ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT STUDY REPORT

FOR

THE PROPOSED HANDLING AND DISPOSAL OF ASBESTOS TAI LIFESTYLE LIMITED IN VOI, TAITA TAVETA COUNTY.

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Certification by Lead/Associate Expert

We hereby certify that this Environmental & Social Impact Assessment (ESIA) Study Report has been done under our supervision and that the assessment criteria, methodology and content reporting conform to the requirements of the Environmental Management and Coordination Act, (EMCA) 1999 (Rev. 2015) and Legal Notice No. 101 of 2003 (Rev 2016).

Names: Mr. Andrew Makonde Makoti

Nema reg no 7463

Signed:……..

Names: Mr. Anthony Mwaniki

NEMA reg no 8578

Signed:……..

Certification by Proponent

We, **Tai Lifestyle Limited**, confirm that this ESIA Study Report has been forwarded to NEMA with our Authority as the proponent.

Signed for and on behalf of Tai Lifestyle Limited

Name: ……

Signature:……Date: …….

Proponent Contact Details

TAI LIFESTYLE LIMITED

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MALINDI

ACKNOWLEDGMENT

The successful completion of this Environmental & Social Impact Assessment report was made possible by various people and institutions. We thank Tai Lifestyle Limited management for providing resources and logistical support to undertake the assessment. In this regard, we acknowledge the general who facilitated site visit and the documentation required for the assessment process.

The team is further indebted to the project site neighboring facilities, Location administrative officials particularly the area Chief and other key stakeholders for accepting to participate in the public consultations which would not have been possible without their support. Their opinions and suggestions are included in this environmental assessment report.

The environmental consultants who assisted in data and information collection, interpretation and analysis, draft material write-up and the printing of the final report

EXECUTIVE SUMMARY

Project Background

Waste generation occurs from all types of human activities which require to be managed properly to protect both our health and the environment while enhancing aesthetics. This is particularly evident in urban settlements which generate large quantities of solid waste due to high human population. The impacts of poor solid waste management within the urban settlements, particularly cities and big municipalities can be disastrous. As such there is need for proper and efficient waste management which is achieved through carrying out Environmental & Social Impact Assessment studies.

Tai Lifestyle Limited has contracted our Company operating in Kenya and internationally to carry out a comprehensive Environmental & Social Impact Assessment Study and submit a Report for the Asbestos removal, handling and disposal.

Project Description

Tai Lifestyle Limited intends to handle and dispose asbestos material which was used as either factory facility roofing material or other activities. The asbestos materials are then carefully transported to the Voi site where they are disposed of using the appropriate asbestos handling and disposal guidelines given by NEMA.

Project Site

Tai Lifestyle Limited voi is located in Wangala Village which is off voi Road at Masenyi Sub-location, Marungu Location, and Nyamgala Division , Voi Sub-county in Taita Taveta County. The GPS coordinates of the site are 3°37'32.7"S 38°51'50.9"E

Asbestos ESIA Guidelines

Asbestos is a regulated hazardous waste and as such NEMA developed standard ESIA guidelines for asbestos removal, handling and disposal which include the following

- The asbestos waste generator should ensure that a disposal site is identified and an ESIA is done for removal, handling and disposal of asbestos before commencing the work process
- The findings of the risk assessment must be included in the ESIA report submitted to the authority.
- The ESIA shall specify safe conditions for removal, handling and disposal of asbestos
- A hydro geological report must be done to inform on the best sitting of the disposal site and be included in the ESIA report
- The ESIA should be carried out by experts who are registered by NEMA.
- The ESIA report should be submitted to NEMA for processing.
- The removal, handling and disposal of asbestos shall not commence until an ESIA report license is issued

ESIA Methodology

The baseline information was obtained through several data collection methods including; observation and transects walks in the project area, interview with key informants, administering of questionnaires, public participation and consultations, use of checklists, physical investigation and analysis of parameters, literature review of the previous consultant report and those from the client. Photography and documentation of notes were also utilized in the study.

A public meeting was held in Masenyi sub-location within the project area where various issues revolving around the proposed project were discussed. ***A copy of the minutes is attached in the annex***

Socio-economic baseline characteristics of the project area

The baseline information of the study area was collected using various methods as indicated above. The proposed project is to be undertaken in Voi, Taita Taveta County. The communities in this vast area are small scale farmers and small scale business men and women. The land in this area is individually owned with subdivision done from father to children. Such land has been subdivided from large farms to small portions of up to 0.25 acres. The crops mostly grown in this area includes maize, cassava, groundnuts, vegetables, potatoes etc. the community in this area depend on rain- fed agriculture. The communities also keep cattle, goats and chicken.

Biophysical baseline characteristics of the project area

The site has gentle terrain with minimal slope and ground difference. The overall neighborhood landscape is low undulating. The project site has very minimal vegetation cover.

There are no major animals in the environs except for small rodents, insects, lizards and birds. Therefore one can argue that there is no fauna threatened by the proposed development

Review of legislative frameworks, policies and institutional arrangements

The ESIA examined; legal frameworks, policy frameworks, national regulatory frameworks, international policy frameworks and World Bank Safeguard Policies on the project. On policy frameworks, the consultant examined Kenya's Vision 2030, Sustainable Development Goals, National Environment Action Plan 1994, and Land Policy among others. The study also looked at Legal frameworks which included Kenya's constitution 2010, Environmental Management and Coordination Act 2015, the Water Act 2016. On national regulatory frameworks, Waste Management Regulation Act 2006 (legal notice121) among others was examined. The key institutions whose mandate are important in the implementation and management of this project include but not limited to; Government of Kenya, Ministry of Water and Sanitation, Ministry of Agriculture, Water Resource Authority, National Environment Management Authority, World Bank, Ministry of Environment and Forest among others.

Results of Socio-economic survey of the project area

Identification of Impacts and Mitigation Measures

Implementation of Proposed removal and disposal of asbestos roofing materials has both positive and negative impacts to the social, economic, physical and biological environment. The positive impacts will be maximized through undertaking enhancing measures while mitigation measures will be undertaken to reduce the effects of negative impacts.

Positive impacts

The positive impacts include; improved solid waste management, employment opportunities, increased income among locals, poverty alleviation, increased land value and demand, safety

of staff and community, growth of local economy and opportunities for skill acquisition by the local people.

Negative impacts

In spite of the positive impacts, the project will also have negative impacts directly or indirectly associated with it that will need to be mitigated as outlined in the table 1.1 below

Table 1.1 Summary of Negative impacts and their mitigation

Impact	Source of impact	Project phase	Mitigation measures	Monitor able indicators
Dust generation and Exhaust Emissions	Truck movements, equipment and Machines	Removal and transportation of asbestos waste	-Use best management practices to minimize dust generation. keep to the minimum areas where earthwork activities will take place, watering down haul roads during dry weather conditions -Routine maintenance of heavy equipment used at the site and waste hauling vehicles -Watering of bare surfaces or dusty areas -Provision of dust masks for the employees - The waste contactor is responsible to ensure mitigation measures are adhered to and observed	Schedule routine servicing of machinery and equipment as per manufacturers' specifications
Noise pollution & excessive vibration	Demolishing and machine operation	Removal and transportation of asbestos waste	-Work off hours -Use of PPE's by the workers at site (ear muffs) -Sensitize the community -The contractor to ensure sensitization of the community as well as ensure provision of	Noise and excessive vibration regulations, 2009

			PPE's to the workers employed by the contactor	
Increased traffic on the access road	Waste trucks delivering the solid wastes	During transportation of waste	-Use of flag men to direct traffic -Control waste loading at the point of collection to minimize spillage -Place road signs along the road to minimize accidents and to increase road safety -Working off hours -Construct slow bumps on the access road and adherence to speed limits -Regular maintenance of the road -Contractor's much responsibility required	Monitor loading Of wastes, Presence of road Signs, Monitor vehicles speed limit
Social Changes	The high influx of casual workers will cause several Social changes	Throughout the project cycle	-The project should engage local men, women and youth for unskilled labor and other Opportunities. -Avoid child labor as stipulated in the World Bank policies -Utilize local goods and services where	Monitor the health seeking behaviors and consumer Behaviors, Trained number of people and the frequency

			practical - Contractor to educate the workers on HIV/AIDS and other sexually transmitted disease through a training program -Stakeholder consultations in the implementation and operation phases, to continue -Stakeholder mapping is proposed in the event that the waste catchment area is expanded	
Injury and loss of life	Human safety may be at risk in the process of, Dismantling of project installations and transportation	Throughout the Project phase	-Provide appropriate PPEs for the workers -Avail first aid kits at workplace -Provide an appropriate waste disposal system for waste - Contractor to train employees and workers on occupational safety and health	-Number of people at site in PPEs -Records of safety and health trainings -First Aid kits on site OSHA, 2007 Construction and operation safety

Soil erosion	Clearing and excavation of the site for the disposal of waste	Preparation of disposal site	- Contractor to closely monitor the earth works to minimize surface run-off of solid matter. -Re-vegetate open areas where necessary	Assess the surface run-off and siltation in the streams and rivers
Construction debris	Demolition works restoration of roofing materials	During removal and replacement of roofing materials	-Contractor to dispose of as per the waste management regulations, 2006 Planting of adoptable vegetation.	Monitoring the air and water (ground and surface) quality for 5 years

LIST OF ACRONYMS

ACM	Asbestos Containing Material
PVA	Polyvinyl alcohol
PPE	Personal Protective Equipment
TAVIVO	Taita Taveta and Voi Water and Sewerage Company
NEMA	National Environment Management Authority
LTD	Limited
EMP	Environmental Management Plan
CSR	Corporate Social Responsibility
KPLC	Kenya Power and Lighting Company
NEAP	National Environment Action Plan
OEL	Occupational Exposure Limit
DMP	Dust Management Plan
ESIA	Environmental & Social Impact Assessment
ESP	Exchangeable Sodium Percentage
SAR	Sodium Adsorption Ratio
CEC	Cation Exchange Capacity

CHAPTER 1: PROJECT BACKGROUND AND CONTEXT

1.1 Introduction

The presence of asbestos poses a long term environmental and human health risk to people, and therefore the need and urgency to dispose of and clean up the various premises and facilities in order to eliminate further environmental risks associated with the asbestos.

It will be much valuable for the National Environment Management Authority to consider issuing out a license for this facility to have asbestos which possesses potential environmental risks and hazards removed from their premises and disposed of completely.

1.2 Asbestos in the ESIA context

Waste containing asbestos in the form of dust or fibers is listed as hazardous according to the fourth and fifth schedules of regulations on waste management, legal notice no. 121 of 2006. As per the Environment Management and Coordination Act, 1999, the National Environment Management Authority (NEMA) has the responsibility of enforcing agency for all types of wastes, including hazardous wastes. According to the General provisions, section 23 of the Waste management Regulations, 'No person shall engage in any activity likely to generate any hazardous waste without a valid Environmental & Social Impact Assessment license issued by Authority under the provisions of the Act'

This ESIA identifies, describes, and evaluates the potential environmental impacts that could result from the implementation of the proposed action. Resource areas most relevant to the proposed action are the focus on analysis. These include "Infrastructure and Utilities'', Potential effects on solid waste management, drainage and transportation. Potential effects on existing environmental and management practices for hazardous materials and wastes will also be assessed.

The proposed project represents little ecological interest, being bare land. Air quality and health and safety issues are, however, considered more significant taking into account the national legislation on the issues. With adequate mitigation measures, environmental protection policies would be largely satisfied. The on-site and off-site impacts are also considered to be significant enough to warrant

investigation. Unauthorized personnel will not be allowed near the work areas. All personnel involved with the asbestos disposal and remediation process will be subjected to medical surveillance as per the Occupational Health and Safety Act, 2007.

The asbestos workers coming in direct contact with asbestos waste will need to shower (using clean water) to remove any asbestos fibers from their PPE – decontamination suits on a daily basis. A fully functional decontamination unit or trailer will be useful .The decontamination unit, placed about 30 meters of the site will consist of three chambers and will have a fully operational hot and cold running water system, adjustable at the shower tap, and a functional water filtration unit that will filter the water waste down to 5 microns prior to being drummed for disposal. Workers should wear a clean outer protective suit as they exit from the work area to the decontamination area.

The site that had asbestos piles will then be cleaned up. Prior to commencement of the disposal and clean-up, the asbestos sheets and the contaminated site shall be sprayed with water to suppress the release of fibers. Stock piled asbestos waste shall be continuously sprayed with a mist of water during the disposal and cleaning process so as to effectively reduce and control the release of the fibers. Damp asbestos will be manually lifted by the use of shovels, forks or by hand and placed into 200 micro-plastic bags (Double bagged and labeled). The cleaning process will involve removing the soil overlain by the asbestos roofing wastes. The areas where any soil has been removed during the cleaning process will be backfilled with clean soil and covered.

1.3 The project proponent

The proponent for this project is known as Tai Lifestyle Limited. The project is based in Wangala village, Taita Taveta County.

1.5 Project objectives

The project objective is to safely remove and dispose of asbestos. This project will also directly benefit the local community because the removal of asbestos material would ensure that in the long-term the community does not come into contact with asbestos residues/dust released into the environment and atmosphere respectively by natural processes of abrasion/erosion.

1.5 ESIA objectives

The objectives of undertaking the Environmental & Social Impact Assessment Study were;

- To identify and assess potential environmental impacts, both direct and indirect occasioned by the implementation of the proposed project. This is based on analysis of baseline conditions of the proposed project site and projecting of the envisaged impacts.
- To propose preventive, mitigate and compensatory measures for the significant negative impacts of the project on the environment
- To generate baseline data for monitoring and evaluation on how well the mitigating measures are being implemented during the project cycle
- To present information on impacts and alternatives of the project
- To present the results of the ESIA that can guide informed decision making process
- To make appropriate recommendations for the legislative compliance for the project
- to seek opinions of the public and the neighbors on the impacts of the project
- Develop for the proposed project an EMP and a Monitoring plan

1.6 Environmental Screening criteria

Environmental screening was conducted to include characteristics of land use, significant resources, critical ecological functions and pollution and emission levels. The social and environmental risk screening procedure was also achieved by the use of a social and environmental risk screening checklist.

1.6.1 Screening Results

- There were no significant land use changes associated with the project
- There was no significant effect on biodiversity
- The area lies on a relatively low lying and gently sloping ground
- Project is not in an ecologically sensitive area

1.7 Scope of the ESIA proposal

It has become increasingly evident that exposure to asbestos, throughout the life cycle of the asbestos products; that is, the mining, milling, manufacturing, processing, use, and disposal of the asbestos product, can significantly increase an individual's risk of contracting diseases, including cancers. Such diseases frequently end in death, and when they do not, activity is reduced as respiratory function is restricted. Initially, the findings on the hazards of asbestos were confined to occupationally exposed individuals, but more recent evidence points to the likelihood that even low exposures of the non-occupationally exposed are potentially hazardous.

In response to such information, the Kenyan Government has taken steps to reduce human exposure to asbestos. Although asbestos use is declining in the country, it is still used in a variety of applications and asbestos dust is still being released into the environment.

The effective method of completely removing these risks is to remove asbestos from the marketplace by eliminating the asbestos products and by eliminating the asbestos fibers used to produce these products, or both. Thus, one advantage of a combined ban and phase-down approach

1.7.1 Geographical scope

This is the geographic area from which a firm can draw location advantages, and the geographic scope of strategy. It is the area over which a firm chooses to complete and locate its activities. The geographical area of the proposed project site location is suitable for the proposed project.

1.7.2 Technical scope

The technical scope of a development or project defines the expected and desired results. The technical scope of the ESIA report is to endeavor to ensure that a comprehensive Environmental & Social Impact Assessment is conducted to enhance the understanding of the key issues and content of the report by the proponent and acceptability by the general public and the authority.

1.8 ESIA assessment method and materials

The following methods and materials were used to conduct the Environmental & Social Impact Assessment study

- Reconnaissance visit to the site
- interviews with site personnel
- public consultations
- Checklist and observation schedules
- photography
- Questionnaires

1.9 ESIA study report format and documentation

The team applied the required standard format of the new comprehensive ESIA project report for projects classified under high risks projects such as projects involving highly toxic chemicals e.g. asbestos among many others. The team documented the content of this report having done an extensive literature review and upon availability of the required documents by Tai Lifestyle Limited including land ownership documents, certificate of incorporation, KRA pin, staff medical examination report, safety and health report, risk assessment report and site utilities.

CHAPTER 2:PROJECT DESCRIPTION

2.2 Current site status and land use

The current status of the project site is just in habituated by any human development. It has several shrubs and a few rodents, birds and lizard. The area has no human settlement nearby.

2.3 Project neighborhood and the resident community

The project site has neighboring sites, on its north is the Mombasa Nairobi highway, on its south is the Mzima Springs water pipeline, on the east is Pesa tughunya and the west is greado mwakio.

2. 4 Method of Disposal

The project proponent intends to undertake off-site disposal of the asbestos sheets from other facilities disposing asbestos to the proposed site. This shall be accomplished through the certified personnel from Tai lifestyle in handling the asbestos and disposing it off on the site after acquiring a license from NEMA.

As a requirement, prior to contracting the waste handlers, the proponent shall obtain valid NEMA licenses from the waste handlers for the handling, transportation and disposal of the asbestos sheets. The activity shall be undertaken in compliance to the National Guidelines on Safe Management and Disposal of Asbestos in addition to the Environmental Management and Coordination (Waste Management) Regulations, 2006.

CHAPTER 3: BASELINE INFORMATION FOR THE PROPOSED PROJECT SITE

3.1 Introduction

The project area is situated in Wangala Village, Masenyi sub location, Masungu Location, Nyamgala division in Voi Sub County, Taita Taveta County. The site is located along the Mombasa Nairobi highway.

3.2 Socioeconomic settings

The local community indulges in businesses such as small scale trade businesses, livestock keeping and crop farming. Subsistence farming fairly dominates as the main source of livelihood while formal employment supports a fair percentage of the population.

3.2 Demographic characteristics

Taita Taveta by 2019 had a standing population of male being 56,115 and 55,711 being females. The population density in the rural area is at 3 persons distribution while in the urban area at 800 persons. This is influenced by the cultural heritage, rainfall and terrain. Taita Taveta is divided into two subgroups, the Saghalla and the Wakasighau. The Wakasighau lived around the Kasighau maasif of the Taita Hills while the Saghalla that are much closer to the mijikenda in how they speak.

3.3 Poverty levels

The poverty levels are reduced due to the presence of the Salt manufacturing industry among them. Tai Lifestyle Limited that has offered hundreds of job opportunities to the locals. Tai Lifestyle Limited Company currently has employed 109 staff all on permanent contract.

The poverty levels have also been fairly significantly reduced by the business opportunities for small scale traders at Gongoni market.

3.4 Cultural heritage

Coastal towns are well known for the existence of historical sites. However the project site and its immediate environs have no historical/cultural site hence possess no risk to cultural heritage.

3.5 Environmental quality

This is a measure of the condition of an environment relative to the requirements of one or more species, any human need or purpose. The environmental quality is generally standard based on conditions such as good air circulation and air freshness. There is no evidence of smoke pollution emission disturbance from the factory among other indicators of environmental quality.

3.5.1 Solid waste management

The factory does not produce any significant solid waste material because most waste products are in sludge form which still undergoes separation and purification processes.

3.5.2 Sewage disposal

The sewage produced is separated in four different chambers beginning from the first chamber to the last chamber. This means that by the time waste water goes through the last separation/purification chamber it is filtered and reused in some processes in the factory.

3.5.3 Water Quality

Generally the underground water quality is saline due to the salty nature of the soils around the area and as is the characteristics of soils in the whole coastal region.

3.6 Biophysical profile

The biophysical profile in this context refers to both flora and fauna found in an area. The project area exhibits very minimal vegetation cover and no major animals can be evident.

3.6.1 Fauna

There was no evidence of major fauna found on the project site. However some small animals like rodents, lizards and birds were seldom spotted.

3.6.2 Vegetation and biodiversity

There is very little natural vegetation found on the site which have adapted to the hot and dry climatic conditions.

3.7 Climatic conditions

The climate of the area just like in the other coastal stretch experiences bi-modal rainfall. Long rains occur in March-June whereas short rains occur in November-December. Generally a tropical and monsoon climate characterizes the Kenyan coastline with temperatures high throughout the year. Maximum and minimum temperatures range between 26.5-34 and 22.5-24.5 degrees Centigrade respectively.

3.8 Natural Resources

3.8.1 Underground/surface water

The site borders the Indian Ocean on its eastern side. The community around depends on both underground water and pipe water supply by TAVIVO. The underground water supply comes from the earth dams and water pans as well. There are in addition, a few boreholes in the neighborhood of the community.

Some water vendors purchase water for sale to the locals from the water buzzers which they store in their tanks for resale. However a few individuals have acquired and installed their own water tanks for harvesting the rainwater during the rainy seasons hence creating more water harvesting opportunities for themselves.

3.8.2 Energy

The main sources of energy supply is electricity and solar power

3.9 A brief about asbestos

Asbestos is a term used to refer to six naturally occurring silicate minerals. All the mineral compositions of asbestos are long, thin and fibrous crystals. Each fibrous crystal is composed of many microscopic ‘fibrils’ that can be released into the atmosphere through abrasion and other processes.

Asbestos as a naturally occurring element consists of soft and flexible fibers that are resistant to heat, electricity and corrosion. These qualities make the mineral very useful but they also make asbestos exposure highly toxic. Asbestos is an effective insulator and can be used in cloth, paper, and cement, plastic and other materials to make them stronger. However when asbestos dust is inhaled or ingested, mineral fibers can become permanently trapped in the body. Over decades, trapped asbestos fibers can cause inflammation, scarring and eventually genetic damage.

History of Asbestos

Although the use of Asbestos dates back to prehistoric times, the mineral came into popularity during the industrial age. The U.S began regulating asbestos in the 1970s but it is yet to ban the mineral.

The fire-proofing properties of asbestos made it essential to many industries such as automobile, construction, manufacturing, power and chemical industries. The U.S armed forces also used asbestos to prevent fires in every branch of the military. The primary intention of using asbestos was to protect workers, but many asbestos product manufacturers knew early on that working with the mineral caused harmful health effects.

Despite all the efforts to use asbestos safely, it remains a danger to human health, causing crippling diseases such as asbestosis, mesothelioma and lung cancer.

Types of asbestos

The Asbestos Hazard Emergency response Act of 1986 legally recognizes six types of asbestos that fall into two categories

1. Amphibole
2. Serpentine

Amphibole Asbestos

Amphibole asbestos fibers have a straight, jagged shape. There are five recognized types

- Crocidolite
- Amosite
- Anthophyllite

- Tremolite
- Actinolite

Serpentine Asbestos

Serpentine asbestos fibers are curly. There is only one kind: Chrysotile, which is also known as white asbestos

Asbestos in common products

Several factors contributed to a rise in the production and consumption of asbestos products especially in the United States. A brisk rise in the domestic construction industry increased demand for a growing number of asbestos products.

As cars became a common element in the American landscape, so did new more durable roads. Some of the roads built in the U.S between the 1930s and 1950s contained asbestos laced asphalt.

Other products that contained asbestos

- Asbestos cement
- Asbestos insulation for electric wiring
- Asbestos roofing and flooring compounds
- Thermal insulation for homes and offices
- Automotive and airplane clutches
- Asbestos millboard and paper for electrical panels
- Heat and acid-resistant gaskets and packing materials
- Fillers and reinforcement for plasters, caulking compounds and paints
- Spray-on, fire retardant coating for steel girders in buildings
- Car, truck and airplane brake pads and linings, seals and gaskets

Asbestos Exposure and Effects

The human health effects from long-term unsafe asbestos exposure are well documented. Asbestos fibers are easily inhaled and carried into the lower regions of the lung where they can cause fibrotic lung disease (asbestosis) and changes in the lining of the chest cavity (pleura). These diseases can lead

to reduced respiratory function and death. Long-term inhalation of asbestos fibers also increases the risk of lung cancer and mesothelioma.

Enlargement of the heart can also occur as an indirect effect from the increased resistance of blood flow through the lungs.

People are more likely to experience asbestos-related disorders if they:

- Are exposed to high concentrations of asbestos
- Are exposed for longer periods of time, and/or
- Are exposed to asbestos more frequently.

a) Pleural Effects

Inhalation of asbestos fibers can also lead to four types of non-cancerous abnormalities in the lining of the chest cavity (pleura). These are:

- Localized deposits of collagen (pleural plaques);

- Fluid in the pleural space (pleural effusion);

- Diffuse thickening and fibrosis of the pleura; and

- Folded lung or rounded atelectasis (a condition which occurs when an area of pleural fibrosis rolls into the lung making a portion of the lung airless).

These pleural abnormalities are found in 10-60% of asbestos workers. Pleural abnormalities are also common in family members of asbestos workers, presumably from exposure to asbestos carried home on work clothes. In many cases, the development of pleural plaques is not seen for 20 to 30 years after exposure. Pleural effusions (excess fluid between the two membranes that envelop the lungs) usually occur within 10 years after exposure.

(b) Laryngeal Effects

Asbestos exposure has also been found to significantly increase the incidence of laryngitis in a small number of studies.

(c) Immune System Effects

There have been several studies on the effects of asbestos exposure on the immune system. Most studies indicate that immune system function is reduced in workers with asbestosis. It has not been determined if the changes in immune function are the cause or the result of the asbestosis. In workers exposed to asbestos but who have not developed clinical signs of asbestosis, a depressed immune function is mild or no change has been noted.

Asbestos exposure may be a causal factor in the development of a rare condition known as retroperitoneal fibrosis. This condition is the development of a fibrous mass behind the membrane lining the abdominal cavity, which can result in kidney failure. There is a case control study and there are a number of case reports which indicate that asbestos exposure may be an important risk factor for retroperitoneal fibrosis.

Generally more scientific study has shown that exposure to asbestos is linked to several diseases including cancers. Mesothelioma is a type of cancer exclusively caused by asbestos exposure. The mineral also causes asbestos-related lung cancer, ovarian cancer and laryngeal cancer.

The following are also diseases characterized by exposure effects of asbestos.

- Asbestosis
- Pleural effusions
- pleural plaques
- Pleuritis
- Diffuse pleural thickening

d) Occupations that could be at risk

According to the U.S. Agency for Toxic Substances and Disease Registry (ATSDR) and the U.S. Occupational Safety and Health Administration (OSHA), asbestos exposure is a concern for the following workplaces and processes:

- Mining of asbestos occurring from natural mineral deposits
- Processing of asbestos minerals (millers)
- Manufacture of asbestos-containing products
- Construction industry - disturbing asbestos-containing materials during building renovations or demolitions
- Mechanics - vehicle brake and clutch repairs
- Marinas - renovating or demolishing ships constructed with asbestos-containing materials
- Insulation workers and heating trades
- Sheet metal workers, plumbers and pipefitters
- Workers responsible for disposing of asbestos waste, and waste workers
- Cement workers
- Custodial workers - contact with deteriorating asbestos-containing materials in buildings

Methodology and General Disposal procedures

The assessment was conducted by use of the following methods:-

- Literature review, public and government sources
- Site reconnaissance
- Interviews with site personnel
- Use of an observation schedule
- Use of a checklist

Requirements when disposing of asbestos

Asbestos must be removed from the site to an approved site as soon as practicably possible. Before removal, the asbestos waste must be placed in a sealed container and marked clearly to indicate the

presence of asbestos. A licensed asbestos handler must prepare an asbestos removal control plan for any licensed asbestos removal work to be undertaken. The removal control plan must include details of the means of transport and disposal of asbestos waste. An asbestos removal control plan should describe:

- how the waste is contained (on and off site)
- the quantity (amount and dimensions) of waste
- where the waste will be stored on site before disposal
- how the waste will be transported (on and off site)
- approvals from the county governments
- where the waste will be transported to
- Verification of correct disposals
- The asbestos removal plan must be kept on site.

Asbestos waste storage on site prior to removal

Before being removed from site, asbestos waste must be stored in closed containers that are impermeable to asbestos dust, such as 200-micron thick plastic bags, or 200-micron thick polythene sheet

Asbestos waste should:

- Be double-bagged in case of one bag rupturing
- Be in bags no bigger than 1200 mm x 900 mm
- Not be more than half-filled
- Have excess air in the bag carefully removed before sealing so there is no release of asbestos dust
- All stored asbestos waste must be clearly marked to indicate the presence of asbestos.

General steps for safely removing asbestos waste

1. Thoroughly wet down the material before you start by gently spraying the roof tops with water. Continue to do this regularly during the removal process. You can use water, water mixed with detergent, or water mixed with a PVA solution of one part PVA to ten parts water
2. Make sure all electrical hazards have been removed from the area first and all sockets are switched off
3. If sheets are bolted in place, dampen them and cut the bolts while avoiding contact with the ACM
4. Remove the bolts or fixings carefully and place them in the asbestos waste container
5. Unbolt/use bolt cutters to release gutters, drain pipes, ridge caps etc whilst in contact with ACM
6. Carefully lower any large pieces of ACM to the ground-do not drop or put in rubble chutes
7. Stack fibro asbestos-cement sheets carefully
8. Avoid crushing ACM debris on the ground
9. Double-wrap large pieces of ACM in plastic sheeting (minimum 200 micron thick) and seal all openings securely with duct tape
10. Ensure all wrapped or bagged asbestos- waste is appropriately labeled

When the asbestos removal work has been completed, a final inspection of the site should be undertaken to make sure that it has been cleaned properly and there are no visible signs of asbestos dust or residues. Areas that should be inspected include;

- The removal work area
- The areas surrounding the removal work area
- The route from the removal work area to the asbestos-waste storage area, bin or skip container

3.11 Available Utilities

Communication is achieved by public baraza, mobile phones and radio which are available. The area is served by a good road network.

3.12 Project Justification

Asbestos waste is defined as Hazardous Waste. The exposure to asbestos fibers presents a health risk to people. Many studies have described a link between occupational exposure to various types of asbestos and lung cancer and associated diseases. Asbestos has therefore been designated as a known human carcinogen and hazardous substance. The carcinogenic activity is directly linked to the air pathway and ingestion of the fibers when swallowed.

The presence of asbestos within any premises poses a long term environmental and human health risk to people who operate on the/within that site. This project therefore intends to provide a permanent solution to the problem as Tai Lifestyle Limited Company intends to remove the asbestos and safely dispose of them in a legal site. Thus elimination of the asbestos in the human environment will reduce the risks associated with the asbestos to the workers in environment and the surrounding community.

CHAPTER 4: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 Introduction

Environmental & Social Impact Assessment is an instrument for environmental management and development control. It is now accepted that development projects must be economically viable, socially acceptable and environmentally sound. It is a condition of the Kenya Government for developers to conduct Environmental & Social Impact Assessment (ESIA) on the development Projects. According to Sections 58 and 138 of the Environmental Management and Coordination Act (EMCA) No. 8 of 1999 and Section 3 of the Environmental (Impact Assessment and Audit) Regulations, 2003 (Legal Notice No.101), construction of buildings require an Environmental & Social Impact Assessment project report prepared and submitted to the National Environment Management Authority (NEMA) for review and eventual licensing before the development commences. This was necessary as many forms of developmental activities cause damage to the environment and hence the greatest challenge today is to maintain sustainable development without interfering with the environment. For the proposed commercial development, the key legislative and regulatory requirements relate to proper management of the environment as well as health and safety aspects.

4.2 Policy Framework.

Environmental policies cut across all sectors and government departments. As such policy formulation should be consultative steered by interdisciplinary committees. Recent policies which the government is working on include; Draft Wildlife Policy; Draft National Land Policy; and Wetlands Management and Conservation Policy among others.

4.2.1 National Environmental Action Plan (NEAP).

National Environmental Action Plan was a deliberate policy effort to integrate environmental concerns into the country's development initiatives/plans. This assumed a consultative and multi-

sect oral approach. Such an approach ensured that environmental management and the conservation becomes integral in various decision making platforms.

As a result of its adoption and implementation, establishment of appropriate policies and legal guidelines as well as harmonization of the existing ones have been accomplished and/or are in the process of development. Under the NEAP process, Environmental Impact Assessments were introduced targeting the industrialists, business community and local authorities.

4.2.2 National Policy on Water Resources Management and Development

While the National Policy on Water Resources Management and Development (1999) enhances a systematic development of water facilities in all sectors for promotion of the country's socio-economic progress, it also recognizes the by-products of this process as wastewater. It, therefore, calls for development of appropriate sanitation systems to protect people's health and water resources from institutional pollution. This implies that Industrial and business development activities should be accompanied by corresponding waste management systems to handle the waste water and other waste emanating there from. The same policy also requires that such projects undergo comprehensive ESIAs that will provide suitable measures to be taken to ensure environmental resources and people's health in the immediate neighborhood and further downstream are not negatively impacted by the emissions. As a follow-up to this, EMCA, 1999 requires annual environmental audits to be conducted in order to ensure that mitigation measures and other improvements identified during ESIAs are implemented.

In addition, the policy provides for charging levies on waste water on the basis of quantity and quality. The "polluter-pays-principle" applies in which case parties contaminating water are required to meet the appropriate cost of remediation. Consequently, to ensure water quality, the policy provides for establishment of standards to protect water bodies receiving wastewater, a process that is ongoing. The standards and measures to prevent pollution to water resources are provided for in the Environmental Management and Coordination (Water Quality) Regulations, 2006 which is a supplementary legislation to EMCA, 1999.

4.2.3 Policy Paper on Environment and Development (Sessional Paper No. 6 of 1999):

The key objectives of the Policy include: -

(i) To ensure that from the onset, all development policies, programs and projects take environmental considerations into account,

(ii) To ensure that an independent Environmental & Social Impact Assessment (ESIA) report is prepared for any industrial venture or other development before implementation,

(iii) To come up with effluent treatment standards that will conform to acceptable health guidelines.

Under this paper, broad categories of development issues have been covered that require a "sustainable development" approach. These issues relate to waste management and human settlement. The policy recommends the need for enhanced re-use/recycling of residues including wastewater, use of low or non-waste technologies, increased public awareness raising and appreciation of a clean environment. It also encourages participation of stakeholders in the management of wastes within their localities. Regarding human settlement, the paper encourages better planning in both rural and urban areas and provision of basic needs such as water, drainage and waste disposal facilities among others.

4.3 Legal and legislative framework

The following legislative provisions and regulations are considered key to management of the environmental, health and safety aspects related to the proposed development.

4.3.1 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. Further any action by an individual or a State organ that contravenes the Constitution is null and void.

Chapter V of the Constitution deals with Land and Environment. Specifically Part 2 elaborates on the following components regarding the protection of the environment.

1. Obligations in respect of the environment
2. Enforcement of environmental rights
3. Agreements relating to natural resources
4. Legislations relating to the environment

Relevance to the proposed project

Ø *The proponent has a right to carry out the project within legal limits*

Ø *The proponent must ensure that the development is carried out in an ecologically, economically and socially sustainable manner*

Ø *The proponent is entitled to a fair administrative decision making process from NEMA and other state organs.*

Ø *The proponent must ensure that all the applicable provisions of the Constitution are observed at all times.*

4.3.2 The Environmental Management and Co-ordination Act, 1999

This project report has been undertaken in accordance with the Environment (Impact Assessment and Audit) Regulations, 2003, which operationalizes the Environmental Management and Coordination Act, 1999. The report is prepared in conformity with the requirements stipulated in the Environmental Management and Coordination Act No. 8 of 1999 (EMCA) and the Environmental & Social Impact Assessment and audit Regulations 2003, Regulation 7 (1) and the Second Schedule.

Part II of the said act states that every person is entitled to a clean and healthy environment and has the duty to safeguard the same. In order to achieve the goal of a clean environment for all, new projects listed under the second schedule of Section 58 of EMCA No. 8 of 1999 shall undergo an Environmental Impact Assessment. This includes development activities such as this renovation housing development.

In addition to the legal compliance above, the following legal aspects have also been taken into consideration or will be taken into consideration before commencement of the renovation works.

4.3.3 EMCA Regulations

4.3.3.1 ESIA/EA Regulations (Legal Notice No. 101 of 2003)

The ESIA/EA Regulations are meant to ensure the implementation of Sec. 58 of EMCA. It makes it illegal for anyone to undertake developments without an ESIA 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

Relevance to the proposal

- Ø Acquisition of ESIA license to commence renovations and any other project development. The operations of the project are similarly licensed since the ESIA report contains an Environmental Management Plan which forms the basis for approval of the project by NEMA and imposition of conditions to safeguard the environment. Due to its transparent nature, the ESIA process builds neighborhood support and sustainability into the project.

4.3.3.2 Environmental Management and Coordination Act, 1999 section 91 (1-7)

The EMCA, 1999 requires the Authority to categorize hazardous wastes on the recommendation of Standards Enforcement and Review Committee (SERC) and to issue guidelines and regulations for the management of each category of hazardous wastes. The categorization has been done under the EMCA (Waste Management) Regulations, 2006, as well as the guidelines that provide for safe management of asbestos and its wastes.

4.3.3.3 Environmental Management and Coordination (Waste Management) Regulations, 2006.

Asbestos has been classified as hazardous waste under the Waste Management Regulations, 2006

1) Every person who generates toxic or hazardous waste shall treat or cause to be treated such hazardous waste using the classes of incinerators prescribed in the third Schedule to these regulations or any other appropriate technology approved by the Authority.

2) Any leachate or other by-products of such treated waste shall be disposed of or treated in accordance with the conditions laid down in the license or in accordance with guidelines issued by the Authority in consultation with the relevant lead agency.

3) In issuing a license for the disposal of waste, the Authority shall clearly indicate the disposal operation permitted and identified for the particular waste

Relevance to the proposal

- *The proponent shall only begin once a license to operate a waste disposal site has been issued.*

4.3.3.4 Water Quality Regulations (Legal Notice No. 120 of 2006)

Water quality regulations were gazette as a legislative supplement mainly to address the challenges of pollution of water sources and conservation. The regulation provides guides for water use and conservation as well as effluent standards for discharge.

Relevance to the proposed project

- *The asbestos to be disposed of in underground concrete confinement at a depth of 9.5m below the ground level.*
- *Since the asbestos remains will be disposed onto the ground then a hydro geophysical survey shall be done to ensure there is no underground contamination of water.*
- *Monitoring activities will follow the guide values provided in the asbestos guidelines*

4.3.3.5 Waste Management Regulations (Legal Notice No.121 of 2006)

In pursuit of the provisions of EMCA 1999, the Minister for Environment in 2006 gazette the waste management regulations focusing on management of solid, industrial and hazardous wastes, pesticides, toxic and radioactive substances. The regulations are aimed at addressing the following concerns;

- Ø Licensing of waste disposal sites and transport,
- Ø Reduction of waste through adoption of cleaner methods of production,
- Ø Responsibilities for waste generators and obligations for disposal,
- Ø Proper transportation and disposal of wastes,
- Ø Management of waste disposal sites,
- Ø Waste treatment requirements,
- Ø Application of existing regulations in relation to waste management,
- Ø Licensing of waste handlers and disposal sites, and
- Ø Licensing fees and procedures for waste handlers and pollution penalties

Relevance to the proposed project

- Ø *Ensure there exists proper contractual agreement with licensed solid waste handlers*
- Ø *Ensure hazardous wastes are disposed of in the manner prescribed.*
- Ø *The proponent to ensure that all asbestos waste is to be transported in a licensed truck only.*

4.3.3.6 Noise Regulations (Legal Notice No. 61 of 2009)

These Regulations were gazetted to manage noise pollution to levels that do not cause a disturbance/nuisance to the public. The proposed construction activities will however have a potential for the production of noise above the acceptable limits. Generally, construction sites generate noise that is above 85 dB (A).

Relevance to the proposed project

Ø Ensure compliance with the set noise level limits for the site especially during construction and occupational phases.

Ø 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).

4.3.4 The Water Act No. of 2012

The Water Bill was gazetted in 2016 as the Water Act, and went into effect in 2017 when effective implementation of its provisions commenced. In furtherance to the Water Act 2016, the Ministry of Water and Irrigation and Water resources Management Authority (WRMA) in collaboration with other stakeholders has prepared a set of Regulations which have now been gazetted to give guidelines on water permit acquisition and adherence to conditions attached and also enforcement of the user fee charges.

Relevance to the proposed project

Ø The proponent should ensure that water usage in all phases of the project cycle is in line with the provisions of this Act and 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 site do not generate any leachate that may cause water pollution

4.3.5 Electricity Power Act No. 11 of 1997

The Electric Power Act No. *11* enacted in 1997 deals with generation, transmission, distribution, supply and use of electrical energy as well as the legal basis for establishing the systems associated with these purposes.

Relevance to the proposed project:

Ø Electricity power installation and usage should be done in a manner that seeks to protect the health and safety of the project employees; the local and other potentially affected communities as well as the environment.

Ø Electrical installation to service the facility should be done by a licensed electrician under ERC.

Ø Liaison with relevant agencies such as KPLC should be sought where necessary.

Ø Proponent should adhere to provisions of this Act in all phases of the project.

4.3.6 Occupational Health and Safety Act No. 15 of 2007

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 Act imposes various obligations on both employers and employees.

Strict provisions are made in respect of equipment containing self acting machines, hoists and lifts and the requirement for supervision and training of inexperienced workers. Further an abstract of the premise safety and health policy should be exhibited at a conspicuous location within the property.

Relevance to the proposed project

Ø Strict provisions will be made for the requirement of supervision and training of inexperienced workers during commissioning period

Ø It also involves the prevention of accidents at the workplace and provision of personal protective equipment (PPE) to all workers and ensuring their use.

4.3.7 The Occupational Safety and Health Act, No. 15 of 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. Though not explicitly provided, the act and the rules made there under have various sections on hazardous waste materials which apply to asbestos. The OSHA 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 without his/her consent. It also states that any person supplying, distributing, conveying or holding in chemicals or other toxic substances shall ensure that they are packaged, conveyed, handled and distributed in a safe manner so as not to cause any ill effect to any person or the immediate environment.

4.3.8 Public Health Act Cap 242 Sections 11-13

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.

The Public Health Act Sec 126 A, empowers county government to make laws for all or any of the following matters with regards to buildings for controlling the construction of buildings and the

materials to be used in the construction of buildings; Preventing the occupation of a new or altered building until a certificate of the fitness thereof for occupation or habitation has been issued by such local authority. The Act compels owners to repair, in order to demolish unsafe, dangerous or dilapidated buildings.

Relevance to the proposed project

Ø *Applicable during the entire project cycle in ensuring proper and hygienic methods are used*

Ø *Maintain the completed building according to standards*

Ø *Ensure access to safe drinking water*

Ø *Put measures to prevent activities that would be a nuisance to the public.*

4.3.9 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

Ø *Ensure safety of workers during construction and possible decommissioning phases and residents upon occupation phase of the development.*

4.3.10 the Factories (Building, Operations and Work of Engineering Construction) Rules, Legal Notice No. 40 of 1984

The Factories (Building, Operations and Work of Engineering Construction) Rules, Legal Notice No 40 of 1984, rules 20 and 21 prohibit any inhalation of dust and fumes. In any building operation or work of engineering construction where dust or fumes likely to be injurious to the health of persons employed are given off, all reasonably practicable measures shall be taken to prevent the

inhalation of dust or fumes by the person employed by ensuring adequate ventilation or providing suitable respirators at the place where the operation or work is carried on.

4.3.11 The Physical Planning Act, Cap. 286

The local authorities are mandated under section 29 of the Act to reserve and maintain all land planned for open spaces, parks, urban forests and green belts. The same section therefore allows for the prohibition or control of the use and development of land and buildings in the interests of proper and orderly forms of development in the area.

Section 36 of the Act allows local authorities to order for the project to comply with NEMA regulations i.e. ESIA reports if the authority deems that the project has injurious impacts on the environment.

EMCA, 1999 stipulates the procedures for conducting the ESIA process and recommends annual audits to monitor progress of implementation and environmental performance. In general, this Act provides for the preparation and implementation of physical development plans. They formulate national, regional and local development policies, guidelines and strategies. The director also advises the Commissioner of Lands on appropriate uses of land and land management. The Act directly prohibits or controls the use and development of land and buildings in accordance to the projected development plans of the area.

Relevance to the proposed project

- Ø Applicable during the entire project cycle. The proponent will obtain development approvals and requisite operational licenses from the County Government of Mombasa.

4.3.12 the Taita Taveta County Environment Act (Control and Regulations) of 2016

The Act which was enacted to give effects to various provisions of the constitution of Kenya 2010, has sections dealing with Air pollution, Noise pollution and Public nuisance. It prohibits acts or omissions that are likely to cause air pollution, noise pollution and public nuisance.

Relevance to this project

Ø *The proponent shall ensure that all activities on the site does not cause air pollution considering that asbestos dust are potential air that not only harmful to environment, but also public health*

4.4 Institutional Framework

At present, there are over twenty (20) institutions and departments which deal with environmental issues in Kenya. Some of the key institutions include the National Environmental Council (NEC), National Environmental Management Authority (NEMA), the Forestry Department, Kenya Wildlife Services (KWS) and others. There are also local and international NGOs involved in environmental activities that impact on the environment in one way or the other in the country.

4.4.1 National Environmental Management Authority (NEMA).

The object and purpose for which NEMA is established is to exercise general supervision and coordination 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. A Director General appointed by the president heads NEMA. The Authority shall, among others:

Ø Co-ordinate the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plans, programmes and projects with a view to ensuring the proper management and rational utilization of the natural resources environment on a sustainable yield basis for the improvement of the quality of human life in Kenya.

Ø Take stock of the natural resources in Kenya and their utilization and consultation, with the relevant lead agencies, and develop land use guidelines.

Ø Examine land use patterns to determine their impact on the quality and quantity of the natural resources among others. Moreover, NEMA mandate is designated to the following committees

4.4.2 Public Complaints Committee.

The Committee is charged with the following functions:

Investigating allegations/ complaints against any person or against the Authority (NEMA) in relation to the condition of the environment and its management, Prepare and submit to the Council periodic reports of its activities which shall form part of the annual report on the state of the environment, and to perform such other functions and excise such powers as may be assigned to it by the Council.

4.4.3 National Environment Action Plan Committee.

This Committee is responsible for the development of a 5-year Environment Action plan among other things. The National Environment Action Plan shall contain an analysis of the Natural Resources of Kenya with an indication as to any pattern of change in their distribution and quantity over time, and Analytical profile of the various uses and value of the natural resources incorporating considerations of intergenerational and intra-generational equity among other duties as the EMCA specifies.

4.4.4 Standards and Enforcement Review Committee.

This is a technical Committee responsible for environmental standards formulation methods of analysis, inspection, monitoring and technical advice on necessary mitigation measures. Standards and Enforcement Review Committee consists of the members set out in the third schedule to the Environmental Management and Co-ordination Act.

4.4.5 National Environmental Tribunal.

This tribunal guides the handling of causes related to environmental offences in the Republic of Kenya. The Tribunal hears appeals against the decisions of the Authority. Any person who feels aggrieved may challenge the tribunal in the High Court.

4.4.6 County Government.

The county government is charged with the responsibility of providing guidance, supervisory and monitoring services of county functions in matters of infrastructure development and service delivery including solid waste management

4.4.7 Directorate of Occupational Safety and Health Services

The department is mandated to implement all rules pertaining to the protection and prevention of workers from occupational hazards and ensure a safe working environment. The Directorate implements the OSHA, 2007 and various rules made there under.

CHAPTER5: PUBLIC CONSULTATIVE PROCESS AND RESULTS

5.1 COMMUNITY AND STAKEHOLDER PARTICIPATION

During the ESIA process, members of the affected community were approached for their views on the proposed project. The meeting was also meant to enlighten them on asbestos roofing sheets and its dangers and measures the government has put in place to ensure safe handling and disposal of the hazardous material. Those in attendance welcomed the project.

Some of the issues raised and comments made by those present included:-

a) Tai Lifestyle Limited has provided a source of livelihood to many families in the local community

c) The community would like Tai Lifestyle to donate to them water tanks to provide them with opportunities on more water harvesting systems

d) That the local community would also apparently benefit from solar donations from the factory

e) That many families have lived under asbestos roofs for more than 30 years and therefore they are worried that they might have already contracted asbestos related diseases/effects

f) That the removal of asbestos if possible should be extended to the local community

CHAPTER 6: IMPACT IDENTIFICATION ANALYSIS AND RESULTS

In line with the ESIA Regulations, the following methodology was used in assessing impacts related to the proposed asbestos removal, handling and disposal. All impacts are assessed according to the following criteria:

The nature, a description of what causes the effect, what will be affected and how it will be affected.The extent, wherein it is indicated whether the impact will be local (limited to the immediate area or site of activity), regional, national or international. A score of between1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high).

The duration, wherein it is indicated whether:

The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score1

The lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2; Medium-term (5–15 years) – assigned a score of 3;

Long term (> 15 years) - assigned a score of 4; or; Permanent - assigned a score of 5.

The magnitude, quantified on a scale from 0-10, where a score is assigned:

0 Is small and will have no effect on the environment;

1-2 is minor and will not result in an impact on processes;

3-5 is low and will cause a slight impact on processes;

6 Is moderate and will result in processes continuing but in a modified way;

8 Is high (processes are altered to the extent that they temporarily cease); and

10 Is very high and results in complete destruction of patterns and permanent cessation of processes.

The probability of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:

Assigned a score of 1–5, where 1 is very improbable (probably will not happen);

Assigned a score of 2 is improbable (some possibility, but low likelihood);

Assigned a score of 3 is probable (distinct possibility);

Assigned a score of 4 is highly probable (most likely); and

Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).

The significance, which is determined through a synthesis of the characteristics described

Above (refer formula below) and can be assessed as low, medium or high.

The status, which is described as positive, negative or neutral.

The degree to which the impact can be reversed.

The degree to which the impact may cause irreplaceable loss of resources.

The degree to which the impact can be mitigated.

The significance is determined by combining the criteria in the following formula:

S= (E+D+M) P; where

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The significance weightings for each potential impact are as follows:

» 30 points: Low (i.e. where this impact would not have a direct influence on the decision to

Carry out the project in the area),

» 30-60 points: Medium (i.e. where the impact could influence the decision to carry out the

Project in the area unless it is effectively mitigated),

» 60 points: High (i.e. where the impact must have an influence on the decision process to carry out the project in the area),

Impacts that may result from the planning, design, construction, operational, decommissioning, and closure phases as well as proposed management of identified impacts and proposed mitigation measures

This environmental assessment has considered the impact of the asbestos removal, handling and disposal all the way from the source at demolition throughout transportation to disposal. It is not a retrospective impact assessment of what asbestos contamination has occurred on the site.

A summary of the impact (baseline conditions) that may continue to occur at the premises and its environs should the asbestos removal, handling, disposal and finally clean-up not take place properly is provided below.

Nature: Negative effects of airborne asbestos fibers on human health premises that has asbestos

Employees who access the areas containing asbestos fibers prior to implementation of mitigation measures will experience the following measurements/levels of impacts.

Extent Local (1)

Duration Permanent (5)

Magnitude High (8)

Probability Improbable (2)

Significance Low (28)

Status (positive or negative) Negative

Reversibility Not reversible

Irreplaceable loss of resources? Yes (may result in illness and mortality of people)

Can impacts be mitigated? Yes

Mitigation:

All facilities with the asbestos to undertake the asbestos removal and safely dispose of them in a licensed site. Cumulative health impacts may result on the premises to employees and people who operate at the premises if asbestos is not removed

Nature: Direct impact on human health during the removal, handling and disposal due to The release of airborne asbestos fibers

Without mitigation	**with mitigation**
Extent local (1)	local (1)
Duration permanent (5)	Short – duration (2)
Magnitude moderate (8)	Moderate (6)
Probability definite (5)	Improbable (2)
Significance high (70)	low (18)
Status (positive or negative)	negative
Reversibility Not reversible	Non reversible
Irreplaceable loss of resources?	No
Yes (may result is illness and death)	No

Mitigation:

1. All employees will wear protective clothing during the exercise. Each asbestos Worker will be provided and equipped with:

- An approved unused disposable overall
- Clean gum boots
- Clean PVC gloves

2. The proponent to demarcate the areas of removal of asbestos, a respirator zone as well as asbestos contaminated soils. A respirator zone is an area where the concentration of regulated asbestos fibers in the air is, or is likely to be greater than the OEL for asbestos. No persons

should be allowed to enter the area without wearing respiratory protective equipment and protective clothing. Respirator zones must be clearly demarcated and identified to prevent accidental and chance, albeit brief, entry. Even if a person passes through the area or there is little work being conducted in that area, a respirator must be worn.

3 Ground markings are examples of demarcations where the area is not defined by walls. In addition, all access routes should be demarcated and identified by symbolic warning signs that are clearly visible.

4. All personnel involved with the asbestos disposal procedures will be subjected to medical surveillance.
5. Asbestos contaminated areas shall be sprayed with water for cleaning activities in order to suppress the release of fibers.
6. Temporary storage of waste: the area currently used for stockpiling of material shall be lined with impermeable material.
7. The employer must not allow anybody to work in or to enter an environment in which they may be exposed to asbestos that will exceed the exposure limit for asbestos.
8. When there is a visible dust or winds in excess of 20 knots, any asbestos removal, and handling and disposal process will be stopped.
9. Thorough, complete and up to date records should be kept of:

During Transportation

I. Ensure all asbestos is collected and loaded into a transportation vehicle licensed by NEMA

II. The transporting vessel (truck will be lined with polythene).

III. The transporting vessel shall be labeled HAZARDOUS WASTE

IV. The waste shall be transported to the disposal site in an enclosed vehicle.

CHAPTER 7: ANALYSIS OF PROJECT ALTERNATIVES

7.1 Introduction

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

7.2 Relocation Option

Relocation option to a different site is an option available for the project implementation. At present the proponent does not have an alternative site. This means that he has to look for another suitable site. Looking for the land to accommodate the disposal of the asbestos and completing the transfer of land ownership or lease agreement may take a long period although there is no guarantee that the land would be available. Assuming that the land is available the cost of starting community mobilization, survey/design and conducting ESIA may cost an additional substantial amount of money that is not available. The proponent would also have to spend another one month to redo the process according to site conditions and whatever has been done and paid to date will be counted as a loss to Tai Lifestyle Investment Company. This is a delay that our economy cannot afford. This would also lead to a situation like No Project Alternative. The other consequence of this is that it would be a discouragement to the Ministry, County and the benefiting community.

7.3 Proposed Excavation/Construction alternative

Under the proposed construction alternative, the Proponent would be issued with an ESIA license. In issuing the license, NEMA would approve the Proponent's proposed handling and disposal of asbestos incidental thereto and connected therewith provided all environmental measures are complied with during the planning, design, excavation/ construction, operation and decommissioning phases. Due to NEMA approval, excavation/construction and operation of the proposed handling and disposal of asbestos, the positive and negative impacts given will be experienced.

7.4 No Project Alternative

The No Project option in respect to the proposed project implies that the status quo is maintained. This option is not the suitable alternative from an extreme environmental perspective as it ensures non-

interference with the existing conditions. This option will involve several losses both to Proponent and the community as a whole. The No Project Option is the least preferred from the socio-economic and environmental perspective because the positive impacts given in section 5.7 will not be realized. From the analysis above, it becomes apparent that the No Project alternative is not the best option to the Proponent, the community and the nation in general.

7.5 Uncertainties in the Project Cycle

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

7.5.1 General Uncertainties

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

7.5.2 Specific Uncertainties

1. Possibility of the land owner overturning the land lease agreement (MOU).
2. Possibility of presence of unsuitable geological formation that renders the site unsuitable for the handling and disposal of the asbestos.
3. Failure by the proponent to release funding for the second phase of project implementation. This leads to stalled projects that waste precious land.

CHAPTER 8: ENVIRONMENTAL MANAGEMENT PLAN

Management Aspect	Mitigation measures	Time frame	Responsibility	Cost (Kshs)	Remarks
General requirements during preparation	a) Notify workers about the upcoming activity b) Prepare appropriate PPE complying with international good practice c) Post appropriate sign post of the site that will inform the workers of key rules and regulations to follow	During preparation for the proposed activity	Contactor	60,000	This will help prepare the workers for the asbestos disposal and cleaning process
Management of asbestos materials during removal from buildings or other structures	a) Secure the site to prevent unauthorized persons and to restrict movement b) Wet the asbestos sheets before removal. c) Do not slide asbestos sheet over	During dismantling	Contractor/ Manager		

	each other. d) Carefully lower removed asbestos sheets to the ground. e) The workers removing the asbestos must have the appropriate Personal protective equipment				
Management of asbestos during storage before disposal	a) The duration for temporary storage of asbestos waste should not exceed thirty b) The temporary site should be within the premises c) The removed bulky asbestos must be stacked and wrapped d) Any debris should be collected in a sealed polythene woven bag e) The bags should be considered full when half full and should be tightly sealed f) Removed asbestos sheets should not be allowed to lie about the site g) The storage area must have restricted entrance and locked	During temporary storage	Contractor/ Manager		

	h) Warning label and danger signs should be affixed				
Management of asbestos during Preparation for Transportation	a) The waste transporting vessel must be lined with a 500 gauge double wrapped plastic b) The transportation vessel should be labeled c) Tossing the bags into a waste transporting vessel must be avoided because of the risk of rupture d) The asbestos waste should be transported to a prepared disposal site that is authorized by NEMA	During temporary storage	Contractor		

Management of asbestos during Transportation	a) The vehicle transporting the asbestos waste should be licensed b) The waste shall be transported to the disposal site in an enclosed vehicle or container, c) The contractor should ensure that all persons involved in handling and disposal of asbestos are trained in emergency operating procedures.	During transportation	Contractor		
Management of asbestos at disposal site	a) Disposal of asbestos must be at a legal site b) The site should have been designated by the local authorities and licensed by NEMA c) Privately owned disposal facility licensed by NEMA d) Designated by the waste generator (on-site disposal). e) The optimal distance of the disposal pit shall be as far as practicable from the nearest	After disposal	Contractor		

	human settlement f) A lined pit that does not reach the water table or according to other standards that may be approved by NEMA. g) Disposed material to be one meter below ground level. h) Disposal site should be fenced off appropriately and the gate locked.				
Management of asbestos during disposal Operation	a) The waste generator shall notify the Authority on commencement of disposal b) Asbestos materials **must not** be reused or offered for sale. c) All asbestos sheets and the debris should be wrapped before it is hauled to the disposal site or transfer station in a covered vehicle d) The depth of the disposal pit shall be as deep as practically possible to accommodate more asbestos waste	During disposal	Contractor/ Manager		

	but at least one (1) meter above water table. e) When all available asbestos has been lowered into the pit, cover with polythene paper followed by 6 inch layer of soil. f) The pit shall be considered full when the asbestos waste is **one meter** below the ground level or the asbestos waste is exhausted. g) After the pit is full, cover with 500 gauges double wrapped polythene sheet and fill the pit with layer of soil up to the ground level. h) Disposal site should be completely fenced off i) Warning notices stating **"**Asbestos hazard area, keep off**"** shall be placed at the disposal site.				

Management of asbestos during Post – Disposal operations	a) All transportation vessels, re-useable containers or any other similar article which have been in contact with asbestos waste shall be cleaned at the disposal site. b) The disposal site should be maintained including the warning signs, the fence, the gate c) Human activities which might interfere with the buried asbestos waste such as construction and pitting should not be allowed at the disposal site. d) The waste generator shall notify the Authority in writing on completion of disposal of asbestos waste.	After disposal	Contractor/ Manager		

Management of Asbestos exposure	The firm shall not permit any person to work in an environment in which he or she would be exposed to asbestos in excess of the prescribed occupational exposure limit.	At, during and after the disposal and cleaning process	Manager	80,000 (Air quality monitoring g)	To minimize risks of contracting diseases associated with exposure to asbestos fibers, e.g. cancer
Medical surveillance	Ensure medical surveillance of employees involved from an occupational medical practitioner after the disposal exercise	After the disposal exercise	Contractor	100,0000	To minimize incidents of occurrence of occupational diseases, notably those caused by exposure to asbestos fibers
Cleanliness of premises and Plant	workplaces are maintained in a clean state and are free of asbestos waste	After the disposal process	Contractor/ Manager	40,000	To eliminate workplace contamination
Disposal Scheduling and Hours	The disposal and cleaning activities should be limited from 7 am or sunrise (whichever is later) to 5 pm or sunset	During the disposal and cleaning exercise	Manager		The prevent risk of inhaling asbestos fibers, which is possible if one does not clearly see the area of work due to darkness

Clearance Inspections	Inspections should be done to ensure that temporary storage site is cleaned to a satisfaction standard.	After the cleaning work	Contractor	40,000	To eliminate risk of future contamination and exposure to asbestos
Underground water contamination	Construct a concrete lining in the asbestos disposal site	Before disposing the asbestos	Contractor	30,000 per ton of asbestos to be disposed	This will reduce possibility of underground water contamination.

CHAPTER 9: DECOMISSIONING PLAN

In the event where the site purpose for disposal of asbestos is exhausted then the site has to be decommissioned and redesigned so as to keep up with the changes in land use and the legal frameworks on environmental impacts.

Through monitoring and evaluation, an initial assessment will be undertaken to decide the need of site change or before an acquisition is made. This will show the potential risks and hazards brought about by the decommissioning activities and find ways of conserving resources and reducing the instances of environmental liabilities. The purpose of decommissioning phase of the site is to reclaim the land and make it safe for people and vegetation growing. Some of the decommissioning activities that can be carried out here are:

- Introduction of vegetation on the site this would have less severe impacts. This should be keenly done to introduce the correct type of vegetation species that will not offset any damage that may have been previously caused.

The cost of the decommissioning process may be high, but the safety implications of contamination are so severe that each step of the process needs to be planned and executed to perfection.

CHAPTER 10: CONCLUSION AND RECOMMENDATIONS

8.1 Conclusions

The study has made the following conclusions regarding the proposed removal, transportation and disposal of asbestos wastes:

1. From the report, it is evident that the project is environmentally and socially acceptable with all the mitigation measures taken into consideration.
2. The local community indicated their desire to have project implemented without delay
3. The County and the community will benefit implementation from improved people's livelihood;
4. The project is acceptable to a majority of the local residents, most of whom appreciates the value it will have on the social and economic well-being of the area.
5. Health concern of the workers during the entire cycle need to be effectively addressed with the incorporation of social corporate responsibility projects by the company within the project area.
6. With implementation of the project following the EMP provided, negative impacts shall be reduced to the minimum maximizing on positive impacts.
7. Monitoring of parameters prepared should be carried out to determine the impacts of the project to the community.

8.2 Recommendation

The study on proposed asbestos removal and disposal recommends the following;

1. There is need to undertake capacity building for the local communities so as to enable them to competitively exploit

opportunities that arise from the project (employment, supplies, etc.) as well as utilization of their resources;

2. EMP measures should be effectively implemented during entire cycle of the project under the strict supervision of the client and supervising consultant to achieve maximum project acceptability;
3. The facility should continue conducting annual environmental audits which should now capture as well aspects of asbestos removal, handling and disposal and any future indications on the same.
4. The waste contractor should provide a waste tracking document to the proponent during/after disposal.
5. Having considered the mitigation measures for all the negative impacts and their appropriate ways of addressing them, the consultant recommends that NEMA approves the project for implementation to benefit the communities and the country at large

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Republic of Kenya Statutes:

i. The Constitution of Kenya (2010)

ii. The Environmental Management and Coordination Act No. 8 of 1999

iii. Legal Notice No. 101 of 2003, Environmental & Social Impact Assessment and Audit Regulations.

iv. Legal Notice no. 120 of 2006, Water Quality Regulations

v. Legal Notice no. 121 of 2006, Waste Management Regulations

vi. Legal Notice No. 61 of 2009, Noise and Excessive Vibrations, Regulations

vii. Occupational Safety and Health Act (OSHA) No. 15 of 2007

Viii. The Electricity Power Act No. 11 0f 1997

ix. The Building Code 2000

x. Public Health Act Cap 242

xi. Occupiers Liability Act Cap 34

xii. The Physical Planning Act, Cap 286

xiii. The Water Act, 2002

APPENDICES

1. Lead/associate experts' certificates of registration
2. Lead/associate experts current year practicing licenses
3. Lease/title deed
4. Waste disposal permit for contractors
5. Tai Lifestyle Limited Certificate of incorporation
6. Tai Lifestyle Limited KRA Pin certificate
7. Available Utilities
8. Attendance list/ evidence of public involvement
9. Minutes of the meeting held with community members

TERMS OF REFERENCE

FOR THE PROPOSED HANDLING AND DISPOSAL OF ASBESTOS BY TAI LIFESTYLE LIMITED IN VOI TAITA TAVETA COUNTY ON PLOT NO

GPS COORDINATES

Conducted by

Andrew Makoti NEMA reg no7463

&

Anthony Mwaniki NEMA reg no 8578

For

Tai Lifestyle Limited

03/03/2021

1: INTRODUCTION

Terms of Reference as a guideline for the Environmental & Social Impact Assessment report of the project proposed for handling of asbestos waste at voi, Taita Taveta county.

In Kenya, it is a requirement that every project has to be environmentally friendly. Section 58 of Environmental Management and Coordination Act (EMCA), 1999 and Section 4 of Environmental (Impact, Audit and Strategic Assessment) Regulations (2009), legal notice 101 indicates that no proponent shall implement a project that is likely to have a negative environmental impact; or for which an Environmental & Social Impact Assessment is required under the Act or these Regulations; unless an Environmental & Social Impact Assessment has been concluded and approved in accordance with these Regulations while stating out the impacts and mitigation measures.

The proponent is therefore required to conduct an Environmental & Social Impact Assessment which should be approved by NEMA before commencement of the project. By doing this, the relevant government bodies related to the project are able to monitor the impacts of the project throughout its lifespan and enable the right stakeholders to be able to practice the correct mitigation measures for the community's wellbeing.

The terms of reference are prepared based on the primary findings and secondary findings and also help from the proponent. These terms of reference for conducting an ESIA are also guided by the Environmental Impact Assessment/ Audit Regulations 2003 operational zing the Environmental Management and Coordination Act (EMCA) 1999.

2: PROJECT DESCRIPTION AND PHYSICAL ENVIRONMENT

The proposed project involves handling and disposal of asbestos where Tai Lifestyle handles the asbestos waste and has a site where they dispose of the asbestos waste which is a high risk project. The proponent will dispose of asbestos waste from clients handling asbestos at a fee.

Whenever a client wants to deposit the asbestos waste, Tai lifestyle will measure the amount of area needed to create a pit to accommodate the waste then make a pit that is 9.5m deep and a 120mm lining of concrete to prevent any leaching of the asbestos waste into the groundwater.

The asbestos will then be disposed of in the pit carefully to prevent any asbestos fragments getting in the atmosphere up to 1m below the ground level where it is then covered. Clear labeling of the pit will be done while indicating hazardous waste present.

2.1 project description

The projects site exact location is at Wangala Village

Proposed project activities

Pre construction phase- here there is planning and preparation while seeking for the approvals from the relevant bodies and authority.

construction phase - base camp establishment, site clearance, acquisition and transportation of building materials, construction of the fence of the site for the disposal of the asbestos

Occupation phase -running and managing the facility as per the laid down rules and procedures of disposal and handling of asbestos.

Decommissioning/abandonment phase- demolition of the temporary erected shades and waste management.

2.2 physical environment

Taita Taveta County generally is a cosmopolitan county with mixed ethnic groups in rural and at town centers. The predominant inhabitants (about 80%) are from the Mijikenda groups (mainly Giriama and Chonyi). Other groups include the Swahili-Arab descendants, Barawas, Bajunis, Somalis as well as other groups from inland. There are a few Indians, and Europeans, mainly British, German and Italian. Within the project area, inhabitants are mostly Giriama. The population density is actually generally low. The population consists of both males and females of dominated by the youthful age. There are people of old age, the youthful age as well as the small children.

2.2.1 Hydrology and meteorology

The climate of the area just like in the other coastal stretch experiences bi-modal rainfall. Long rains occur in March-June whereas short rains occur in November-December. Generally a tropical and monsoon climate characterizes the Kenyan coastline with temperatures high throughout the year. Maximum and minimum temperatures range between 26.5-34 and 22.5-24.5 degrees Centigrade respectively.

2.2.2 Soils

2.2.3 Vegetation

There is very little natural vegetation found on the site which have adapted to the hot and dry climatic conditions.

2.2.4 Current land use of the project site

The project site is currently not in ant use. It is a forested area where human population is kilometers away from the site of the project

2.3 Biological environment

The biophysical profile in this context refers to both flora and fauna found in an area. The project area exhibits minimal vegetation cover and no major animals can be evident. There was no evidence of major fauna found on the project site. However some small animals like rodents, lizards and birds were seldom spotted.

2.4 Demographic patterns

The project site is located in Wangala Village along Nairobi Mombasa highway on the north. Pesa Tughunya is located on the east of the project site and Mzima Spring is located at the south of the Project

3:Policy, legal and administrative framework

The steps in an ESIA are contained in the Environmental Management and coordination act no 8 of 1999 (EMCA) at section 58 and 138 and the Environmental (Impact assessment/Audit) regulations 2009 legal no 101. All undertakings enumerated in the second schedule of EMCA

require an Environmental & Social Impact Assessment project/ study report prepared and submitted to the National Environmental Management Authority (NEMA) for review and licensing before the project development activities start.

1. National Environmental Action Plan
2. National policy on water resources management and development
3. Policy paper on environment and development(sectional paper no 6 of 1999)
4. The constitution of Kenya
5. The National environmental and coordination act 1999
6. Water act number of 2012
7. The electricity power act no11 of 1997
8. Occupational health and safety act no 15 of 2007
9. Public health cap 242 section 11- 13
10. Occupiers liability act cap34
11. The factory rules legal notice no 40 of 1984
12. The physical planning act cap 286
13. The Taita Taveta county environmental act of 2016
14. National Environment and Management Act
15. Public compliance committee
16. National environment action plan committee
17. Standards and enforcement review committee
18. National environmental tribunal
19. County government
20. Directorate of occupational safety and health se

4: Environmental issues

4.1 Positive impacts

1. Employment Opportunities to the neighboring community, through work given either permanently or on contract basis. This will be a source of income to them hence improving their livelihood.
2. Increased revenue to the government since the proponent will be paying its annual tax.
3. Proponent will gain profit through the investment and be able to meet his obligations.
4. Reduced effect of asbestos on the environment and the health of the people through proper handling

4.2 Negative impacts

Construction phase-

1. The initiation of the project will need raw materials for the construction of the fencing of the area for security purposes hence preventing people invading the area because it is a high risk project and asbestos is harmful to the human body.
2. Noise pollution from the car movements in and out of the site
3. Air pollution
4. Occupational health and hazards
5. Solid waste generation
6. Flora and fauna
7. Traffic management

Operational phase -

1. Fire explosion and hazards
2. Waste generation
3. Solid waste management

4. Spill management
5. Occupational health and hazards

Decommissioning phase-

1. Dismantling and demolitions
2. Decontamination
3. Site restoration

5: ALTERNATIVES TO DEVELOPMENT

5.1 Introduction

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

5.2Relocation Option

Relocation option to a different site is an option available for the project implementation. At present the proponent does not have an alternative site. This means that he has to look for another suitable site. Looking for the land to accommodate the disposal of the asbestos and completing the transfer of land ownership or lease agreement may take a long period although there is no guarantee that the land would be available. Assuming that the land is available the cost of starting community mobilization, survey/design and conducting ESIA may cost an additional substantial amount of money that is not available. The proponent would also have to spend another one month to redo the process according to site conditions and whatever has been done and paid to date will be counted as a loss to Tai Lifestyle Investment Company. This is a delay that our economy cannot afford. This would also lead to a situation like No Project Alternative. The other consequence of this is that it would be a discouragement to the Ministry, County and the benefiting community.

5.3 Proposed Excavation/Construction alternative

Under the proposed construction alternative, the Proponent would be issued with an ESIA license. In issuing the license, NEMA would approve the Proponent's proposed handling and disposal of asbestos incidental thereto and connected therewith provided all environmental measures are complied with during the planning, design, excavation/ construction, operation and decommissioning phases. Due to NEMA approval, excavation/construction and operation of the proposed handling and disposal of asbestos, the positive and negative impacts given will be experienced.

5.4 No Project Alternative

The No Project option in respect to the proposed project implies that the status quo is maintained. This option is not the suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. This option will involve several losses both to Proponent and the community as a whole. The No Project Option is the least preferred from the socio-economic and environmental perspective because the positive impacts given in section above will not be realized. From the analysis above, it becomes apparent that the No Project alternative is not the best option to the Proponent, the community and the nation in general.

5.5 Uncertainties in the Project Cycle

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

5.5.1 General Uncertainties

1. Changes that may occur in baseline conditions due to external factors over the lifetime of the project.
2. Uncertainties related to policy initiatives that might influence the assessment of future baseline and post development conditions.
3. Uncertainties in design information, which in the current state is dealt with by a good definition of design parameters for the development.

4. Uncertainty with respect to project implementation and planning, since the detailed program and means of excavation/construction may be influenced by the choice of contractor, and the detailed design of the development.

5.5.2 Specific Uncertainties

1. Possibility of the land owner overturning the land lease agreement (MOU).
2. Possibility of presence of unsuitable geological formation that renders the site unsuitable for the handling and disposal of the asbestos.
3. Failure by the proponent to release funding for the second phase of project implementation. This leads to stalled projects that waste precious land.

6.Time schedule for executing the ESIA

ACTIVITY	***Number of days***	***Month***	
		Wk 1	***Wk 2***
Preparation time			
Review of documents			
Tools and schedule development			
Field work/stakeholder consultation			
Data analysis			
ESIA Report compilation			
TOTAL			

7. Summary of impacts and mitigation measures

Possible impacts	Mitigation measures
Construction phase	
Loss of vegetation	· Rehabilitation of the site by planting trees on the sites not in use hence restoring flora and fauna
Soil erosion, runoff and water logging	· Implementing soil erosion measures on site to prevent contamination of nearby water sources with asbestos leachates and also applying leveling of the site soil to reduce runoff velocity. · Storing roof water in reservoirs that can be used for general cleaning activities since the vehicles and containers carrying the asbestos should not be cleaned anywhere else but on the site. · The vehicles on site should be restricted to one side which should be the parking area to minimize soil compaction everywhere on the project site. · In occurrence of any soil excavation activities, they should be planned and worked out one at a time and rehabilitated before other section excavations begin.

Dust emission and exhaust emission	· Dust suppressor through sprinkling of water on the site to reduce dust emission · Ensure onsite speed limitation of the vehicles coming in and leaving · Wearing of personal protective equipments to protect the personal from dust · Vehicle idling are · Found the area time should be reduced · Sensitize the vehicle drivers to avoid unnecessary racing activities and switch off their engines whenever not in use.
Noise pollution and vibrations	· Advising drivers to switch off their engines in case they are idling around · Ensure all the machineries on site are maintained in good conditions to reduce noise generation · Insulation of the generators and heavy machineries on site to reduce the rate of noise pollution to the neighboring community. · Reduce hooting by the drivers especially when passing through the neighborhood.
Operational phase	

Hazardous waste safety and storage	· Secure the site to prevent unauthorized persons and to restrict movement · Wet the asbestos sheets before removal. · Do not slide asbestos sheets over each other. · Carefully lower removed asbestos sheets to the ground. · The workers removing the asbestos must have the appropriate Personal protective equipment
Management of the asbestos	· Proper labeling of the site of asbestos disposal as hazardous · Proper sealing of containers carrying asbestos to prevent any spillage of asbestos since they are hazardous waste. · Treating the asbestos with wetting agent prior transportation to the site of disposal to reduce the dust emission of the asbestos particles in the air. · Skilled personnel should be put to handle the hazardous waste. · The firm shall not permit any person to work in an environment in which he or she would be exposed to asbestos in excess of the prescribed occupational exposure limit.

Occupational hazards or injuries to the general public	· Reporting of any accidents through the prescription forms provided by the Occupational Health and Safety offices (DOSHS) are in place. · All workers should be provided with protective gears for handling the asbestos waste · First aid kits should be provided on site and it should be fully equipped and managed by a professional personnel. · The workers on site should have insurance covers. · Adequate sanitary facilities that are cleaned at all times. · Mounting safety signage's around the project site to show danger and how no one will be accommodated in the site without proper protective equipment.
Air pollution and dust emission	· Providing adequate PPEs to the staff · Air monitoring should be done continuously especially in the areas where asbestos is being handled on the site. · Managing the soil that has been contaminated by asbestos and putting it together in well labeled bags together with the asbestos and depositing them in the appropriate pits of disposal. · Adhere to the asbestos disposal guidelines provided by NEMA.
Increased water demand	· Turning off running taps that are not in use especially when wetting asbestos sheets and during dust control

Health and safety risk	· Developing an asbestos removal plan for the asbestos to ensure the personnel handling the asbestos are not at risk and they are following up on the procedures given. · Providing adequate PPEs for the workers · Setting up areas for personal decontamination a
Underground water contamination	· Constructing a 120mm lining with concrete on the in the pits used to dispose of the asbestos to prevent groundwater contamination · Digging the pits for disposing the asbestos shall be deep but at least one meter above the water tables.
Emission	· Proper maintenance of vehicles to reduce diesel and petroleum emission to the soil and environment
Soiled waste	· The excavated materials from the pits should be used back to fill the pits to prevent solid waste mishandling · Only the required amount of materials on site should be used and the residue disposed off to control solid waste generation.
Energy consumption	· Ensuring all electric equipment is switched off while not being in use. · Well organized transportation schedule to reduce unnecessary movements hence conserve energy
Noise pollution	· Sensitizing the drivers to switch off engines when not in use and reduce hooting activities to avoid gunning of the vehicle engines.

Heat stress	· Scheduling appropriate work rotations to reduce the heat stress while providing appropriate PPEs to the personnel's that have regulated air supply to prevent heat stress.

Decommissioning phase

Waste land due to project abandonment	Demolition and disposal of structures, landscape restoration , filling depressions, removing unused equipment, structures and facilities to give room for new activities.

8 : PROJECT ORGANIZATION AND MANAGEMENT

The lead expert who steered this project was Mr. Andrew Makoti who assigned the team members duties according to the terms of reference. The associate expert, Mr. Anthony Mwaniki

assisted the lead expert in final decision making and went through the proposed ESIA to make final decisions before submission of the report.

NAME	**QUALIFICATIONS**	**NEMA REG.NO**
Andrew Makoti	Masters Environmental Studies and Community Development	NEMA Reg. No.7463
Anthony Mwaniki	BSC Environmental Science	NEMA Reg. No. 8578
Kristina Mungai	Bachelor of Arts Counseling & Psychology (Social)	Not registered
Dr. Okeyo Benards	PhD in Social Ecology, M.Sc. in Aquatic Ecology, B.Sc. in Natural Resources Management and Certificate in Psychology and Counseling	NEMA Reg. No. 2538
Julius Odida	Doctor of Philosophy (DPhil) in Geology. (Hydro geophysics and Hydro geochemistry)	Not Registered
Rose Chepkurui	Bsc Environmental Science	Not registered

MINUTES FOR THE PROPOSED COMMERCIAL ASBESTOS DISPOSAL SITE OF TAI LIFESTYLE LIMITED, HELD ON TUESDAY 23RD MARCH 2021 AT MIASENYI IN VOI, TAITA TAVETA COUNTY

IN ATTENDANCE

See signed attached list of attendance.

PURPOSE OF THE MEETING

The purpose of the meeting was to introduce the proposed project of the Tai Lifestyle Limited to the members of Voi and got views from community concerning the project.

AGENDA

1. Preliminaries
2. Establishment
3. Need of public participation
4. Anticipated Environmental Impacts
5. Plenary session
6. Adjournment

MIN 01-23/03/2021: PRELIMINARIES

The meeting was called to order by the local area chief, followed with a word of prayer from one of the members attended. The local chief welcomed everyone and thanked those in attendance. Mr. Anthony Mwaniki was invited to give a brief overview of the project and the purpose of the public participation.

MIN 02-23/03/2021: ESTABLISHMENT OF ASBESTOS REMOVAL, HANDLING AND DISPOSAL PROJECT.

Residents of Voi area attended the meeting were notified about a proposed projector asbestos removal, handling and disposal in the area. The project site is located on GPRS coordinates: Mr. Mureithi went ahead to explain that the main objective of the project was to safely removal and dispose of asbestos formerly used as roofing material for the factory facility.

MIN 03-23/03/2021: NEED FOR PUBLIC PARTICIPATION

Members present were informed about the importance of having public participation and that would be necessary in this proposed project. As such, the neighbors were engaged individually in

discussions about this project and their opinions about the project were positive and they highlighted the following isolated impacts:

MIN 04-23/03/2021: ENVIRONMENTAL IMPACTS

More so, members were brought up to speak about environmental impact in matters related to the project. They were later given a chance to share their views regarding it and the following were the views.

NEGATIVE IMPACTS

- Soils around might be degraded overtime
- Clearing of land and excavation
- Dust generation
- **Recommendation made:**

Use best management practices to minimize dust generation. Keep to the minimum areas where earthwork activities will take place,

POSITIVE IMPACTS

-The members said that the operation will offer a lot of jobs to the local community.

-They also said that the security of the locals and workers had been enhanced by the presence of the police post around the area

- Facility will contribute to the local economy, buying from locals and giving them alternative livelihood through employment

- There would be improved solid waste management upon removal and disposal of asbestos.

- Will lead to increased income among the locals

- The factory will lead to poverty alleviation among the locals

- This facility will lead to increased land value and demand,

-The facility will provided opportunities for skill acquisition by the local people.

MIN 05-23/03/2021: PLENARY SESSION

NAME OF THE PARTICIPANT	QUESTION/COMMENTS/CLARIFICATION	RESPONSE FROM NEMA ESIA/EA EXPERTS
	Low employment opportunities especial to the youth	The team of experts assured the local members that since there is a commencement of that project, then more jobs will be created
	Gender insensitivity in employing people, especially, women	The team promise to make sure that gender equality will be considered

MIN 06-8/01/2021: ADJOURNMENT

Since there was no other business, therefore the meeting was adjourned with a word of prayer from one member of the community and people dispersed at their own pleasure.

Minutes submitted by: **Anthony Mwaniki**

MINUTES FOR THE PROPOSED COMMERCIAL ASBESTOS DISPOSAL SITE OF TAI LIFESTYLE LIMITED, HELD ON TUESDAY 23RD MARCH 2021 AT MIASENYI IN VOI, TAITA TAVETA COUNTY

1.	JOHN O. OBURU	13570449	WANGALA MIASENYI	
2.	ISAAK MISIA	11789492	WANGALA MIASENYI	
3.	DOMINIC MWENDA	29740038	WANGALA MIASENYI	
4.	JAMES MWANGI	12948281	WANGALA MIASENYI	
5.	ROSE MWAKIRI	23001417	WANGALA MIASENYI	
6.	MASHA CHENGO	16076362	WANGALA MIASENYI	
7.	GEORGE MUSYOKI MAINGI	29064527	WANGALA MIASENYI	
8.	SALOME GONDA	26673175	WANGALA MIASENYI	
9.	BEN A CHIMERA	21616095	WANGALA MIASENYI	

10	MOHAMED MWAMBURA ILAMBO	21792779	MIASENYI	[signature]
11	LUKA MUTHOKA	37679899	Wangala Miasenyi	[signature]
12	MWENGA SOMBA	12549857	Wangala/ Miasenyi	[signature]
13	DAVID R. MWACHARO	28253347	WANGALA/ MIASENYI	[signature]
14	Simon M. Mwakitawa	36382050	Wangala/ MIASENYI	[signature]
15	Erick Kiwinga	33559260	Wangala/ Miasenyi	[signature]
16	Esther Wanje	92057624	Wangala Miasenyi	[signature]
17	NELSON M MWASI	31618071	Wangala Miasenyi	[signature]
18	MICHAEL LETEIPA	38561334	WANGALA/ MIASENYI	[signature]

19. ANTHONY MWANIKI 27911160 KIURI [signature]

MINUTES FOR THE PROPOSED COMMERCIAL ASBESTOS DISPOSAL SITE OF TAI LIFESTYLE LIMITED, HELD ON FRIDAY 26RD MARCH 2021 AT MIASENYI IN VOI, TAITA TAVETA COUNTY

IN ATTENDANCE

See signed attached list of attendance.

PURPOSE OF THE MEETING

The purpose of the meeting was to introduce the proposed project of the Tai Lifestyle Limited to the members of Voi and got views from community concerning the project.

AGENDA

1. Preliminaries
2. Establishment
3. Need of public participation
4. Anticipated Environmental Impacts
5. Plenary session
6. Adjournment

MIN 01-26/03/2021: PRELIMINARIES

The meeting was called to order by the local area chief, followed with a word of prayer from one of the members attended. The local chief welcomed everyone and thanked those in attendance. Mr. Anthony Mwaniki was invited to give a brief overview of the project and the purpose of the public participation.

MIN 02-26/03/2021: ESTABLISHMENT OF ASBESTOS REMOVAL, HANDLING AND DISPOSAL FACILITY PROJECT.

Residents of Voi area attended the meeting were notified about a proposed project of asbestos removal, handling and disposal in the area. The project site is located on GPRS coordinates: Mr. Mureithi went ahead to explain that the main objective of the project was to safely removal and dispose of asbestos formerly used as roofing material for the factory facility.

MIN 03-26/03/2021: NEED FOR PUBLIC PARTICIPATION

Members present were informed about the importance of having public participation and that would be necessary in this proposed project. As such, the neighbors were engaged individually in discussions about this project and their opinions about the project were positive and they highlighted the following isolated impacts:

MIN 04-26/03/2021: ENVIRONMENTAL IMPACTS

More so, members were brought up to speak about environmental impact in matters related to the project. They were later given a chance to share their views regarding it and the following were the views.

NEGATIVE IMPACTS

- Soils around might be degraded overtime
- Clearing of land and excavation
- Dust generation
- **Recommendation made:**

Use best management practices to minimize dust generation. Keep to the minimum areas where earthwork activities will take place,

POSITIVE IMPACTS

-The members said that the operation will offer a lot of jobs to the local community.

-They also said that the security of the locals and workers had been enhanced by the presence of the police post around the area

- Facility will contribute to the local economy, buying from locals and giving them alternative livelihood through employment

- There would be improved solid waste management upon removal and disposal of asbestos.

- Will lead to increased income among the locals

- The factory will lead to poverty alleviation among the locals

- This facility will lead to increased land value and demand,

-The facility will provided opportunities for skill acquisition by the local people.

MIN 05-1/02/2021: PLENARY SESSION

NAME OF THE PARTICIPANT	QUESTION/COMMENTS/CLARIFICATION	RESPONSE FROM NEMA ESIA/EA EXPERTS
John Oburu	Low employment opportunities especial to the youth	The team of experts assured the local members that since there is a commencement of that project, then more jobs will be created
	Gender insensitivity in employing people, especially, women	The team promise to make sure that gender equality will be considered

MIN 06-1/02/2021: ADJOURNMENT

Since there was no other business, therefore the meeting was adjourned with a word of prayer from one member of the community and people dispersed at their own pleasure.

Minutes submitted by: **Anthony Mwaniki**

MINUTES FOR THE PROPOSED COMMERCIAL ASBESTOS DISPOSAL SITE OF TAI LIFESTYLE LIMITED, HELD ON FRIDAY 26RD MARCH 2021 AT MIASENYI IN VOI, TAITA TAVETA COUNTY

1.	MICHAEL LETEPA	38569334	WANGALA/ MIASENYI	
2.	John NDUNGU	25124143	WANGALA MIASENYI	
3.	[illegible]	11789792	WANGALA MIASENYI	
4.	JAMES MWADEI	12948881	WIASENYI MIGHLA	
5.	DOMINIC MWENDA	29740038	WANGALA MIASENYI	
6.	John NDUNGU	25124143	WANGALA MIASENYI	
7.	Saidi Bungu	35651737	Wangala Miasenyi	
8.	GLADYS MALEMBA MUHENDI	13823870	WANGALA MIASENYI	
9.	ROSE MWACHOKI	20001417	WANGALA MIASENYI	

10	JOHN O. OBURU	13570849	WANGALA MIASENYI	[signature]
11	NELSON M. MWASI	31618001	WANGALA MIASENYI	[signature]
12	DAVID RMNGNGWA	28253747	WANGALA / MIASENYI	[signature]
13	JACKSON MWABAJIA	32328215	WANGALA MIASENYI	[signature]
14	Simon M. Mwangeka	36382454	Wangala / Miasenyi	[signature]
15	MOHAMED MWAMBINGU ILAMBA	21792774	MIASENYI	[signature]
16	Erick Kiringa	33339862	Miasenyi / Wangala	[signature]
17	LUKA METHOKO	37679699	miasenyi wangala	[signature]
18	MWENGA SONIA	12549857	Miasenyi Wangala	[signature]
19.	ANTHONY MWAMBU	[illegible]	KILIM	[signature]

MINUTES FOR THE PROPOSED COMMERCIAL ASBESTOS DISPOSAL SITE OF TAI LIFESTYLE LIMITED, HELD ON MONDAY 29TH MARCH 2021 AT MIASENYI IN VOI, TAITA TAVETA COUNTY.

IN ATTENDANCE

See signed attached list of attendance.

PURPOSE OF THE MEETING

The purpose of the meeting was to introduce the proposed project of the Tai Lifestyle Limited to the members of Voi and got views from the community concerning the project.

AGENDA

1. Preliminaries
2. Establishment
3. Need of public participation
4. Anticipated Environmental Impacts
5. Plenary session
6. Adjournment

MIN 01-29/03/2021: PRELIMINARIES

The meeting was called to order by the local area chief, followed with a word of prayer from one of the members attended. The local chief welcomed everyone and thanked those in attendance. Mr. Anthony Mwaniki was invited to give a brief overview of the project and the purpose of the public participation.

MIN 02-29/03/2021: ESTABLISHMENT OF ASBESTOS REMOVAL, HANDLING AND DISPOSAL PROJECT.

Residents of Voi area attended the meeting were notified about a proposed project of asbestos removal, handling and disposal in the area. The project site is located on GPRS coordinates: Mr. Mureithi went ahead to explain that the main objective of the project was to safely removal and dispose of asbestos formerly used as roofing material for the factory facility.

MIN 03-29/03/2021: NEED FOR PUBLIC PARTICIPATION

Members present were informed about the importance of having public participation and that would be necessary in this proposed project. As such, the neighbors were engaged individually in discussions about this project and their opinions about the project were positive and they highlighted the following isolated impacts:

MIN 04-29/03/2021: ENVIRONMENTAL IMPACTS

More so, members were brought up to speak about environmental impact in matters related to the project. They were later given a chance to share their views regarding it and the following were the views.

NEGATIVE IMPACTS

- Soils around might be degraded overtime
- Clearing of land and excavation
- Dust generation
- **Recommendation made:**

Use best management practices to minimize dust generation. Keep to the minimum areas where earthwork activities will take place,

POSITIVE IMPACTS

-The members said that the operation will offer a lot of jobs to the local community.

-They also said that the security of the locals and workers had been enhanced by the presence of the police post around the area

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- This facility will lead to increased land value and demand,

-The facility will provided opportunities for skill acquisition by the local people.

MIN 05-29/03/2021: PLENARY SESSION

NAME OF THE PARTICIPANT	QUESTION/COMMENTS/CLARIFICATION	RESPONSE FROM NEMA ESIA/EA EXPERTS
Mohamed Ilambo	Low employment opportunities especial to the youth	The team of experts assured the local members that since there is a commencement of that project, then more jobs will be created
Mohamed Ilambo	Gender insensitivity in employing people, especially, women	The team promise to make sure that gender equality will be considered

MIN 06-29/03/2021: ADJOURNMENT

Since there was no other business, therefore the meeting was adjourned with a word of prayer from one member of the community and people dispersed at their own pleasure.

Minutes submitted by: **Anthony Mwaniki**

MINUTES FOR THE PROPOSED COMMERCIAL ASBESTOS DISPOSAL SITE OF TAI LIFESTYLE LIMITED, HELD ON MONDAY 29TH MARCH 2021 AT MIASENYI IN VOI, TAITA TAVETA COUNTY.

1.	[illegible]	[illegible]	[illegible]	
2.	JOHN O OMU	13570849	WANGALA MIASENYI	
3.	[illegible]	36382454	wangala MIASENYI	
4.	MICHAEL LETEIPA	38861334	WANGALA MIASENYI	
5.	Erick Kiminga	33335392	Wangala/ Miasenyi	
6.	DAVID R. MNENGWA	28253347	WANGALA/ MIASENYI	
7.	NELSON M MWASI	31618001	wangala miasenyi	
8.	Said Burguu	20027624	wangala miasenyi	
9.	LUKA MUTHOKA	37679899	miasenyi wangala	

10	MWENGA SOWA	12549867	Wangala/ Miasenyi	[illegible]
11	Dorah Mwisa	11724792	WANGALA MIASENYI	[illegible]
12	DOMINIC MWENDA	29940038	WANGALA MIASENYI	[illegible]
13	JOHN NDUNGU	25124143	WANGALA MIASENYI	[illegible]
14	JAMES MURNGI	1294898	WANGALA MIASENYI	[illegible]
15	HABEL KIMBIA	24952665	WANGALA	[illegible]
16	CHEGGO SHAWA	11789340	WANGALA	[illegible]
17	GLADYS MAMWENA MWITHAMI	13823870	WANGALA MIASENYI	[illegible]
18	Emmanuel Mwakulu	36962599	Wangala Miasenyi	[illegible]
19.	ANTHONY MWANAKI	2791840	Kilifi	[illegible]

FORM 7 (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/13971

Application Reference No: NEMA/EIA/EL/18310

M/S **ANDREW MAKONDE MAKOTI**
(individual or firm) of address

P.O. Box 433-80200 MALINDI

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**

registration number **7463**

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

Issued Date: **2/10/2021**

Expiry Date: **12/31/2021**

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001: 2008 Certified

FORM 7

(r.15(2))

nema

mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

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

License No : NEMA/EIA/ERPL/14094

Application Reference No: NEMA/EIA/EL/19254

M/S **ANTHONY MWANIKI MUREITHI**
(individual or firm) of address

P.O. Box 705-00300, Nairobi

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Associate Expert**
registration number **8578**

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

Issued Date: **2/15/2021** Expiry Date: **12/31/2021**

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001: 2008 Certified

THE PRESIDENCY

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

Telegrams "DISTRICTER"
Telephone 0724387804/0717857702
E-mail mohammed-clambo777@gmail.com
When replying please quote
Ref No. ADM/MIASENYI/VOL.1/128.

OFFICE OF THE ASS.CHIEF
MIASENYI SUB-LOCATION
P.O.BOX 1-80300
VOI.
2021/11/ And date 27

ASSISTANT CHIEF
MIASENYI SUB-LOCATION
MARUNGU LOCATION

TO WHOM IT MAY CONCERN.

RE: TAI LIFESTYLE LIMITED, DIRECTOR NAME: PETER MUNGA GITHUI ID/NO. 20181439 - CELL PHONE NUMBER - 0722515914.

I take this opportunity to state as follows:-
I confirm the director of the named company situated at Kajiado County, Kajiado Sub-County that has a branch at Wangala village, Miasenyi sub-location, Marungu location, Nyangala Division, Voi sub-county in Taita Taveta County.

The land the company situated at Wangala belongs to the said Director and has no dispute.

I fully recommend without hesitation concerning any development within the parcel of land only to adhere the rule of the law. That's will ensure the prosperity of the company.

Thanks,

ASSISTANT CHIEF
MIASENYI SUB-LOCATION
MARUNGU LOCATION

Mohamed Mwambingu Clambo.
Snr. Assistant-Chief

REPUBLIC OF. KENYA

'N THE MATTER OF OATHS AND STATUTORY

DECLARATION ACT CAP 15 LAWS OF KENYA

AFFIDAVIT

1. PETER MUNGA GICHUHI of Post Office Box Number 16620-80108 KILIFI within the Republic Of Kenya. do hereby make oath and state as follows:-

1. THAT I am an adult person Of Sound Mind and Holder of National Identity Card Number 20181437 and hence competent to swear this Affidavit.

2. THAT I am the owner of unsurveyed parcel of land measuring approximately 83M by 216.5 M by 100M by 217.5 situated at Wangala Village within Miasenyi Sublocation.

3. THAT I bought the aforesaid parcel of land from the initial owner one MOHAMED MWAMBINGU IL-AMBO OF ID NO 21792774 on 18th February 2015.

4. THAT I swear this Affidavit in verification. confirmation and for avoidance of any doubts that I am the owner of the unsurveyed parcel of land measuring approximately 83M by 216.5 M by 100M by 217.5 situated at Wangala Village within Miasenyi Subtocation and that t bought the same from MOHAMED MWAMBINCU ILAMBO of ID NO 21792774 on February 2015

5. THAT what is deponed hereinto above is true to the best of my Knowledge. Information and belief.

SWORN BY the SAID)
)
PETER MUNGA)....
GICHUHI) DEPONENT.
)
At Voi this...:22.l. 2021)
)
BEFORE /COMMISSIONER FOR OATI-IS
ME

2nd day of Feb

CO. ADVOCATES
SITE ACK ST CATHEDRAL

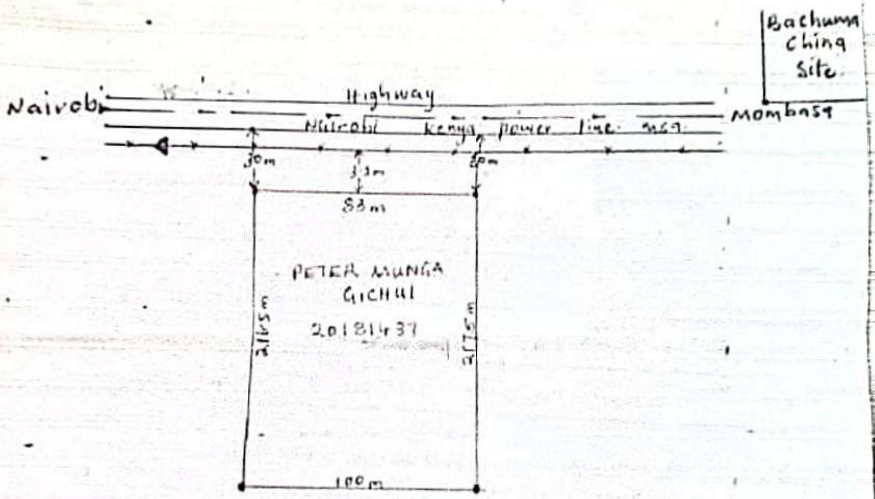
MAGISTRATE/CO
DRAL

DRAWN BY

MWAZIGHE CO. A
PLAZA OPPOSITE ACK CHURCH.
GROUND FLOOR ROOM NO.B22
P.o BOX 201-80300 vol.

MINISTRY OF LANDS AND PHYSICAL PLANNING

LAND ADJUDICATION AND
SETTLEMENT DEPART MENT,
P.O BOX 250 – 80300
VOI



KEY

N ↑

Area. Bachuma Site (CHINA)
Names: Peter munga Gichui
ID/nos. 20181437
NTS. not to scale.

PROJECT MANAGER
MAUNGU/BUGUTA S.S. PRJ
P.O BOX 250-80300
VOI

H.T. NDUMA 24 – L.A.S.A. II.
– Maungu Buguta Sett. scheme no. 500

RE: AGREEMENT OF PURCHASING A PLOT.

This agreement is made on ......18......day ......February......Month of ......2015.

between Mr/ Mrs...Mohamed Mwambingu Ilambo.......... Of P.O Box

417-80300-Voi...... Phone No....0717857702.....Id. No......21792774........ Of the Republic

of Kenya (here after called the Vendor) of the part and Mr...Peter Munga Gichuhi.......

Of Id.No....20181437................Phone No:....0722515914........P.O Box....16620-80108

Of Republic of Kenya(here after called a purchaser) of the other part whereas the Vendor is the owner of the plot feets in width

The vendor has weed to sell and bup has also

owner of the plot measuring.................... feets in length and .... feets in width

The plot is situated at ...Mlimenyi Sub-location-Wangala village.... And bounded as follows:

North THE MOMBASA/NAIROBI HIGHWAY.

East PESA TUGHUNYA.

West GREADO MWAKIO.

South MZIMA SPRING - WATER PIPELINE

south

agreed to purchase the plot at a price of Sum

KSHS 500,000/- (Amount in words...FIVE HUNDRED THOUSAND ONLY.

....) paid upon payment, the vendor acknowledged the receipt, therefore, legalizing the ownership of the plot to the buyer.

The parties have also agreed that the pbt is not surveyed and adjudiated, and where this is to be done; the vendor Will undertake any necessary recommendations and-direct the land AdJudiatlon officer to Issue a title deed In the name of the buyer directly to Which the Vendor will sign necessary form of transfer if any.

CHIEF

SUB. LOCK,

MARUNGNCATIOI,

The following are the witnesses

Vendor MOHAMED MWAMARINGI LAMNRO Id. No 21792774 Tel 0717857702 Sign

i. Name MASHA CHENGO MASHA Id.No 16076362 Tel 0758216096
Sign Masha

ii. Name BENARD MUSYOKI MANGI Id.No 20064527 Tel 0731090954
Sign

iii. Name RAPHAEL GARI DURUMO Id.No 10754866 Tel 0718 793801
Sign

Buyer PETER MUNGA GICHUHI Id.No 20181437 Tel 0722515914 Sign

Buyer Witnesses

i. Name JOHN NDUNGU GICHUHI Id.No 25124143 Tel 0728081898
Sign

ii. Name DOMINIC MWENDA Id.No 29740038 Tel 0757701096.
Sign

iii. Name MOSES EKAI Id.No 35301960 Tel 0746942144
Sign

AREA ASSISTANT - CHIEF.

I am the vendor of the said parcel of land.
I have no objection since the land belongs to me.
What is important is community development - This will create job opportunities to our youths within my area of jurisdiction.

ASSISTANT CHIEF
MIASENYI SUB - LOCATION
MARUNGU LOCATION

Mohamed Mwambirgu Itambo. Snr. Assist-Chief