Ozone at ground level is primarily formed by a complicated series of chemical reactions initiated by sunlight. NO_X and volatile organic compounds (VOCs), derived mainly from man-made sources, react to form ozone. These substances are produced by combustion, industrial processes and activities such as solvent use and petrol distribution and handling. NO_X and VOCs are the most important precursors of elevated levels of O_3.

Motor vehicles account for 40% of the ground level ozone at site. These chemical reactions do not take place instantaneously, but over several hours or even days depending on the VOCs, and once ozone has been produced it may persist for several days. Ozone measured at a particular location may therefore have arisen from VOC and NOx emissions many kilometres away, and may then travel further. Maximum concentrations, therefore, generally occur downwind of the source areas of the precursor pollutant emissions.

From the above combined graph results, the levels of ozone concentrations released before implementation of the proposed construction of the used oil handling and recycling facility development did not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

5.2.5. Total Volatile Organic Compounds (TVOC)



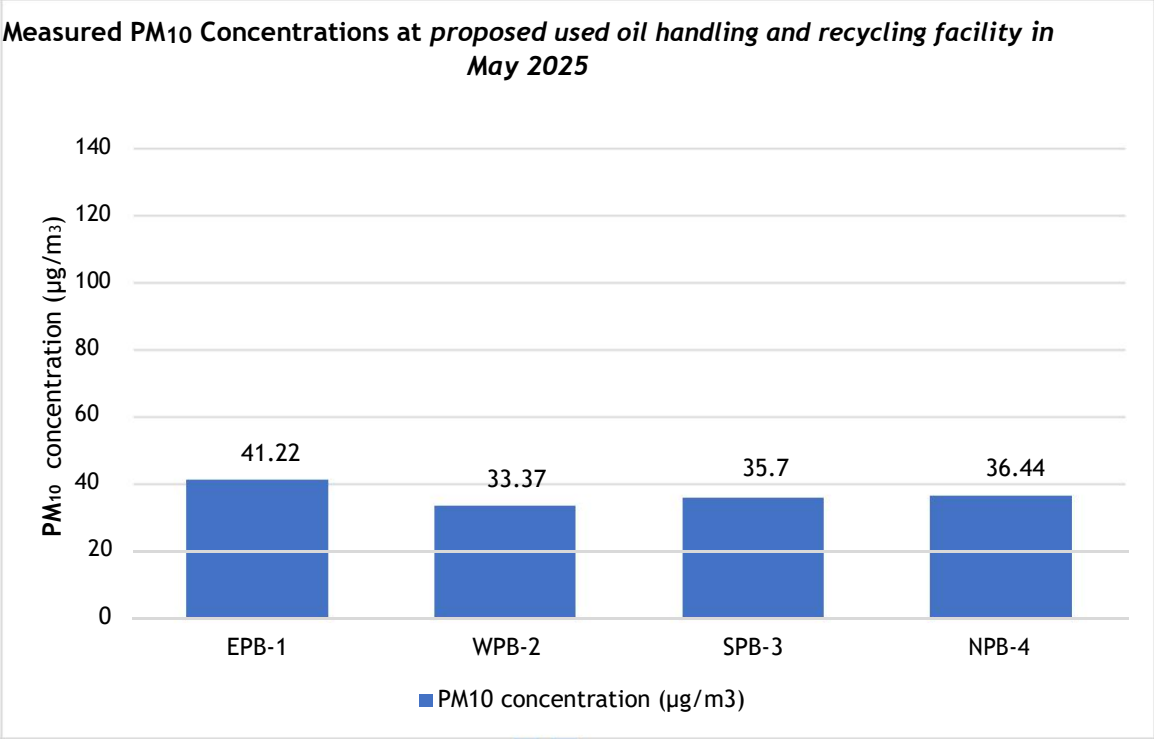
The statistical analysis for 1-hr monitoring of volatile organic compound as outlined in the TOR was completed at each of the four monitoring locations.

From the above graph, it is evident that the concentration of VOCs across all the four survey locations were below detection limits (0.001ppm) of the equipment used.

There are no short-term guidelines given under the EMC (Air quality) regulations 2024 for comparison of results. No comparisons were made against the ambient air quality tolerance limits. However, the concentration values of TVOC recorded were within the typical range of emissions for such neighborhood.

From the above combined graph results, the levels of total volatile organic compounds concentrations released before implementation of the proposed construction of the used oil handling and recycling facility development did not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers

5.2.6. Particulate matter (PM_{10})



The statistical analysis for the combined 4-hr monitoring of Particulate matter <10 ug/m^3 as outlined in the TOR was completed.

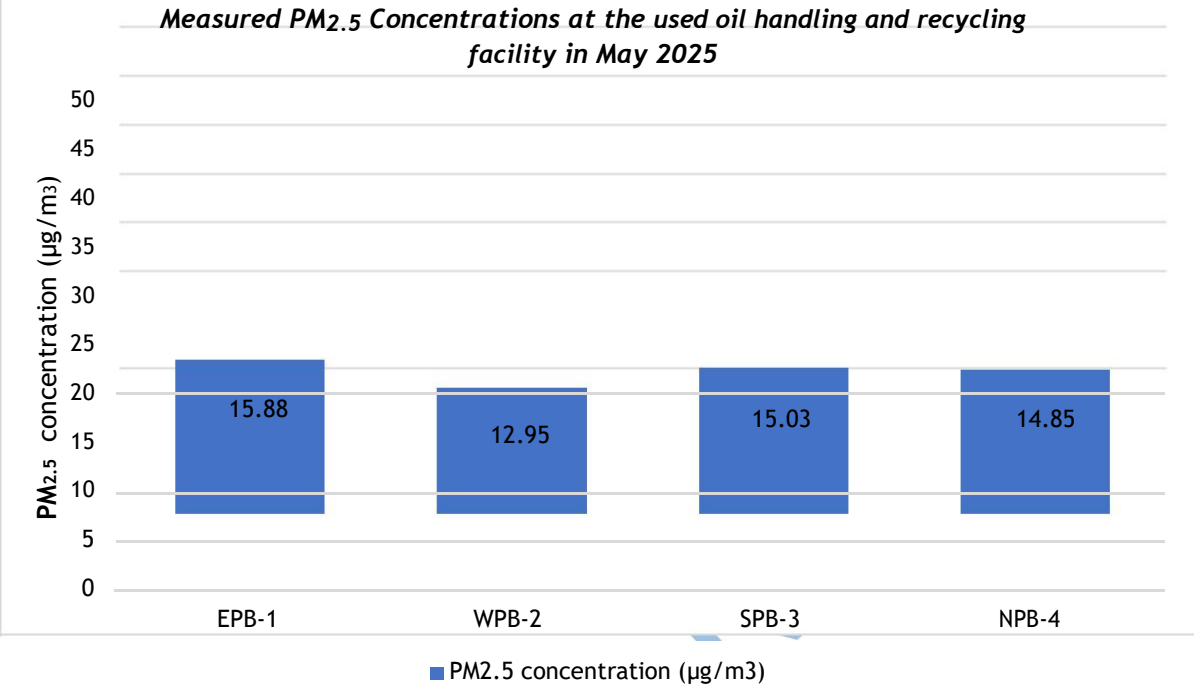
As depicted from the PM_{10} combined graph, the maximum 1-hour PM_{10} concentration across the East project Boundary -1 (EPB-1) extended to levels of 42.22 ug/m^3 while the minimum 1-hour PM_{10} concentration at the West Project Boundary -2 (WPB-2) extended to levels of 33.37 ug/m^3. The overall average PM_{10} concentrations of the project area over the 4-hour assessment extended to levels of 36.68 ug/m^3.

The concentration of PM_{10} across all the survey locations were within the normal and acceptable levels of such neighborhood.

Unlike the individual gaseous pollutants, which are single, well-defined substances, particles (PM_{10}) in the atmosphere are composed of a wide range of materials arising from a variety of sources. Concentrations of PM_{10} comprise: primary particles, arising from combustion sources (mainly motor vehicles emissions, which in the proposed site contribute -70%); secondary particles, mainly sulphate and nitrate formed by chemical reactions in the atmosphere; and coarse particles, suspended soils and dusts, biological particles and particles from unpaved access road. The relative contribution of each source type varies from day to day, depending on meteorological conditions and quantities of emissions from mobile and material handling sources.

From the above combined graph results, the levels of particulate matter (<10) concentrations released before implementation of the proposed construction of the used oil handling and recycling facility development did not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

5.2.7. Particulate matter ($PM_{2.5}$)



The statistical analysis for the 4-hr monitoring of particulate matter $PM_{2.5}$ as outlined in the TOR was completed at the four survey locations. The peak 1-hour $PM_{2.5}$ concentration extended to levels of 15.88 µg/Nm^3 at the East project Boundary -1 (EPB-1) while the lowest 1-hour $PM_{2.5}$ concentration extended to levels of 12.95 µg/Nm^3 at the WPB-2.

There are No 1-Hour guideline for residential, rural and other areas given under the EMC (Air quality) regulations 2024 for comparison of results. No comparisons were made against the regulation. However, the concentration values of $PM_{2.5}$ recorded seems to be within the typical range of emissions for such neighborhood.

The main sources of atmospheric particulate matter were primarily the burning of fuel from automobiles.

The fine particle fraction ($PM_{2.5}$) is composed predominantly of primary and secondary particles. Particles in the range from $PM_{2.5}$ – PM_{10} generally consist of coarse particles.

From the above combined graph results, the levels of particulate matter (<2.5) concentrations released before implementation of the proposed construction of the used oil handling and recycling facility development did not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

5.3. FIELD NOTES AND OBSERVATIONS:

Ambient air quality measurements were taken for short term exposure levels. It should however be noted that this exercise is only applicable to the time period when sampling took place and does not take into account seasonal and other local various that might occur during other months and times. However, it is still a good general overview of the existing air quality environment.

5.3.1. Sensitive receptors

The proposed project site neighborhood comprises undeveloped lands with the vegetation cover dominated by indigenous trees of acacia species and bush. The neighborhood is also characterized by few residential facilities identified as sensitive receptors

5.3.2. Potential and existing Pollution causes;

From the site visits and background site description, the following sources have been identified as potential pollution causes at the proposed site;

Exhaust gases:

The survey location will be accessible to motor vehicles that utilize diesel and petrol. Vehicle and motorcycle exhausts contain a number of pollutants including carbon dioxide (CO_2), carbon monoxide (CO), hydrocarbons, oxides of nitrogen (NOx), sulphur and PM_{10}. The quantity of each pollutant emitted depends upon the type and quantity of fuel used, engine size, speed of the vehicle and abatement equipment fitted. Once emitted, the pollutants are diluted and dispersed in the ambient air.

Vehicular movement;

Re-suspension of roadside dust from movement of vehicles will result in generation of relatively higher fraction of finer dust ($PM_{2.5}$). Significant atmospheric dust arises from the mechanical disturbance of granular soils materials exposed to the air from motor vehicle / cycle movement. Pulverization and abrasion of surface materials by application of vehicular mechanical forces generate substantial amount of dust.

Transfer of construction materials;

Transfer of construction materials from load-out section to storage yards (during active construction) by tipper trucks will emit emissions of dust particles and gaseous emissions from the mode of transfer i.e. trucks and tippers and during offloading.

5.4. Air Quality Survey Conclusions

Baseline Atmospheric Environment Monitoring was conducted to characterize the existing environment before implementation (DO MINIMUM) of the proposed used oil handling and recycling facility development. The conclusions below were drawn from the exercise conducted on the 25th May 2025.

Gaseous Parameters:

All gaseous parameters (carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone and total volatile organic compounds) were measured and quantified at all the four survey locations.

Before the project implementation of the proposed used oil handling and recycling facility development, all measured gaseous parameters COMPLIED with the EMC (Air quality) regulations 2024 limits.

The ambient air quality data (gaseous) measured around the monitoring locations are considered to be within a typical range of emissions for such neighborhood.

The findings of the gaseous monitoring program indicate that the air quality at the proposed used oil handling and recycling facility development is generally good before its commissioning. All

pollutants measured are at levels that do not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

Meteorological Parameters:

The monitoring locations in general showed Standard atmospheric environment before project implementation due to the combination of good climate and ambient conditions. Weather and Climatic conditions of the proposed used oil handling and recycling facility development provided good dispersion of air contaminants.

Particulate Matter (PM_{10} and $PM_{2.5}$):

Particulate parameters concentrations (PM_{10} and $PM_{2.5}$) were measured and quantified across the survey stations.

Before the project implementation of the proposed used oil handling and recycling facility development, all measured particulate parameters COMPLIED with the EMC (Air quality) regulations 2024 limits.

The $PM_{2.5}$ and PM_{10} concentration levels recorded were within the typical range of emissions for similar neighborhood.

The findings of the monitoring program indicate that the particulate matter environment is generally good before the proposed used oil handling and recycling facility development implementation. Particulate pollutants measured are at levels that do not pose any compliance, health, safety, Environment and sustainability concerns to the recipients / receivers.

Once construction and operations begin, the client is expected to maintain the background / baseline levels or formulate a robust control plan.

5.5. Recommendations

Used oil handling and recycling facility can be a blessing to our economy and at the same time a challenge to our environmental sustainability and health curse. Sustainable construction can however be achieved through effective emission reduction vide influencing government, industry and stakeholders to ensure **compliance** with current legislation, to encourage **adoption** of low emission approaches, and to develop a pathway to enhanced **regulation**.

Compliance:

Ensuring **compliance** with existing regulation is the most effective way to reduce local emissions. This could take the form of an enhanced and consistent air quality measurement (dust & gaseous measurement), reporting system, ensuring compliance with set dust management emission policies and plans.

6. REFERENCES

1) Environmental Management and Coordination Act (EMCA) 1999 (amended 2015).
2) Environmental Management Coordination (Air Quality) Regulations 2024 (Legal Notice No.180).
3) Environmental Protection Agency. (1976) Quality Assurance Handbook for Air Pollution Measurement Systems – Volume 1 Principles. EPA-600/9-76-005, Research Triangle Park, NC.
4) Quality Assurance and Quality Control (QA/QC) Procedures for UK Air Quality Monitoring under 2008/50/EC and 2004/107/EC
5) U.S. Environmental Protection Agency (2000) Guidance for Data Quality Assessment – Practical Methods for Data Analysis, EPA Report QA G-9 QA00 Update, Washington DC, July 2000. This document can be downloaded from website: http://www.epa.gov/quality/qs-docs/g9-final.pdf
6) U.S. Environmental Protection Agency. (1998) EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, Report EPA/600/R-98/018, EPA Project Boundary 2 (PB-2) or Research and Development, Washington DC. This document can be downloaded from website: http://www.epa.gov/swerust1/cat/epaqag5.pdf.

APPENDIX A:
EQUIPMENT CALIBRATION CERTIFICATES

Henan Oceanus Import&Export Co., Ltd. OCEANUS

Calibration Certification

Product	Micro Air Quality Monitoring Station	**Model**	AQM-09
Quantity	1pc	**Cali date**	March. 13th, 2024
Product no.	OC202403132100038		
Appearance	☑Clean ☑Non corrosive ☑No damage		
Gas type	O3: ppb, NO2: ppb, SO2: ppb, CO: ppm, VOC: ppm, H2S: ppm, CO2: ppm, NO: ppb, PM2.5/PM10/TSP: ug/m3, Temperature/Humidity: ℃/%RH, wind speed: m/s, wind direction: ° , air pressure: hpa, Noise: dB, Rainfall: mm/min		
Accuracy	±3%F.S		
resolution	1 ppb&1ug/m3&1ppm&0.1ppm		
Response time	≤30S		
Survey range	O3:0~2000ppb, NO2:0~2000ppb, SO2:0~2000ppb, CO: 0~200ppm, CO2: 0~5000ppm, H2S: 0~100ppm, VOC: 0~50ppm, NO: 0~2000ppb, PM2.5/PM10/TSP:0~1000ug/m3, Temperature: -20~50℃, Humidity: 0%~100%RH, wind speed: 0~30m/s, Wind direction: 0~360° , Noise: 30~130dB, Rainfall: 0~4mm/min, air pressure: 600~1100hpa, temperature: -20~50℃, Humidity: 0~100%RH		
Signal output mode	4G LTE		
Power supply voltage	AC 220V/50Hz		
Power dissipation	≤ 30W		
Working temperature and humidity range	-20℃-50℃ / 10%RH-95%RH		
Testing condition	Temperature: 30℃ Humidity: 60%RH		
Calibration gas	O3 , NO2, SO2, CO, CO2, CH4, H2S, NH3		
Cali gas test	1. O3: Cali gas concentration: 1000ppb — Inspect concentration: 997ppb 2. NO2: Cali gas concentration: 1000ppb — Inspect concentration: 996pb 3. SO2: Cali gas concentration: 1000ppb — Inspect concentration: 998ppb 4. CO: Cali gas concentration: 100ppm — Inspect concentration: 98.7ppm 5. H2S: Cali gas concentration: 50ppm — Inspect concentration: 49.9ppm 6. CO2: Cali gas concentration: 4000ppm — Inspect concentration: 3998ppm 7. C4H8: Cali gas concentration: 49.7ppm — Inspect concentration: 49.6ppm 8. NO: Cali gas concentration: 2000ppb — Inspect concentration: 1998ppb 9. PM2.5: Measured Value: 20ug/m3 — PM10 : Measured Value: 25ug/m3 10. TSP: Measured Value: 32ug/m3 — air pressure: 1007hpa 11. Wind speed: 1.4m/s — wind direction: 317 ° 12. Noise: 75dB — Rainfall: 0.1mm/min 13. Temperature: Measured value: 26.3℃ — Humidity: Measured value: 53%RH		
Test result	Qualified		

Check: **Approval:** **Tester:** QC PASS 01

Company: Henan Oceanus Import & Export Co., Ltd.

Date: 2024.3.13

Email: info@china-oceanus.com Telephone: +86-0371-6099-8169

APPENDIX B:
LABORATORY DESIGNATION CERTIFICATES

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

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

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

NEMA/21/2/LAB 77/LLL **20th April, 2023**

Lahvens Limited Laboratory
Lahvens House,
P.O. Box 34153-80118
MOMBASA.

RE: LABORATORY DESIGNATION BY NEMA.

Pursuant to your application for designation, your laboratory was inspected and evaluated based on ISO 17025 for laboratory competence to carry out tests and samplings.

The Lahvens Limited Laboratory qualified and has in principle been designated to undertake **Air Quality Analysis (Stack Emission and Ambient Air) and Noise Level Measurements** subject to the attached terms and conditions.

However, pursuant to section 119 of EMCA 1999 the Gazettement will take effect once the Authority places a notice in the Kenya Gazette.

DAVID ONGARE
For: DIRECTOR GENERAL

Our Environment, Our Life, Our Responsibility

ISO 9001:2015 Certified

AMBIENT ACOUSTIC LEVELS TEST REPORT.

ENVIRONMENTAL BASELINE STUDY REPORT FOR AMBIENT ACOUSTIC EMISSIONS LEVELS MONITORING OF THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT L.R No. KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY

PROJECT INFORMATION:

PREPARED FOR:
SHREE SHYAM PETRO CHEMICLAS LIMITED,
P.O BOX 717-00100,
MAJI YA CHUMVI AREA, KWALE COUNTY, KENYA.

CLIENT ADDRESS:

PREPARED BY:
LAHVENS LIMITED
P.O BOX 34153, 80118.
DESIGNATION LAB REF. NO. NEMA/21/2/LAB77/LLL
EMAIL: lahvens@lahvens.com

TESTING CONSULTANTS:

DOCUMENT ID: 50125-0048 B
TEST DATES: MAY 25TH 2025
(FINAL) REPORT ISSUED: JUNE 17TH, 2025.

DOCUMENT INFORMATION:

DOCUMENT REVIEW PAGE

This Technical report titled ENVIRONMENTAL BASELINE STUDY REPORT FOR AMBIENT ACOUSTIC EMISSIONS LEVELS MONITORING OF THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT L.R No. KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY was authored by Lahvens Limited in accordance to the EMC (Excessive Noise and Vibration Regulations) (control) 2009, Legal Notice 61.

REVISION HISTORY				
03	17.06.2025	Issuance of Final Report		
02	3-06-2025	Re-submission to close the given comments and approvals		
01	30-05-2025	1st draft issue of the soft copy submitted for review		
REV	**DATE**	DESCRIPTION		
Accepted by				
Approved by		LOVANS ROBERT SPOO (LABORATORY DIRECTOR) N.E.R. NO.: 7165		17.06.2025
Reviewed by		EDNAH MACHARIA: QUALITY MANAGEMENT REPRESENTATIVE		17.06.2025
Prepared by		VINCENT AGIN- FIELD ATTENDANT		07.06.2025
PROJECT		Name	Signature	Date

DOCUMENT & PROJECT PARTICULARS

DOCUMENT REF: 50124-0045 B	CLASSIFICATION: A – UNCLASSIFIED (OPEN REPORT)	CONTRACT NO. AS PER SSPCL TOR.	REVISION: 00 FINAL
TEST FIRM CONTACT PERSON: LOVANS SPOO: (254 – 728716948)	PROJECT: PROPOSED USED OIL HANDLING AND RECYCLING FACILITY	NUMBER OF PAGES: 30	
AUTHOR(S): VINCENT OKUMU, VALENTINE AGUTU		QUALITY CONTROLLER: EDNAH MACHARIA	

ABSTRACT (ENGLISH TITTLE):
Shree Shyam Petro Chemicals Limited contracted Lahvens Limited to form part of the Project's Environmental Team (ET). LAHVENS
Limited was commissioned to provide consulting services of environmental baseline acoustic emissions levels monitoring before implementation of the proposed USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY.

KEY WORDS:
EBS Acoustic Emissions Level Monitoring and Consultant Reporting.

ABSTRACT (in ENGLISH) | PUBLICATION TYPE: Digital document (pdf)

REVIEW AND CERTIFICATION FROM THE TESTING CONSULTANTS:

All work, calculations, other activities, and tasks performed and documented in this report were carried out under my direction and supervision. This test project conforms to the requirements of Lahvens Limited's quality manual and **EMC (Excessive Noise and Vibration Regulations) (control) 2009, Legal Notice 61.**

Team Leader: VALENTINE ODUOR

Signature:

Date: 17-06-2025

I have reviewed all testing details, calculations, results, conclusions and other appropriate written material contained herein, and hereby certify that the presented material is authentic and accurate.

Reviewer: LOVANS ROBERT SPOO

Title: LABORATORY DIRECTOR

Signature:

Date: 17-06-2025

CERTIFICATION FROM THE LEGAL ENTITY OF THE TESTING FACILITY:

I have reviewed the information being submitted in its entirety. Based on the information and belief formed after reasonable inquiry, I certify that the statements and information contained in this submittal are true, accurate and complete.

_____ _____

Signature Date

_____ _____

Name Printed Tittle

_____ _____

Company Name Company stamp

EXECUTIVE SUMMARY

Environmental acoustic measurement was undertaken for the proposed USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY on the 25th May 2025. Acoustic Environment survey was conducted to determine the EXISTING (Do minimum) noise emission levels around the proposed project for Environmental, Health, Safety and compliance purposes. Acoustic emissions levels quality remains a valued component in this environmental assessment because of their fundamental significance to the well-being of humans, wildlife and vegetation.

Used oil handling and recycling process can contribute to noise pollution primarily through the operation of equipment other machinery. While the noise level from some used oil recycling facility might be relatively low (<50dB), sources of industrial noise can still contribute to overall environmental noise levels.

Significant amount of noise emissions is anticipated during the construction phase and operational phase. Construction of any new facilities can lead to significant noise pollution. These emissions are the result of possible demolition work, the movement of machinery or the transport of construction materials. According to the World Health Organization (WHO), excessive noise from construction seriously harms human health and interferes with people's daily activities at school, at work, at home and during leisure time. It can disturb sleep, cause cardiovascular and psychophysiological effects, cause heart attacks, reduce performance and provoke annoyance responses and changes in social behavior. The overlooked threat of noise pollution can cause a number of short and long-term health problems, such as sleep disturbance, cardiovascular effects, poorer work and school performance, hearing impairment and more.

During used oil handling and recycling operations, the processes that will often generate noise will involve emissions from machinery like Used Oil Filtration Machine and generators all of which can generate noise. Noise pollution can have various negative impacts, including annoyance, sleep disturbance, and potential cardiovascular effects.

It is therefore important to quantify the noise emissions from the proposed site before implementation of the proposed used oil handling and recycling facility. The client contracted Lahvens Limited to form part of the Project's Environmental Team (ET). LAHVENS Limited was commissioned to provide consulting services of environmental baseline acoustic concentrations assessment before implementation of the proposed used oil handling and recycling facility. The report of acoustic results will form part of the Environmental and Social Impact Assessment when need be. The results will thereafter be used to assess compliance through comparisons against the Environmental Management Coordination (excessive noise and vibration controls) regulations 2009. A report on the findings will then be prepared and published.

The field baseline study will seek to gain insight into construction-related emissions (of Lmax, Lmin and LAeq), the existing acoustic emissions impacts that result from current ongoing activities, and opportunities to mitigate potential impacts. The findings from this assessment will also support public and stakeholder communication. It will also determine the baseline acoustic environment before implementation of the proposed project. The report findings will form part of the ESIA if / when needed.

The baseline acoustic emissions report considers the total emission of key acoustic parameters associated with the proposed used oil recycling facility development. These are Noise equivalent levels (LAeq),

maximum noise levels recorded (Lmax) and minimum noise recorded (Lmin). The current concentrations of these pollutants are at risk of exceeding their respective Limit Values when the project commissions. The estimates of the existing concentrations will be measured and compared to any relevant existing information and when the project commences, will be used as the background data. Relevant available information related to the pre-development ambient acoustic emissions level in the environment was looked into while identifying the major existing acoustic emission sources in the environment and the existing sensitive pollution areas in the environment

Acoustic Environmental Baseline Study is a significant component of monitoring programs for successful development activities. This Environmental Baseline Study is designed to characterize the acoustic environment at the proposed project site prior to commencement of construction of the Used oil handling and recycling facility. EBS will provide a benchmark and reference against which to compare the acoustic conditions influenced by the construction and operation of the Used oil handling and recycling facility development. The information will be used to assess the effectiveness of any proposed mitigation measures and / or to implement adaptive management, if needed.

Well-developed EBS often alleviate heightened perceived concerns within the community during the initial phases of any proposed development, before issues become a serious risk to the project. EBS also creates reassurance in the minds of the public and jurisdictional decision makers that key environmental issues have been identified and will be monitored and mitigated, during and after the project is approved. EBS monitoring can be looked at as an early warning system of impacts that could potentially affect the environment during the project operation phase and long after the project is decommissioned.

A baseline noise survey consisting of an operator attended noise measurements (OANM) was performed on the proposed site in Maji ya Chumvi area, Kwale County. Lahvens Limited operated four mobile stations along the project boundary walls as part of its noise emissions levels monitoring networks on the 25th May 2025.

Acoustic / Noise emission survey was achieved via initial examination of existing noise sources of significance. Noise levels were evaluated using a Sound Level Meter Model UT – 351, C150107874. SLM was mounted on at 2.0m above ground level and at least 3.5m away from any sound reflecting surfaces at a boundary position and measurements taken at timed intervals of 15 minutes every one-hour period and stored in SLM's memory. The sound level meter was placed on the microphone to reduce any wind interference during measurements. The sound level meters, were within their calibration period, at the time of monitoring. In addition, the equivalent noise level (Leq), the maximum sound pressure level (Lmax) and the minimum sound pressure level (Lmin) during that measurement period were recorded.

Factors such as time, duration and predictability of the noise emission, amplitude and frequency of the noise emission, nature of the source, location of noise sensitive receptors, ambient and background noise level, nature and character of the locality, presence of special acoustic characteristics and the incongruity or familiarity of the noise during noise survey and site placement were put into consideration.

Field Observations:

Sensitive Receptors;

The proposed project site neighborhood comprises undeveloped lands with the vegetation cover dominated by indigenous trees of acacia species and bush. The neighborhood is also characterized by few residential developments being along the Mombasa-Nairobi Highway that are identified as sensitive receptors.

Existing Acoustic Environment;

The neighborhood depicts mixed land use from residential to transport. The main source of existing noise pollution are emissions from the mobile sources including motor vehicles / trucks as well as environmental sources such as wind within the vicinity. The acoustic emission sources directly associated with the proposed project will be the main concern of the appraisal framework and will be emitted from various sources including; construction equipment, mobile sources, source emissions (generators) and environmental noise. The noise emissions concentrations reported herein, will be a combination of the emissions from the sources and the distance to the receptors which influence the levels of noise emissions and quality of life. As such, the most common ambient acoustic emission source within close proximity to sensitive receptors and the site in general will be fugitive emissions as the dominant emission sources.

RESULTS AND CONCLUSIONS:

The highest diurnal noise emissions recorded at the West Project Boundary 2 (WPB-2) of the site extended to levels of 50.4 dBA while the lowest diurnal noise emission recorded at the East Project Boundary 1 (EPB-1) extended to levels of 47.0 dBA. The average Leq noise levels in the proposed Used oil handling and recycling facility site averaged 48.30 dBA. The average noise levels across all the survey locations complied with the EMC noise and vibrations regulations of 2009 before commencement of the proposed Used oil handling and recycling facility development.

Diurnal noise Leq averages were rated as insignificant having scored <75 units based on parameters and score criteria; therefore, the proposed Used oil handling and recycling facility development was characterized as noise insignificant area before commencement of construction and its operations

From the results of determination of significance, there is no threat to the noise receivers of the noise emissions before implementation of the proposed Used oil handling and recycling facility development

Ambient conditions existed at the time of the diurnal survey.

Environmental noise including Wind breeze, labor talks and yelling, fugitive noise from motor vehicles and motor bikes were the main sources of noise emissions.

The levels of noise recorded from existing operations does not pose any Environmental, Sustainability, Health, Safety and compliance concerns before construction of the proposed Used oil handling and recycling facility development began.

Recommendations:

Ensure regular construction site noise monitoring and testing by a designated laboratory when the construction phase begins.

Use quiet power tools and equipment to manage noise pollution. Apply silencer and muffler to reduce the noise produced by heavy machineries. Wherever possible, use modern construction equipment that has been designed specifically to produce less noise.

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DEFINITIONS.

Table 1: List of acronyms

dBA	Decibels (A) weighted
CBS	Comprehensive Baseline Study
EMC	Environmental Management and Coordination
EBS	Environmental Baseline Study
GPS	Geographic Positioning System
hpa	Hectopascal
km/hr	Kilometer per hour
Leq	Noise equivalent noise
Lmax	Maximum Sound Level
Lmin	Minimum Sound Level
MW	Megawatt
NEMA	National Environment Management Authority
OSHA	Occupational Safety and Health Administration's
SLM	Sound Level Meter
TWA	Time Weighted Average
WB	World bank
WHO	World Health Organization

1. INTRODUCTION

1.1. Project Summary and objectives:

Environmental acoustic measurement was undertaken for the PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY on the 25th May 2025. Acoustic Environment survey was conducted to determine the EXISTING (Do minimum) noise emission levels around the proposed project for Environmental, Health, Safety and compliance purposes. Acoustic emissions levels quality remains a valued component in this environmental assessment because of their fundamental significance to the well-being of humans, wildlife and vegetation.

Used oil handling and recycling process can contribute to noise pollution primarily through the operation of equipment and machinery. While the noise level from some recycling machinery might be relatively low (<50dB), sources of industrial noise can still contribute to overall environmental noise levels.

Significant amount of noise emissions is anticipated during the construction phase and operational phase. Construction of any new facilities can lead to significant noise pollution. These emissions are the result of possible demolition work, the movement of machinery or the transport of construction materials. According to the World Health Organization (WHO), excessive noise from construction seriously harms human health and interferes with people's daily activities at school, at work, at home and during leisure time. It can disturb sleep, cause cardiovascular and psychophysiological effects, cause heart attacks, reduce performance and provoke annoyance responses and changes in social behavior. The overlooked threat of noise pollution can cause a number of short and long-term health problems, such as sleep disturbance, cardiovascular effects, poorer work and school performance, hearing impairment and more.

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It is therefore important to quantify the noise emissions from the proposed site before implementation of the proposed Used oil handling and recycling facility. The client contracted Lahvens Limited to form part of the Project's Environmental Team (ET). LAHVENS Limited was commissioned to provide consulting services of environmental baseline acoustic concentrations assessment before implementation of the proposed Used oil handling and recycling facility. The report of acoustic results will form part of the Environmental and Social Impact Assessment when need be. The results will thereafter be used to assess compliance through comparisons against the Environmental Management Coordination (excessive noise and vibration controls) regulations 2009. A report on the findings will then be prepared and published.

1.2. Project Description

The proponent, Shree Shyam Petro Chemicals Limited, proposes to set up used oil handling and recycling facility in Kwale County and other associated amenities.

1.3. Purpose of this report

This report identifies baseline information relating to acoustic emissions levels within study area on PLOT NO: KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHMVI AREA, KWALE COUNTY. The baseline provides the 'do minimum' (without the proposed used oil handling and recycling facility scenario taking account of the land use).

1.4. Appraisal Framework Requirements

Under the Second Schedule of the Environmental Management and Coordination Act (EMCA), Cap 387 of the Laws of Kenya, the project is categorized as a High Risk and thus should undergo Environmental and Social Impact Assessment (ESIA) Study process.

According to the EMC (IMPACT ASSESSMENT AND AUDIT) regulations 2003 framework legal notice 101 PART IV, THE ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT section 18 which states that *(1) A proponent shall submit to the Authority, an environmental contents of impact assessment study report incorporating but not limited to the environmental following information; - (b) a concise description of the national environmental legislative and regulatory framework,* ***baseline information.*** PART VI - MISCELLANEOUS PROVISIONS section 43 (2) states that *the proposed policy, programme or plan specified in this regulation shall state - (d) an environmental analysis covering: (i)* ***baseline information focusing on areas potentially affected***. Noise / Acoustic emissions levels was earmarked as one of the baseline parameter to be assessed and monitored.

Section 3 of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009, General Prohibitions states as follows;
(1) Except as otherwise provided in these Regulations, no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment.
(2). In determining whether noise is loud, unreasonable, unnecessary or unusual, the following factors may be considered; (a) time of the day; (b) proximity to residential area; (c) whether the noise is recurrent, intermittent or constant; (d) the level and intensity of the noise; (e) whether the noise has been enhanced in level or range by any type of electronic or mechanical means; and,
(f) whether the noise can be controlled without much effort or expense to the person making the noise.
(3). Any person who contravenes the provisions of this Regulation commits an offence.

Section 5 of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009, on Permissible noise levels states as follows;
"No person shall make, continue or cause to be made or continued any noise in excess of the noise levels set in the First Schedule to these Regulations, unless such noise is reasonably necessary to the preservation of life, health, safety or property.

The client in adhering to the above extracts and as part of this authorization process contracted a NEMA designation laboratory to form the Project's Environmental Team (ET). Lahvens Limited was responsible for providing consulting services of existing acoustic environment before implementation of the proposed project. The field baseline study will seek to gain insight into construction-related emissions (of Lmax, Lmin and LAeq), the existing acoustic emissions impacts that result from current ongoing activities, and opportunities to mitigate potential impacts. The findings from this assessment will also support public and stakeholder communication.

It will also determine the baseline acoustic environment before implementation of the proposed project. The report findings will form part of the authorization process.

1.5. Scope of work

The baseline acoustic emissions report considers the total emission of key acoustic parameters associated with the proposed used oil handling and recycling facility development. These are Noise equivalent levels (LAeq), maximum noise levels recorded (Lmax) and minimum noise recorded (Lmin). The current concentrations of these pollutants are at risk of exceeding their respective Limit Values when the project commissions. The estimates of the existing concentrations will be measured and compared to any relevant existing information and when the project commences, will be used as the background data. Relevant available information related to the pre-development ambient acoustic emissions level in the environment was looked into while identifying the major existing acoustic emission sources in the environment and the existing sensitive pollution areas in the environment.

1.6. Terms of Reference

Reference is made to the EMCA Legal Notice 61 First Schedule Extract, Acoustics — Determination of noise exposure and estimation of noise-induced hearing impairment recognizing the fact that any person emitting noise in excess of noise emission standards commits an offence therefore legalizing the process of compliance with the set emission goals, permissible standards, control strategies and technologies for noise emission as mandatory.

The scope of work was outlined as follows:

- Review of the legal context as it relates to noise emissions.;
- Evaluation of site meteorology;
- Monitoring of background noise including the noise equivalent levels Leq.

1.7. EBS Justification

Acoustic Environmental Baseline Study is a significant component of monitoring programs for successful development activities. This Environmental Baseline Study is designed to characterize the acoustic environment at the proposed project site prior to commencement of construction of the used oil handling and recycling facility. EBS will provide a benchmark and reference against which to compare the acoustic conditions influenced by the construction and operation of the used oil handling and recycling facility development. The information will be used to assess the effectiveness of any proposed mitigation measures and / or to implement adaptive management, if needed.

Well-developed EBS often alleviate heightened perceived concerns within the community during the initial phases of any proposed development, before issues become a serious risk to the project. EBS also creates reassurance in the minds of the public and jurisdictional decision makers that key environmental issues have been identified and will be monitored and mitigated, during and after the project is approved. EBS monitoring can be looked at as an early warning system of impacts that could potentially affect the environment during the project operation phase and long after the project is decommissioned.

2. ACOUSTIC EMISSIONS OVERVIEW AND NETWORKS

Noise will be generated during construction stages and operational stages. Construction industry plays an important role in nation's economic development. The construction sector employs workers, creates new job, and increases revenue by trades in construction materials and services. Thus, construction industry has a significant contribution in Gross Domestic Product (GDP) growth rate. As one of the results of the rapid development of construction industry, noise has become one of the problems and affects the people involved and people surrounding such work sites

During the operational stage, machinery such as used oil filtration machine and generators are a key sources and the most important noise sources during used oil recycling. Hearing loss can be affected by elevated noise levels from the above-mentioned machinery.

As per Oxford Definition, noise is a sound, especially one that is loud or unpleasant or that causes disturbance. Noise is generally considered as undesirable sound and sound can be considered undesirable due to amplitude or volume of loudness, category of noise, occurrence time of the day and resonance created. Noise is regarded as a pollutant under the EMC (Excessive Noise and Vibration Regulations) (control) 2009.

Noise is regarded as a pollutant under the According to the National Environment Management Authority (NEMA), "construction" includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, mowing, land-clearing, earth-moving, landscaping, grading, excavating, laying of pipes and conduits whether above or below ground level, road, railway and highway building, concreting, installation and alteration of equipment, and the structural installation of construction components and materials in any form or for any purpose that includes any work in connection with the construction". The proposed project falls under the construction sector.

It is therefore fundamental to note that ambient noise levels are essential to human health and ecosystems. The repercussions of construction noise are extensive and encompass both the workers and the surrounding environment. Construction noise can disrupt the peace of residential neighborhoods, affecting the quality of life for residents. This disruption can lead to complaints and strained relationships between the construction project and the community.
Construction site generates noise with activities like demolition, excavation, building works, machinery involved, material unloading etc. The noise generated from such activities is found loud and irritant at times. Such activities generate noise exceeding the Occupational Safety and Health Administration's (OSHA) limit given of 90dB. Continuous exposure to such loud noise can cause various physical, psychological, and mental illnesses. This hassle can affect the workers, as well as the residences, commercial complexes or school colleges surrounding the ongoing construction sites.

Construction Related Noise Generators could include the following: -

a. Various Machineries / Equipment are involved at various stages of construction. Right from the Excavation until Finishes, various machineries are involved which help to carry out the work with lesser labors and at a faster speed by also achieving the required quality.
b. Labors Talks / yelling: - Some of the activities like Plastering, curtain wall installation, fixing trusses at sites involve laborers working at different heights. In such cases, the talk happens by yelling, shouting for the instructions.

Noise Pollution due to Construction Machineries is a major hazard observed on Modern Construction sites where extensive machineries are used for the Speed and Quality. Noise generated from the heavy machineries and the power tools varies between 80dB to 120dB. OSHA states permissible noise exposure limit is 90 dBA (29 CFR 1926.52), whereas the American Conference of Industrial Hygienists has a noise threshold limit value of 85 dBA. NEMA through the EMC (Excessive Noise and Vibration Regulations) (control) 2009 states the permissible levels to be 60 dBA.

The level of ambient sound usually varies continuously with time. A human's subjective response to varying sounds is primarily governed by the total sound energy received. The total sound energy is the average level of the fluctuating sound, occurring over a period of time, multiplied by the total time period. In order to compare the effects of different fluctuating sounds, one compares the average sound level over the time period with the constant level of a steady, non-varying sound that will produce the same energy during the same time period. The average of the fluctuating noise levels over the time period is termed Leq, and it represents the constant noise level that would produce the same sound energy over the time period as the fluctuating noise level.

In order to compare the effects of different fluctuating sounds, one compares the average sound level over the time period with the constant level of a steady, non-varying sound that will produce the same energy during the same time period. The average of the fluctuating noise levels over the time period is termed Leq, and it represents the constant noise level that would produce the same sound energy over the time period as the fluctuating noise level.

The atmospheric conditions, interference from other objects and ground effects also play an important role in the resulting noise levels. For example, "hard" ground, such as asphalt or cement transmits sound differently than "soft" ground, such as grass. The first ground type promotes transmission of sound, thus producing louder sound levels farther from the source. In general terms, the above effects increase with distance, and the magnitude of the effect depends upon the frequency of the sound. The effects tend to be greater at high frequencies and less at low frequencies. For example, "hard" ground, such as asphalt or cement transmits sound differently than "soft" ground, such as grass. The first ground type promotes transmission of sound, thus producing louder sound levels farther from the source. In general terms, the above effects increase with distance, and the magnitude of the effect depends upon the frequency of the sound. The effects tend to be greater at high frequencies and less at low frequencies

Section 3 of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations requires determination as to whether the noise is recurrent, intermittent or constant.

Continuous noise in construction persists for an extended period of time. Unlike impulsive noise which comes in bursts, continuous noise is steady and unvarying, similar to a drone or a hum that stays constant over time. Machinery or processes that operate without interruption often produce this noise. Some examples of continuous noise in construction include the humming of generators, the constant whir of an operating excavator, the steady drone of ventilation systems, or the ongoing rumble of cement mixers. This persistent background noise exposure can be harmful to workers over a long period of time.

Impulsive noise, on the other hand, is characterized by sudden, loud bursts of sound that are often of high intensity but short duration. These noises are typically more jarring and noticeable than continuous noise

due to their abrupt and disruptive nature. Impulsive noise adds to the overall noise level at a construction site, and its spread can significantly impact people at varying distances.

In construction settings, impulsive noise can come from a variety of sources. The loud bang of a pile driver pounding into the ground, the explosive bursts from powder-actuated tools, or the pounding of jackhammers are all examples of impulsive noise.

It is assumed that the measurement location represents other dwellings in the area (similar environment and sensitive receptors). Some numerous factors that could impact on ambient sound levels at the time of monitoring could include; the distance to closest trees, number and type of trees as well as the height of trees; available habitat and food for birds and other animals; distance to residential dwelling, locomotive sources (motorbikes, trucks & personal vehicles) and type of equipment used at dwelling (compressors, aircons, generators) was considered.

The units of sound measurement are A weighted level of sound in decibels. The A weighted level in decibels is widely used to environmental sound as this weighting best replicates the sensitivity of the human ear across the audible frequency range. The key measurement units used to quantify the temporal variation in sound levels are;
Lmax The single highest sample sound during the measurement interval. Used in night time emission limits as a means of ensuring sleep protection. Controls short duration, high level sounds such as audible warning devices, pressure relief valves, etc.
Lmin: Minimum Sound Level: during a measurement period or a noise event.
Leq is the preferred method to describe sound levels that vary over time, resulting in a single decibel value, which considers the total sound energy over the period of time of interest.
Leq noise levels often fluctuate over a wide range with time. For example, in the middle of the night the level might go down as low as 30 dB (A) with occasional passing vehicles of 70dB (A) or more. Later comes the dawn chorus followed by the general noises of the day before relative peace returns in the late evening. Alternatively, it may be an activity with different noise emissions throughout the day or week, with deliveries, intermittent compressors, and lots of varying noisy processes on top of the routine production noise levels. This is where the Leq noise or equivalent continuous noise level meter comes in. The meter follows all the fluctuations, stores them in its memory and at the end of the measurement calculates an 'average energy' or Leq value. When we say average, this is not a simple arithmetic average because we are measuring in decibels which are logarithmic values. The SLM converts the dB values to sound pressure levels, adds them all up then divides by the number of samples and finally converts this equivalent level back to decibels – dBs.

LAeq – It is common practice to measure noise levels using the A-weighting setting built into all sound level meters. In which case the term is properly known as LAeq and the results should say so – for example LAeq = 73 dB or Leq = 73 dB.
Leq noise levels are logarithmic (dB) values and cannot be added directly. A doubling of sound level results in a measured increase of 3 dB, four identical sources in a room would increase the noise level by 6 dB and so on. This works both ways, say 10 similar machines in a room produce 100 dBA then removing one machine completely will only reduce the overall noise level to 0.5 dBA, you would need to silence or remove 50% of the machines to achieve a 3 dB reduction.

3. ACOUSTIC LEGISLATIVE AND POLICY FRAMEWORK

3.1. EMC (Excessive Noise and Vibration Regulations) (control) 2009

The legislative controls relevant to noise emissions associated with any development is outlined in the EMCA Legal Notice 61 First Schedule Extract, Acoustics — Determination of occupational noise exposure and estimation of noise-induced hearing impairment. The standard recognizes that any person emitting noise in excess of noise emission standards commits an offence. It legalizes the process of Environmental Impact Assessment and compliance with the set emission goals, permissible standards, and control strategies and technologies for noise emission as mandatory. With establishment of noise emission standards, it will be a requirement to obtain temporary permits from the National Environmental Management Authorities allowing for emissions of noise in excess of established standards for a period not exceeding three months.

Noise Exposure Standards (First Schedule)

Table 2: EMC (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.

ZONE		*Sound Level Limits dB (A)* L_{eq}, *14 h*		*Noise Rating Level (NR)* L_{eq}, *14 h*	
		DAY	**NIGHT**	**DAY**	**NIGHT**
A	Silent Zone	40	35	30	25
B	Place of worship	40	35	30	25
C	Residential: Indoor Outdoor	45 50	35 35	35 40	25 25
D	Mixed Residential (with some commercial and places of entertainment)	55	35	50	25
E	Commercial	60	35	55	25

Source: EMC (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice 61

The survey location falls under Zone D; mixed residential with some commercial and places of entertainment.

4. ACOUSTIC SURVEY METHODOLOGY

A baseline noise survey consisting of an operator attended noise measurements (OANM) was performed on the proposed site at Maji ya Chumvi area, off Mombasa – Nairobi highway in Kwale county. Lahvens Limited operated four mobile stations along the project boundary walls as part of its noise levels monitoring networks on the 25th May 2025.

4.1. Baseline Study Area;

4.1.1. Sensitive Receptors

The geographical scope of the baseline assessment is currently defined as the proposed used oil handling and recycling facility located in Maji ya Chumvi, along Mombasa-Nairobi Highway and environs, including potentially high-risk zones along the routes of any existing surface access. High risk zones include locations with the potential for exceedance of regulatory standards for the protection of human health and/or **sensitive habitats**, in the initial and / or mature operations years.

The issue of noise / acoustic pollution is particularly pertinent in areas sensitive to change, often referred to as **'sensitive receptors'.** Locations for the protection of human health are areas of long term exposure which are more susceptible and shall be considered to include residential properties, hospitals and schools; whereas locations for the protection of sensitive habitats / ecosystems shall be considered to include statutory designated sites (such as sites of special scientific interest (SSSIs), special areas of conservation (SACs) and special protection areas (SPAs) which contain habitat types that are also sensitive to acoustic changes.
The proposed project site neighborhood comprises undeveloped lands with the vegetation cover dominated by indigenous trees of acacia species and bush. Other than the undeveloped land, the proposed location is neighbored by few residential facilities that are identified as sensitive receptors.

Close proximity of the emission source to the 'sensitive receptor' causes acoustic pollution because there is less opportunity for dispersion of emissions between the source and receptor resulting in greater noise emissions. Noise / Acoustic levels is evaluated by comparing emissions against the EMC (Excessive Noise and Vibration Regulations) (control) 2009 Legal Notice 61, first schedule of the Noise Exposure Standards Limit values set at locations where exposure harm to human health and ecosystems is thought to occur.

4.1.2. Existing Acoustic Environment

The neighborhood depicts mixed land use from residential to transport. The main source of existing noise pollution are emissions from the mobile sources including motor vehicles / trucks as well as environmental sources such as wind. The acoustic emission sources directly associated with the proposed project will be the main concern of the appraisal framework and will be emitted from various sources including; construction equipment, mobile sources, source emissions (generators) and environmental noise.

The noise emissions concentrations reported herein, will be a combination of the emissions from the sources and the distance to the receptors which influence the levels of noise emissions and quality of life. As such, the most common ambient acoustic emission source within close proximity to sensitive receptors and the site in general will be fugitive emissions as the dominant emission sources.

4.1.3. Monitoring Locations

Baseline acoustic emissions levels monitoring locations were selected based on the existing facility that could or have the potential to influence the proposed project acoustic environment. The monitoring locations at the proposed project site were determined at six stations.

Table 3: Description of the measurement locations

Measurement Sites	Description of monitoring Locations	Dates of sampling
East Project Boundary 1 (EPB-1)	The proposed project site neighborhood comprises undeveloped lands with the vegetation cover dominated by indigenous trees of acacia species and bush. The neighborhood is also characterized by residential facilities identified as receptors	25TH MAY 2025.
West Project Boundary 2 (WPB-2)		25TH MAY 2025.
South Project Boundary 3 (SPB-3)		25TH MAY 2025.
North Project Boundary 4 (NPB-4)		25TH MAY 2025.

4.2. Equipment Placement

Acoustic / Noise emission survey was achieved via initial examination of existing noise sources of significance. Noise levels was evaluated using a Sound Level Meter Model UT – 351, C150107874. SLM was mounted on at 2.0m above ground level and at least 3.5m away from any sound reflecting surfaces at a boundary position and measurements taken at timed intervals of 15 minutes every one-hour period and stored in SLM's memory. The sound level meter was placed on the microphone to reduce any wind interference during measurements. The sound level meters, were within their calibration period, at the time of monitoring. In addition, the equivalent noise level (Leq), the maximum sound pressure level (Lmax) and the minimum sound pressure level (Lmin) during that measurement period were recorded.

Factors such as time, duration and predictability of the noise emission, amplitude and frequency of the noise emission, nature of the source, location of noise sensitive receptors, ambient and background noise level, nature and character of the locality, presence of special acoustic characteristics and the incongruity or familiarity of the noise during noise survey and site placement were put into consideration.

Furthermore, as each individual measurement was being taken, the nature of the noise climate in the area was assessed and recorded. This comprised an auditory observation by the surveyor, as well as identifying those noise incidents which influenced the sound level meter readings during the measurement period.

Ongoing diurnal acoustic level measurements at the proposed boundaries
(source: Fieldwork May, 2025)

4.3. Acoustic analysis

4.3.1. Parameters and score criteria

After finding various activities, aspects and impacts, identification of the significant aspects was done. It entirely depended on the management of the system or industry to give a scaling factor. The table 4 below shows six factors naming as A to F (top row) and column 1 to 6 shows rating scheme with minimum as 1 and maximum marks as 10 depending upon their severity.

4.3.2. Procedure of significance evaluation

For evaluation processes, the various activities of the measurement sites are rated based on parameters and score criteria and a benchmark of 75 units is taken as a deciding factor. If the total unit of any aspect for an activity comes out to be more than 75, then the aspect can be considered as significant otherwise insignificant.

Table 4: Parameters and score criteria

A-Quantity 1-5	B-Occurrence 1-6	C-Impact 1-6	D-Detection 1-5	E-Controls 1-5	F-Legislation 1and10
5-High	6-Continuous	6-Fatal to human life	5-More than 24 hours	5-Absenceorno effective controls	10-Not meeting legislation/ control limits
3-Moderate	5-Several times a day	5-Health effects	4-Within 24 hours	4-Mechanism in place but not reliable	1-In Compliance
1-Low	4-Once a day	4-Affects flora and fauna	3-Within 8 hours	3-Control needs human intervention	---
---	3-Once a week	3-Resource consumption	2-Within 1 hour	2-Has in-built secondary control	---
---	2-Once a month or less frequent	2-Discomfort, Acid rain, nuisance	1-Immediately	1-Available and effective at source.	---
---	1-Very Rare	1-Negligible visual impacts.	---	---	---

4.4. Tools and Equipment

- Sound Level Meter Model meter UT-351 IEC 61672 – 1:2013.
- Geographic Positioning System (GPS) and a Digital camera

4.5. Assumptions

The short term (1-hr per site) noise emissions survey and data collection for L_{eq}, L_{max} and L_{min} is considered sufficient to understand background acoustic conditions at each location.

4.6. Data Validity and Acceptability

All data recorded in the study was taken through data replications and quality assurance procedure to ensure that any anomalous readings or questionable data is not incorporated in the final results.
Elements of this procedure account for:

- Routine calibration and auditing of the analyzers and Statistical rendering of outliers.

4.7. Monitoring Frequency

Monitoring of acoustic emissions levels was done with a frequency of 1 hr / survey location. Once proposed used oil handling and recycling facility construction is underway, monitoring of acoustic emissions parameters should be done at 3 months' interval.

5. RESULTS PRESENTATION, DISCUSSIONS AND CONCLUSION.

5.1. PRESENTATION OF RESULTS

5.1.1. Summary of singular noise measurements

Table 5: Results for Diurnal singular noise measurements

Measured Sound Pressure Level (Noise) (dBA)				EMC Noise Regulation 2009	Site Notes / Remarks
17th April 2025.				Day time	
Locations	Leq	Lmax	Lmin	Leq	
East Project Boundary 1 (EPB-1)	47.0	68.1	38.6	55	The prevailing weather was sunny at the time of acoustic survey. Wind speed averaged about 14.8 km/hr South East wind. Measurements are taken to quantify prevailing ambient acoustic levels. **Leq** noise levels complied with the EMC 2009 noise permissible levels. Environmental noise including Wind breeze and fugitive noise from motor vehicles were the likely sources of noise emissions. Ambient conditions were extant.
West Project Boundary 2 (WPB-2)	50.4	70.4	37.5	55	The prevailing weather was sunny at the time of acoustic survey. Wind speed averaged about 15.0 km/hr South East wind. Measurements are taken to quantify prevailing ambient acoustic levels. **Leq** noise levels complied with the EMC 2009 noise permissible levels. Environmental noise including Wind breeze and fugitive noise from motor vehicles were the likely sources of noise emissions. Ambient conditions were extant.
South Project Boundary 3 (SPB-3)	48.3	70.8	35.2	55	The prevailing weather was sunny at the time of acoustic survey. Wind speed averaged about 15.0 km/hr South East wind. Measurements are taken to quantify prevailing ambient acoustic levels. **Leq** noise levels complied with the EMC 2009 noise permissible levels. Environmental noise including Wind breeze and fugitive noise from motor vehicles were the likely sources of noise emissions. Ambient conditions were extant.
North Project Boundary 4 (NPB-4)	47.5	69.3	37.1	55	The prevailing weather was sunny at the time of acoustic survey. Wind speed averaged about 14.9 km/hr South East wind. Measurements are taken to quantify prevailing ambient acoustic levels. **Leq** noise levels complied with the EMC 2009 noise permissible levels. Environmental noise including Wind breeze and fugitive noise from motor vehicles were the likely sources of noise emissions. Ambient conditions were extant.

5.2. Summary of average diurnal noise equivalents (Leq)

5.2.1. Tabular presentation of test of L_{eq} noise equivalents.

Table 6: Summary results for diurnal noise equivalents

Monitoring locations	Diurnal LAeq average results	Maximum noise level permitted (Leq) in dB (A) Day (0601-2000) hrs	Comments
EPB-1	47.0	**55**	Complies
WPB-2	50.4	**55**	Complies
SPB-3	48.3	**55**	Complies
NPB-4	47.5	**55**	Complies

5.2.2. Tabular presentation of test of significance

Table 7:Determination of diurnal noise significance of results

MEASUREMENT SITE	ASPECT	CONDITION/ACTIVITY	IMPACT	PROBABILITY	OCCURRENCE	IMPACTS	DETECTION	CONTROL	LEGISLATION		SIGNIFICANCE
EPB-1	NOISE	N/A	Hearing impairment	3	6	1	1	3	1	54	INSIG
WPB-2	NOISE	N/A	Hearing impairment	3	6	1	1	3	1	54	INSIG
SPB-3	NOISE	N/A	Hearing impairment	3	6	1	1	3	1	54	INSIG
NPB-4	NOISE	N/A	Hearing impairment	3	6	1	1	3	1	54	INSIG

5.3. DISCUSSIONS OF RESULTS

Noise measurement was initiated to obtain and quantify the prevailing and existing ambient acoustic levels before implementation of the proposed pyrolysis processing plant. The obtained acoustic results were thereafter correlated against the Environmental Management Coordination (Excessive noise and vibration regulations) 2009 to ascertain compliance.

5.3.1. Presentation of singular noise results

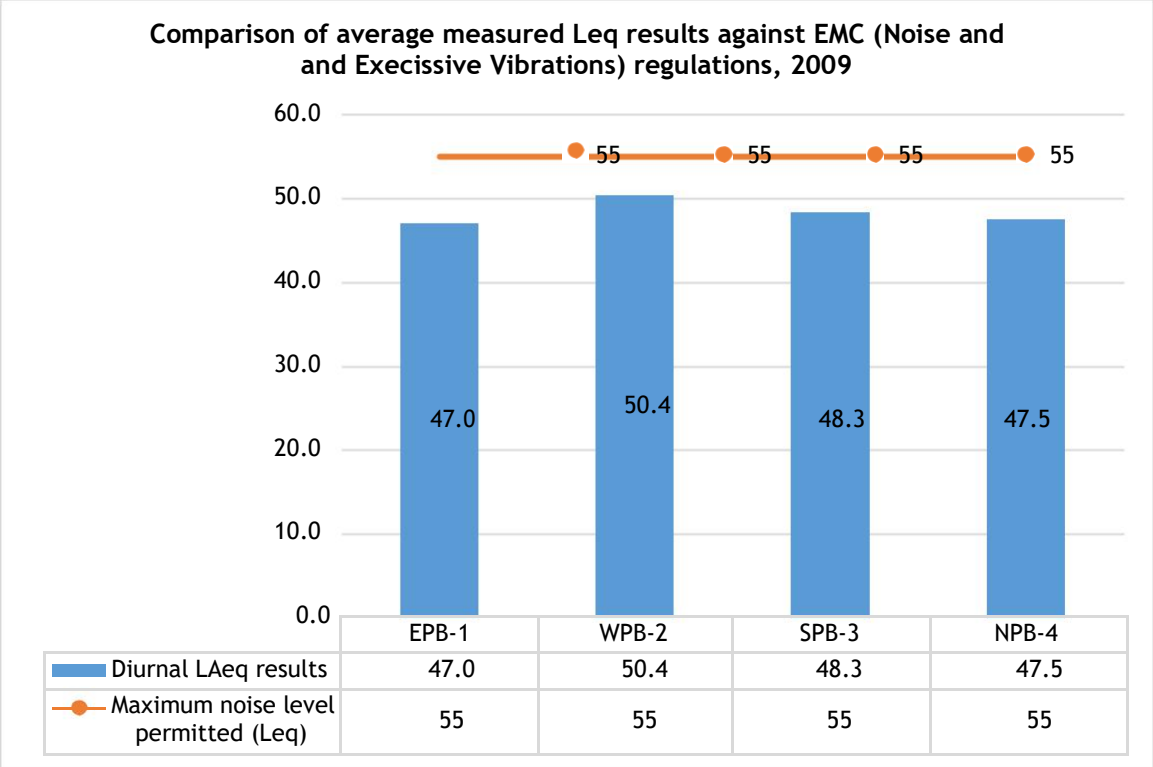
Diurnal noise results

The highest diurnal noise emissions recorded at the West Project Boundary 2 (WPB-2) of the site extended to levels of 50.4 dBA while the lowest diurnal noise emission recorded at the East Project Boundary 1 (EPB-1) extended to levels of 47.0 dBA. The average Leq noise levels in the proposed pyrolysis processing plant development site averaged 48.30 dBA. The average noise levels across all the survey locations complied with the EMC noise and vibrations regulations of 2009.

5.3.2. Correlation of average noise monitoring results against the noise regulations

Correlation of results against the Environmental Management Coordination (Excessive noise and vibration control regulations) 2009 to ensure compliance was done and presentation of the combined charts are as follows:

a. Diurnal noise results



- The average diurnal noise equivalent levels (Leq) across all the four survey locations complied with the EMC noise and vibration regulations 2009 before commencement of the proposed pyrolysis processing plant development.

5.3.3. Determination of significance:

Determination of noise significance of results was done vide correlation against the EMC (Excessive noise and vibration regulations) 2009 to ensure compliance amongst other aspects.

- Diurnal noise Leq averages were rated as insignificant having scored <75 units based on parameters and score criteria; therefore, the proposed pyrolysis processing plant development was characterized as noise insignificant area before commencement of construction and its operations.
- From the results of determination of significance, there is no threat to the noise receivers of the noise emissions before implementation of the proposed pyrolysis processing plant development.

5.4. CONCLUSION.

This ambient noise measurement report documented the current noise levels and meteorological conditions for the proposed pyrolysis processing plant development as follows:

- The quantity of noise measured and recorded along the project boundaries complied with the EMC noise and vibration regulations 2009 maximum Noise Level Permitted (Leq) during the day before implementation of the proposed pyrolysis processing plant development.
- Baseline results obtained along the project boundaries show that the survey location was a noise insignificant area hence the levels do not pose any threat to the sensitive receptors before implementation of the proposed pyrolysis processing plant development.
- Ambient conditions existed at the time of the diurnal survey.
- Environmental noise including Wind breeze, labor talks and yelling, fugitive noise from motor vehicles and motor bikes were the main sources of noise emissions.
- The levels of noise recorded from existing operations does not pose any Environmental, Sustainability, Health, Safety and compliance concerns before construction of the proposed pyrolysis processing plant development began.

5.5. RECOMMENDATIONS DURING CONSTRUCTION OPERATIONS.

- Ensure regular construction site noise monitoring and testing by a designated laboratory when the construction phase begins.
- Use quiet power tools and equipment to manage noise pollution. Apply silencer and muffler to reduce the noise produced by heavy machineries. Wherever possible, use modern construction equipment that has been designed specifically to produce less noise.

6. REFERENCES

1) Environmental Management and Coordination Act (EMCA) 1999 (amended 2015).
2) Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009 (Legal Notice No.61).

LIST OF APPENDICES:

APPENDIX A:
EQUIPMENT CALIBRATION CERTIFICATES

APPENDIX B:
LABORATORY DESIGNATION CERTIFICATES

APPENDIX A: EQUIPMENT CALIBRATION CERTIFICATES

APPENDIX B: LABORATORY DESIGNATION CERTIFICATES

nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

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NEMA/21/2/LAB 77/LLL

20th April, 2023

Lahvens Limited Laboratory
Lahvens House,
P.O. Box 34153-80118
MOMBASA.

RE: LABORATORY DESIGNATION BY NEMA.

Pursuant to your application for designation, your laboratory was inspected and evaluated based on ISO 17025 for laboratory competence to carry out tests and samplings.

The Lahvens Limited Laboratory qualified and has in principle been designated to undertake **Air Quality Analysis (Stack Emission and Ambient Air) and Noise Level Measurements** subject to the attached terms and conditions.

However, pursuant to section 119 of EMCA 1999 the Gazettement will take effect once the Authority places a notice in the Kenya Gazette.

DAVID ONGARE
For: DIRECTOR GENERAL

Our Environment, Our Life, Our Responsibility

ISO 9001:2015 Certified

ZONAL LABORATORY LIMITED
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LABORATORY CERTIFICATE OF ANALYSIS REPORT

Sample Description: EFFLUENT WATER Client Ref Number: ZTL/SSPCL/740/25	Sample ref. Number: ZTL/EFT–SSPCL/740/25 Sample Form Submission Number: 731
Client Name: SHREE SHYAM PETRO CHEMICALS LIMITED Postal Address: P.O BOX 717-00100 NAIROBI Email: shreeshyampetrochemical@gmail.com	Date of Receipt:15TH APRIL 2025
Date of test performed: 16TH -23RD APRIL 2025	Date of Test report:24TH APRIL 2025
Sample submitted By: FRED OJIJO	Sample received by: Ms. MAXIMILLAH.M
SPECIFICATION: EMCA 4TH SCHEDULE STANDARD FOR EFFLUENT DISCHARGE INTO THE ENVIRONMENT	

PARAMETERS	RESULTS	STD LIMITS	TEST METHODS
Chemical Parameters			
PH Value	6.78	6.5-8.5	ISO 10523
Temperature, °C	254	20-35	APHA 2550
Color Hazen Units, max	14	15	APHA 2120B
Biological Oxygen Demand, Mg/L, max	17.5	30	APHA 5210B
Chemical Oxygen Demand, Mg/L, max	26.9	50	APHA 5220C
Total Suspended Solids, mg/L, max	1.15	30	ISO 11923
Oil & Grease, Mg/L ,max	NIL	NIL	APHA 5520C
Fluorides, Mg/L, max	0.22	1.5	APHA 4500F
Phenol, Mg/L, max	<0.001	0.001	EPA 420.1
Microbial Tests			
Total Coliforms/100 ml, max	NIL	30	ISO 4832

VERIFIED BY:
Maximillan Omoke,
Chemist.

VERIFIED BY:
Brian Omondi,
Microbiologist

APPROVED BY:
Samuel Angila,
Laboratory Manager

ZONAL TESTING LABORATORY LTD. P.O. BOX 85177 - 00100 MOMBASA
25 APR 2025

Date of Issue:
25/04/2025

End of Page

ilac-MRA KENYA ACCREDITATION SERVICE KENAS nema Designated Laboratory

ZONAL LABORATORY LIMITED
P.O BOX 85177 - 80100,
Tudor, Along Tom-Mboya Street
Mombasa, Kenya.

Email:info@zonal-lab.com
Website: www.zonal-lab.com
TEL: 0704 376 713

LABORATORY CERTIFICATE OF ANALYSIS REPORT

Sample Description: SOIL SAMPLE Client Ref Number: ZTL/SSPCL/710/25	Sample ref. Number: ZTL/EFT–SSPCL/710/25 Sample Form Submission Number: 721
Client Name: SHREE SHYAM PETRO CHEMICALS LIMITED Postal Address: P.O BOX 717-00100 NAIROBI Email: shreeshyampetrochemical@gmail.com	Date of Receipt:15TH APRIL 2025
Date of test performed: 16TH -23RD APRIL 2025	Date of Test report:24TH APRIL 2025
Sample submitted By: FRED OJIJO	Sample received by: Ms. MAXIMILLAH.M
SPECIFICATION: N/A	

PARAMETERS	RESULTS	UNIT	TEST METHODS
Tests			
PH Value	7.64	-	ICARDA 5.2
Determination of Metals in Soil			
Selenium as Se	<0.01	mg/kg	ISO 22036
Nickel as Ni	2.31	mg/kg	ISO 22036
Molybdenum as Mo	0.09	mg/kg	ISO 22036
Cadmium as Cd	<0.01	mg/kg	ISO 22036
Zinc as Zn	7.98	mg/kg	ISO 22036
Lead as Pb	6.02	mg/kg	ISO 22036
Iron as Fe	2391.02	mg/kg	ISO 22036
Manganese as Mn	151.53	mg/kg	ISO 22036
Arsenic as As	1.14	mg/kg	ISO 22036
Copper as Cu	2.87	mg/kg	ISO 22036

ANALYSED BY:

Gladys Kamau,
Chemist.

APPROVED BY:

25 APR 2025

Isaac Namachi,
Head, Chemistry Laboratory

Date of Issue:
25/04/2025

End of Page

Designated Laboratory

KENYA REVENUE AUTHORITY

www.kra.go.ke

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

Certificate Date : 20/03/2025

Personal Identification Number
P052372234U

This is to certify that taxpayer shown herein has been registered with Revenue Authority

Taxpayer Information

Taxpayer Name	SHREE SHYAM PETRO CHEMICALS LIMITED
Email Address	SHREESHYAMPETROCHEMICAL@GMAIL.COM

Registered Address

L.R. Number :	**Building :** BUILDING: MOMBASA REAL PLAZA
Street/Road : PRISON ROAD	**City/Town :** Nairobi
County : Nairobi	**District :** Nairobi West District
Tax Area : Nairobi West	**Station :** South of Nairobi
P. O. Box : 717	**Postal Code :** 00100

Tax Obligation(s) Registration Details

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Value Added Tax (VAT)	19/03/2025	N.A.	Active
2	Income Tax - Company	14/10/2024	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Revenue Authority. Your accounting end month is December unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

No. **PVT-EYU3R6M9**

CERTIFICATE OF INCORPORATION

I hereby **CERTIFY** that,

SHREE SHYAM PETRO CHEMICALS LIMITED

is on this date 11 Oct 2024 Incorporated under the Companies Act, 2015 and that the Company is a **PRIVATE LIMITED COMPANY.**

.....

Registrar Of Companies

This is a system generated certificate. To validate this document send the word **BRS** to **21546**

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Lines: 0724 253 398, 0723 363 010, 0735 013 046
Telkom Wireless: 020-2183718, 020-2101370
Incident Lines: 0786 101 100, 0741 101 100

P.O. Box 67839 - 00200
Popo Road, Nairobi, Kenya
Email: info@nema.go.ke
Website: www.nema.go.ke

NEMA/TOR/5/2/915 **Date: 27th May 2025**

The Director,
Shree Shyam Petro Chemicals Limited,
P. O. BOX 717-00100,
NAIROBI.

RE: TERMS OF REFERENCE (TOR) FOR INTEGRATED ENVIROMENTAL & SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT NO. KINANGO/MAJI YA CHUMVI/160,163 & 164 KWALE COUNTY.

The National Environment Management Authority (NEMA) acknowledges receipt of your Terms of Reference (TOR) for the above subject.

Pursuant to the Environmental Management and Coordination Act, 1999, the Environmental (Impact Assessment and Audit) Regulations 2003 and Legal notice 31 & 32 of 2019, your terms of reference for the Environmental and Social Impact Assessment (ESIA) for the **PROPOSED USED OIL HANDLIG AND RECYCLING FACILITY ON PLOT NO. KINANGO/MAJI YA CHUMVI/ 160, 163 & 164 KWALE COUNTY has been approved** with following conditions:

1. You shall undertake an inclusive and detailed stakeholders' engagement and Public Participation with the Project Affected Persons (PAPs) in full compliance to regulation 17 of the EIA/EA Regulations 2003 and provide evidence of appropriate notices send out at least one week prior to public meetings, dully signed minutes and attendance lists of at least three (3) consultation meetings.

2. You shall undertake baselines environmental assessments including Water quality, Soil analysis, Ambient air quality, Noise Level measurements, and biodiversity (flora and fauna) assessment of the proposed project site.

3. You shall undertake a detailed Climate Change Risk and Vulnerability Assessment to inform appropriate adaptation and disaster mitigation measures

to climate proof the project in line with provisions of the Climate Change Act, 2016.

4. You shall ensure that the Final ESIA report is signed by all members of the multi-disciplinary team of experts.

You shall submit Ten (10) copies of ESIA Study Report accompanied by the above specialised assessment reports upon payment of the applicable EIA processing and monitoring fees being 0.1% of the total project cost, a soft copy of the summarised ESMP in **WORD** format for preparation of public notice and One (1) electronic copy of your report prepared by a team of experts to the Authority.

JOSEPH MAKAU
FOR: DIRECTOR GENERAL

FORM 7

EAE 23062833

(r.15(2))

nema

Mazingira Yetu | Uhai Wetu | Wajibu Wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

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

License No : NEMA/EIA/ERPL/22353

Application Reference No: NEMA/EIA/EL/29708

M/S **Teresa Awino Odenya**
(individual or firm) of address
P.O.BOX 736 - 40600 SIAYA

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Associate Expert**
registration number 13188

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

Issued Date: 1/10/2025 Expiry Date: **12/31/2025**

Signature.....

(Seal)
Director General
The National Environment Management Authority

PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT L.R No. KINANGO/MAJI YA CHUMVI/160, 163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY

Conditions For Licensing

1. This license expires on 31st December of the year it is issued.
2. The expert shall comply with code of practice and Professional Ethics for EIA/EA experts.
3. The expert shall comply with the attached conditions.

P.T.O.

General Conditions

1. All Environment Experts certified and registered in the accordance with the provision of relevant Regulations, may establish professional associations to complement and implement the objectives of the Code of Practice.

ISO 9001 : 2015 Certified

FORM 7

EAE 23062932

(r.15(2))

nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

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

License No: NEMA/EIA/ERPL/22394

Application Reference No: NEMA/EIA/EL/30297

M/S **BEN ARNOLD OPAPO**
(individual or firm) of address
P.O. Box 41859 - 80100 MOMBASA

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
General
registration number **9294**

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

Issued Date: 1/21/2025 Expiry Date: **12/31/2025**

Signature.....

(Seal)
Director General
The National Environment Management Authority

PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT L.R No. KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY

Conditions For Licensing

P.T.O.

1. This license expires on 31st December of the year it is issued.
2. The expert shall comply with code of practice and Professional Ethics for EIA/EA experts.
3. The expert shall comply with the attached conditions.

EAE 23062820

FORM 7 (r.15(2))

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

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

License No : NEMA/EIA/ERPL/22322

Application Reference No: NEMA/EIA/EL/30118

M/S **Ojijo Fredricks Omondi**
(individual or firm) of address
PO BOX 18-80403 KWALE

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

General

registration number **3088**

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

Issued Date: **1/8/2025** Expiry Date: **12/31/2025**

Signature.....

(Seal)
Director General
The National Environment Management Authority

PROPOSED USED OIL HANDLING AND RECYCLING FACILITY ON PLOT L.R No. KINANGO/MAJI YA CHUMVI/160,163 & 164 MAJI YA CHUMVI AREA, KWALE COUNTY

P.T.O.

ISO 9001 : 2015 Certified