MOVIT PRODUCTS TANZANIA LIMITED

Plot No. 89, Victoria Noble Centre, 3rd Floor,
New Bagamoyo Road, Kijitonyama. P.O Box 11858,
Dar es salaam – Tanzania

ENVIRONMENTAL AND SOCIAL IMPACT ASSESMENT (ESIA) STUDY FOR THE PROPOSED ESTABLISHMENT OF MOVIT PRODUCTS MANUFACTURING FACTORY AT BLOCK J, PLOT NO. 9, SOGA VILLAGE, SOGA WARD, MLANDIZI TOWNSHIP, IN KIBAHA DISTRICT COUNCIL, PWANI REGION

ESIA REPORT

Submission Date: 17th December, 2024

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ACKNOWLEDGMENT

The proponent (**MOVIT PRODUCTS (TANZANIA) LIMITED**) wishes to convey honest thanks and gratitude to all Stakeholders who in one way or another supported the undertaking of this ESIA study. Thanks very much all of you.

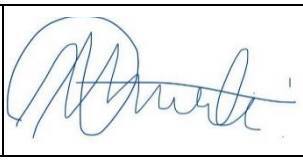
Special thanks should be given to officials of the Kibaha District Council particularly the District Executive Director (DED) and District Environmental Management Officer (DEMO) for their prompt assistance during the undertaking of the Environmental and Social Impact Assessment.

The proponent also expresses its appreciation to all institutions related to the project execution such as Occupation Safety and Health Authority (OSHA), Government Chemistry Laboratory Authority (GCLA), Tanzania Bureau of Standards (TBS), Tanzania Fire and Rescue Force, National Environmental Management Council (NEMC), and individuals who gave support in accomplishing this study.

Specifically, the proponent acknowledges the contributions of Soga ward, and Soga village executive officers, village chairperson and the Village Development Committees for providing valuable assistance to the study team, especially for their coordination and preparation of the public meetings in their area of jurisdiction.

Last but not least, all stakeholders are acknowledged for their full participation and contributions during the engagement including provision of valuable observations, information and data related to the project. The constructive contributions from stakeholders have been incorporated in this report, however their concerns have been improved the ESIA report.

STUDY TEAM

S/No.	NAME	QUALIFICATION	SIGNATURE
Environmentalist (Team Leader)			
1.	Eng. Samwel Maguya Masami	• Environmental Engineer • ***Registered EIA Expert with Registration No. NEMC/EIA.0415*** • ***Licensed with EIA License No. NEMC/PC/EIA/2021/ 0077*** • ***Registered Professional Engineer, Registration No. PE No. 5156, 2018.*** • ***Certified OSH expert***	
Assistant Environmentalist			
2.	Ms. Neema Julius	• Environmental Geography • ***Not Registered as the EIA Expert***	
3.	Ms. Jasinta Toke	• Environmental Engineering • ***Not Registered as the EIA Expert***	
4.	Ms. Irene B Sanga	• Environmental Engineering • ***Not Registered as the EIA Expert***	
Civil Engineer			
5.	Eng. Antony Mavumila	• Registered Professional Engineer • ***Not Registered as the EIA Expert***	

ABBREVIATION AND ACRONYMS

AIDS	:	Acquired Immunodeficiency Syndrome
ARV	:	Ant-retrovirus
BOQ	:	Bills of Quantities
CBO	:	Community Based Organization
C-ESMP	:	Contractor Environmental and Social Management Council
COMESA	:	Common Market for Eastern and Southern Africa
CRB	:	Contractors Registration Board
DAWASA	:	Dar es salaam Water Supply and Sanitation Authority
DEMO	:	District Environmental Management Officer
DOE	:	Director of Environment
ECBA	:	Environmental and Social Costs Benefit Analysis
EHSO	:	Environmental, Health and Safety Officer
EIA	:	Environmental Impact Assessment
EMA	:	Environmental Management Act
ERB	:	Engineers Registration Board
ESIA	:	Environmental and Social Impact Assessment
ESMP	:	Environmental and Social Management Plan
FG	:	Finishing Goods
GBV	:	Gender Based Violence
GCLA	:	Government Chemist Laboratory Authority
GDP	:	Gross Domestic Product
GIS	:	Geographic Information System
GOT	:	Government of Tanzania
HIV	:	Human Immunodeficiency Virus
HSMP	:	Health and Safety Management Plan
LAA	:	Local Assessment Area
MPL	:	Movit Products Limited
NAC	:	National Advisory Committee
NACP	:	National HIV/AIDS Control Programme
NEMC	:	National Environment Management Council
NEP	:	National Environmental Policy
NGO	:	Non-Government Organization
NPA-VAWC	:	National Plan of Action to End Violence Against Women and Children
NSSF	:	National Social Security Fund
OSHA	:	Occupation Safety and Health Authority
PDA	:	Project Development Area
PM	:	Packaging Materials
PSSSF	:	Public Servant Social Security Fund
RAA	:	Regional Assessment Area
RIAM	:	Rapid Impact Assessment Matrix
RM	:	Raw Materials
SEA	:	Sexual Exploitation and Abuse
SGR	:	Standard Gauge Railway
SH	:	Sexual Harassment
STDs	:	Sexually Transmitted Diseases
STI	:	Sexual Transmitted Infection
TACAIDS	:	Tanzania Commission for AIDS

TANESCO	:	Tanzania Electricity Supply Company Limited
TIC	:	Tanzania Investment Centre
TC	:	Town Council
ToR	:	Terms of References
TPO	:	Town Planning Officer
TRA	:	Tanzania Revenue Authority
TZS	:	Tanzania Shillings
VAT	:	Value Added Tax
VEC	:	Valued Environmental Component
VPO	:	Vice president Office
WGS	:	World Geodetic System
WHO-GPA	:	World Health Organization Global Programme on AIDS

EXECUTIVE SUMMARY

E 1.0 PROJECT INFORMATION

E 1.1 Project Title

The Proposed Establishment of Movit Products Manufacturing Factory

E 1.2 Project Location

The proposed project is Located at Bomu hamlet, Soga Village, Soga Ward, Kibaha Township, Kibaha District Council in Pwani Region.

E 1.3 Name of the Project Proponent and Contact Address

MOVIT PRODUCTS TANZANIA LIMITED
Plot No. 89, Victoria Noble Centre, 3rd Floor,
New Bagamoyo Road, Kijitonyama. P.O Box 11858,
Dar es salaam – Tanzania.

E 1.4 Name of the Lead Consultant and Contact Address

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(Reg. No NEMC/EIA/0145/2017, ERB. Reg. PE No. 5156),
P.O. Box 15651 Dar es salaam, Tanzania
+ 255 768 356 242, +255 716 360 366.

E 2.0 DESCRIPTION OF THE PROJECT

Based in Kampala, Uganda, Movit Products Ltd (MPL) is a personal care firm that produces various personal care items like of Movit, Radiant, Baby Junior, Skin Guard, Pine, and NAN. Movit is also well recognized for its Body Milk Lotion, Junior Petroleum Jelly, Movit No Base Relaxer, and many other items. Simpson Birungi established the business in 1997 at a temporary workshop in Namasuba, Wakiso District.

The company's core brand, Movit, has been developed over time into one of Uganda's leading cosmetics companies, with distribution connections in the COMESA and East African regions, including Tanzania. So far, Movit Products Limited is present in more than eight (8) African nations, and its goods have entered more than thirty (30) African markets, some of which do not require market commissioning. After making a calculated strategic market debut into Tanzania in 2006, the company expanded into Kenya, Rwanda, Burundi, the Democratic Republic of the Congo, South Sudan, and Zambia as a result of its success.

The growth and expansion path of MPL keeps extending into additional African nations as well as other regions. In Addition, Brand Africa named Movit Products Limited as one of the most valuable and admired brands on the African continent in 2018, 2020 and 2019 respectively. In 2014[1], it was reported that Movit revenue reached 15 million USD, on the other hand, the company employed over 2000 employees in the same year.

After expanding its market in Tanzania and the nearby countries, in 2022, Movit Products Ltd started to plan on the establishment factory in Tanzania. In the same year, the company leased the land from Tanzania Investment Centre (TIC) including to come up with the drawings for the project implementation. Movit managed to get the land for the project in Soga Village, Soga ward in Kibaha DC, Pwani region. So far, the proponent leased three plots 9, 10 and 12 at Block J in one location, initial he will start using the plot No. 9 with 114078 sqm while the other plots will be used for future development.

[1] http://www.monitor.co.ug/Business/Prosper/Movit--From-shs1-million-to-a-multi-billion-giant/-/688616/2022828/-/1hbnfvz/-/index.html

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MPL footprint across Africa is in Zambia, Burundi, Rwanda, Kenya, Tanzania, South Sudan, DR Congo, Malawi, Zimbabwe & Uganda. The proposed project site is the Central to the MPL Foot print across Central & Southern Africa and shall serve this market well. The aim of implementing the project in Tanzania is; the location of the site at the coastal City of Dar-es-Salaam is central for serving the Central & southern Africa Market of COMESA; it also eliminates the costly transport of RM from the coast to the existing plant in Uganda and it will also reduce the distance & cost of transporting FG from Uganda to southern Africa.

Initially, the company is planning to start with the implementation of five (5) components. The components are the administration as Offices/ Administration (G+1) is planned to cover 1,255 sqm that will include Senior Management, Middle Managers/ Supervisors and Unskilled Workers. Pre-Production (G+1 warehouse) is planned to cover 3,000 sqm that will include Raw Material (RM) Handling and Packaging Material (PM) Handling. Production (G+1 warehouse) is planned to cover 3,000 sqm, the building will be used for Finished Goods (FG) Handling. Post Production (G+1 warehouse) is planned to cover 2,000 sqm, the building will be used for storage of the finished Goods (FG) Handling. Utility Services will include Accommodation (G+3, Six Blocks), Research & Product Development, Maintenance Workshop, Electricity, Gas tanks Water, waste management facilities, Security, Vehicular Traffic, Fire Fighting, Weigh Bridge(s), Food and Catering and Clinic.

The proposed project is expected to increase availability of the products in the country, expanding the market in the flanking nation, increase the scenic of the project area, increases income through tax collection, increases the individual income through direct and indirect employment. Implementation of the project will add land value to the project area including to attract other investors in Soga village and Soga ward. The project will attract other social economic and public services to be implemented since will increase the population and economy of the project area.

Despite of the foreseeable benefits, the project will also generate some negative impacts that are expected to be short term and will be managed during the construction phase. The impacts are like of increased generation of liquid waste and solid waste, vegetation clearance and air and vibration pollution. The impacts that are expected to be generated during the operation; its measures have been incorporated in the design.

In meeting one of the key legislative requirements prior to undertake Movit Product Factory operations, Movit Products (Tanzania) Limited has contracted **Eng. Samwel Maguya Masami who is the Registered Professional Environmental Experts with Registration No. NEMC/EIA/0415** to undertake an Environmental and Social Impact Assessment (ESIA) for the Proposed Establishment of Movit Products Manufacturing Factory.

E 3.0 STAKEHOLDER CONSULTATION AND THEIR INVOLVEMENT

E 3.1 Identified Stakeholders

The following are the identified stakeholders during the ESIA study:

- Ministry of Lands, Housing and Human Settlements Development,
- Ministry of Industry and Business,
- Pwani Region,
- Kibaha District Council (KDC)
- Tanzania Occupational Safety and Health Authority (OSHA),

- Tanzania Bureau of Standards (TBS),
- Tanzania Fire and Rescue Force,
- The Government Chemistry Laboratory Authority (GCLA)
- Soga Ward,
- Soga Village,
- Neighbors nearby the project area;

E 3.2 Results of Stakeholder Consultations

General, the stakeholders appreciate project implementation since it will be economically beneficial, stimulate economic development and provides scenic in the project area.

Stakeholders raised some negative and positive impacts/effects that will be associated with the construction and operation works such as; air pollution, noise pollution, waste generation, stormwater generation, employment opportunity, health and safety matters and etc. as detailed in the main text of this document.

Stakeholders have also advised the proponent to comply with various nation and by laws related to the project implementation. The raised issues/concerns and recommendations have been taken into consideration and incorporated into the project design and the ESMP of this report for implementation.

The village leaders have requested the proponent to have close relationship with them throughout the project duration including to provide employment opportunities priorities to local people in the project area. The proponent is also advised to participate in supporting the village socio-economic development and public services whenever deem necessary.

E 4.0 IDENTIFIED IMPACTS AND /MITIGATION MEASURES

The findings indicate the project will have beneficial and adverse (negative) impacts. However, the beneficial (positive) impacts are expected to be of long term and will occur during both construction and operation phases. In order to maximize the project benefits the enhancement measures for the identified positive impacts have been outlined in the report. The following are the identified beneficial (positive) impacts:

- Increased temporary and permanent employment opportunities for local people,
- Increased income generation opportunities for local people,
- Increased stimulation of economic growth,
- Increased aesthetic of the project area,
- Increased Revenue Collection for both Local and Central Government,
- Increases the availability of Movit products,
- Reducing price for expected products in the local market,
- Attraction of other investors to start developing the available plots,
- Emerging of Soga village and ward,
- Availability of the baggage's that will be carried by the SGR to increase government revenue
- Increases exportation of the products to SADC countries

The negative impacts will be of short-term and for those that occur during construction phase and some of the long-term impacts that will occur during the operation phase. The mitigation measures for the identified negative impacts have already been outlined in the report and elaborated in the corresponding ESMP schedule. The following are some of the major identified negative impacts:

- Vegetation clearance,
- Soil pollution due oil and grease spillage, and domestic waste

- Creation of air pollution due to dust and exhaust fume emission from construction and operation activities,
- Creation of noise pollution due to the construction vehicles, plant and equipment.
- Increased rick construction and operation related health and safety risks.
- Increase of the solid waste generation in the project area and Soga village as whole
- Wastewater generation from the proposed production processes
- Increased HIV/AIDS prevalence due to interaction between workers and local community members in both phases.
- Increased risk of COVID-19 transmission due to influx of people into the project site.
- Increased emergence of GBV/SEA and SH due to influx of job seekers into the project area.

E. 5.0 CONSIDERED ALTERNATIVES

The three alternatives have been considered in this study based on technical, economic, environmental and social point of view. The following are the considered project alternatives:

- **No Project Alternative VS Project Alternative:** The No Project Alternative was found to have less environmental effects/impacts than the Project Alternative. However, on the long-term the Project Alternative was found to have more socio-economic and environmental benefits than the "No Project Alternative". Therefore, the "Project Alternative" should be selected and "No Project Alternative should be rejected.

- **Labor-Intensive Construction Method VS Machine-Intensive Methods:** The "Labor-Intensive Construction Method" was found to be favorable than "Machine-Intensive Construction Method". However, due to the nature of the project the labor-intensive method has been found to have some limitations, and therefore the combination of the two methods should be considered. However, during construction more emphasis will be given on the labor-intensive method in order to promote employment of the local people. For example, excavation works, carrying of concrete and mortar, etc.

- **Alternative Site**
  The proposed site legally leased by the MPL from TIC and the site is compatible with the proposed activity, so far, the proponent has no other options to have a land that can be used as an alternative for project implementation. At the proposed location, the proponent also has other two sites that will be used for extension of the industrial activities in future. That is why the proponent is not opting to go for the alternative site.

- **Energy alternative**
  Generator has been selected to be used as an alternative source of electricity against solar energy due to extended shortage of power which is experienced in the country in few years. But client will opt to use both alternatives.

- **DAWASA and Borehole as water sources alternative for production**
  MPL will use water source from DAWASA for domestic water supply and other industrial activities throughout the project duration, while the water source from the borehole will be used during the construction and production processes since this area needs enough volume of water throughout the project cycle.

- **Bio-Digester Vs. Septic Tank Alternative**
  Implementation cost of the Bio-Digester is less than that of a septic tank in terms of construction. A septic tank has a larger volume and therefore requires more

materials. A septic tank is comparably larger in size than a biodigester and will require bigger space to construct.

This may however be done along the drive way or under the parking due to its strong structural capability. A Bio-Digester can fit well even in a landscaped garden. It is not advisable to construct on the drive way due to its delicate nature

Biodigester is (ideally) more hygienic while a septic tank may occasionally produce bad odor and may be prone to rodents, roaches or even flies. The septic tank requires desludging of the waste while the key factor to observe with the Bio-digester is to keep the bacteria healthy by not discharging oil or grease into it. With time the bacteria multiply in number and the Bio-Digester becomes more efficient.

Due to the fact that, bio-digester is less expressive to implement, it needs small space, its maintenance just needs to maintain/keep the bacteria. Proponent has opted to implement the biodigester.

E 6.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The purpose of ESMP is to ensure that the project is being implemented with minimum adverse environmental and social impacts. The ESMP focuses on avoidance or mitigation of potential impacts associated with the project related activities and enhancement of project benefits. It specifies mitigation and institutional measures to be taken during construction and operation phases, to eliminate any adverse environmental and social impacts, offset them or reduce them to acceptable standards.

In order to be effective, the ESMP has specified roles and responsibilities of various stakeholders during implementation. The identified stakeholders include the Tanzania Occupation Safety and Health Authority (OSHA); Tanzania Bureau of Standards (TBS), the Government Chemistry Laboratory Authority (GCLA), Tanzania Fire and Rescue Force, National Environment Management Council (NEMC); Division of Environment in the Vice President's Office (DOE-VPO); Kibaha District Council; Soga Ward and Soga Village Development Committees; and Local NGOs/CBOs dealing with project related environmental and social aspects in the project area.

However, proponent will be responsible for implementation of the mitigation measure through compliance of the issues that are under various regulatory authorities.

The successful implementation of ESMP also requires financial commitment. In this regard, cost estimates for implementation of mitigation measures have been taken into consideration. Therefore, the cost of implementation of mitigation measures has been estimated to be **TZS 291,200,000.00**. These costs will be included in the Bill of Quantities during preparation of Bidding Document.

E 7.0 RESOURCE EVALUATION OR COST BENEFIT ANALYSIS

E 7.1 Project Benefits and Costs

The project has been found to have short and long-term benefits which outweigh the project costs, estimated to be TZS. 10,000,000,000.00. The following are the short-term and long-term benefits:

- **Short-term Benefits**

The short-term socio-economic benefits include creation of temporary employment and increased income generation opportunities to the local people and local industries through selling of building materials, provision of capacity building for local staffs during the works. It is expected that during construction employment priority will be given to the local people.

However, during construction some local people, especially women will get opportunity to increase their income by selling food items to the workers. This benefit will be enhanced by providing access to water supply and sanitary facilities to enable them to sell their food in clean and hygienic environment, hence preventing transmission of hygiene related diseases like cholera and diarrhea to the construction workers.

- **Long-term Benefits**

The long-term environmental and socio-economic benefits will be realized from construction and operation of the proposed Industry. The long-term environmental and socio-economic benefits include:

- Increased productivity and stimulation of economic growth.
- Employment creation and economic improvement of households.
- Increased Revenue Collection by Local and Central Government.
- Increase of MPL products and hence reduce importation.
- Reduction the price of MPL in local market since travelling time will be reduced.
- Capacity building for local staffs during operation.
- Increase scenic of the project area.
- Increase competition of the related product to the market.

E 7.2 Benefit/Cost Ratio

The Benefit/Cost Ratio after including environmental costs it is 3.4 %. This indicates that environmental costs are very small compared with construction cost and do not have any effects on the project implementation costs.

E 8.0 DEMOBILIZATION PLAN

The demobilization plan will involve site rehabilitation and restoration of disturbed areas due to construction activities. It is the responsibility of the Contractor to undertake rehabilitation and restoration works to ensure that the environmental value of the project site is maintained for the present and future generations.

The purpose of site rehabilitation is to ensure that all disturbed areas resulted from construction activities are restored, leaving a stable environment that is conducive to the establishment of landscapes characteristic to the area.

The rehabilitation and restoration works will be done in accordance with the approved Contractor's Environmental and Social Management Plan (C-ESMP). Those areas that require rehabilitation and restoration works include the materials storage yard; workshop area, cement/asphalt batch plant area; soil/spoil materials dumping site; and camp site.

During demobilization phase all work areas, campsite/offices, workshops /garages and other temporary installations will be cleaned up and the site will be restored. These includes removal of temporary buildings, equipment, surplus materials, pieces of wood, pieces of bricks or any other material that was not present in the area before construction works.

The site will be cleared of overburden resulting from construction works. Natural drainages will be restored and damaged areas will be rehabilitated to make them compatible with the surrounding landscape. Permanent installations will be restored / repaired to their initial state. The compacted soils will be scarified to at least 15 cm deep to loosen it in order to facilitate vegetation growth.

Monitoring will be carried out by the Supervision Consultant's Environmental Expert to ensure the activities specified in contract are being adhered to by the Contractor. During monitoring the Supervision Consultant's Environmental Expert will undertake assessment of the site conditions and recommend the restoration / rehabilitation requirements for

implementation by the Contractor. Emphasis will be placed on the continuity between site characteristics and the adjacent landscapes.

E 9.0 CONCLUSION AND RECOMMENDATIONS

E 9.1 Conclusion

General, the project has been found to have both short-term and long-term environmental and socio-economic benefits to the local community, proponent, KDC and the Nation. The short-term socio-economic benefits include creation of temporary employment and increased income generation opportunities to the local people. It is expected that during construction some local people, especially women will get an opportunity to increase their income by selling food items to the construction workers. However, the local people and industries will benefit from selling building materials to the project area.

These benefits will be enhanced by providing clean and safe water supply and sanitary facilities to enable the food vendors to sell their food in hygienic environment, hence preventing transmission of hygiene related diseases like cholera to the construction workers. The supplier of building materials should be engaged and their capacity should enhance to supply the required materials for the work.

The long-term socio-economic benefits include increase tax collection from the importation of raw materials globally, permanent employment opportunities, house renting for the workers that will not be residing within the industrial area, reduction of market price and provide relief to the end users for products to be generated, easily availability of Movit products in the country for the wholesalers, reduced travelling distance for the SADC countries, and increase scenic of the flanking environment. Reduced travelling distance for the raw materials, instead of the travelling from Dar es salaam port to Uganda it will be from the port to Soga via railway line.

Most of the identified negative impacts are short-term with low significance and mainly occur during construction phase, while the study has also identified the long-term impact that will occurs during operation phase. Moreover, the mitigation measures have been proposed for the identified negative impacts in both phases. The cost estimates for the planned mitigation measures will be incorporated into the Bill of Quantities (BOQ) during preparation of Tender/Bidding Document.

E 9.1 Recommendations

To ensure the successful implementation and sustainability of the project, the Consultant provides the following recommendations:

- The project should be implemented as plan since the identified impacts are manageable through compliance with developed ESMP & HSMP
- Proponent should ensure engagement of the Health, Safety and Environment (HSE) during construction phase and operation phase,
- Proponent should promote awareness and education campaign to workforces and local people on the issue of safety to minimize the risk of accidents throughout the project duration,
- Proponent should ensure the solid and liquid waste management facilities are provided throughout the project phases,
- Proponent is advised to ensure all the necessary permits related to the project executions are in place before project implementation,

- Proponent should ensure the products have been approved by TBS and other related authorities/agents before they are supplied to the market or consumed,
- Proponent should ensure he encourages the recycling and reuse of the plastics that will be manufactured, are utilized for the Movit products whenever necessary,
- Proponent should ensure monitoring of the ESMP implementation is executed quarterly during both construction and operation phase as indicated in this report,
- The proponent should comply with the TZS 860 standard for the wastewater treatment and effluent from the industry, however, the proponent is advised to reuse the treated wastewater since there is no any discharge area nearby the project area.
- Emission of Noxious and fumes must be controlled so as to conform TZS 845 Air quality standards.
- Plant drawings i.e., Architectural and fire protection should be submitted to the Fire and Rescue Force prior the project execution,
- Design and provision of the fire protection systems should be done by the register and licensed fire expert,
- Private water hydrant should be incorporated into the design the design of water mains (water supply and reserve tanks),
- Installation and testing of the fire protection system should be done by the registered and licensed fire expert in consultation with Fire and Rescue Force,
- A detailed plant fire safety inspection shall be performed in annual basis,
- Proponent should ensure that all the proposed mitigation measures are well implemented during both phases of the project.

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CHAPTER 1: INTRODUCTION

1.1 Project Background

Based in Kampala, Uganda, Movit Products Ltd (MPL) is a personal care firm that produces various personal care items like of Movit, Radiant, Baby Junior, Skin Guard, Pine, and NAN. Movit is also well recognized for its Body Milk Lotion, Junior Petroleum Jelly, Movit No Base Relaxer, and many other items. Simpson Birungi established the business in 1997 at a temporary workshop in Namasuba, Wakiso District.

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include Accommodation (G+3, Six Blocks), Research & Product Development, Maintenance Workshop, Electricity, Gas tanks Water, waste management facilities, Security, Vehicular Traffic, Fire Fighting, Weigh Bridge(s), Food and Catering and Clinic.

The proposed project is expected to increase availability of the products in the country, expanding the market in the flanking nation, increase the scenic of the project area, increases income through tax collection, increases the individual income through direct and indirect employment. Implementation of the project will add land value to the project area including to attract other investors in Soga village and Soga ward. The project will attract other social economic and public services to be implemented since will increase the population and economy of the project area.

Despite of the foreseeable benefits the project will also generate some negative impacts that are expected to be short term and will be managed during the construction phase. The impacts are the like of increased generation of liquid waste and solid waste, vegetation clearance and air and vibration pollution. The impacts that are expected to be generated during the operation; its measures have been incorporated in the design.

In meeting one of the key legislative requirements prior to undertake Movit Product Factory operations, Movit Products (Tanzania) Limited has contracted **Eng. Samwel Maguya Masami who is the Registered Professional Environmental Experts with Registration No. NEMC/EIA/0415** to undertake an Environmental and Social Impact Assessment (ESIA) for the Proposed Establishment of Movit Products Manufacturing Factory.

1.2 Compliance with Regulatory Requirements

This Environmental Scoping Report has been prepared in accordance with Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations G.N. No. 474 of 2018 and Environmental Impact Assessment and Audit Regulations G.N. No. 349 of 2005.

The project has been classified as Category B1 in accordance with the FRIST SCHEDULE to the Amendment Regulations (2018). Therefore, the report has been prepared to comply with the requirements of Sub-regulation 8(1) of the Amendment Regulations (2018).

1.3 The Objective and Justification for the Project

The objective of this project is the Establishment of Movit Products Manufacturing Factory at Block J, Plot No. 9, Soga Village, Soga Ward, Mlandizi Township, in Kibaha District Council, Pwani Region.

1.4 Project Costs and Source of Funding

The total initial investment cost is estimated to be TZS 10,000,000,000.00. This investment involves construction of Offices/Administration, Pre-Production, Production, Post Production and Utility Services. The sources of financing will be covered by the MOVIT Products Limited.

1.5 Project Life Span

The construction period is estimated to be of about one (2) year, whereby two (2) months will be the mobilization period, twenty (20) months will be the construction period and two (2) months will be for demobilization period. After construction period, the proposed factory structures will be operated for an estimated period of 20 years before any major rehabilitation takes place.

The MPL is planning to extend the infrastructures close to the project area in the future at Block J, Plot 10 and 11 as shown in **Figure 2.1-1**.

1.6 The Purpose of the Assignment

The purpose of this assignment is to conduct detailed Environmental and Social Impact Assessment (ESIA), development of the Environmental and Social Management Plan (ESMP) and Health and Safety Management Plan (HSMP) for construction of the proposed project. The ESIA will address environmental and social impacts which may arise from mobilization, construction, operation and decommissioning activities and provide mitigation measures to prevent or minimize adverse impacts.

In the end, ESMP, and HSMP will be developed as tools of which its recommendations will be used by the Designer in the finalization of project designs and be included in the Tender Documents.

According to the TOR, the assignment shall be carried out in accordance with the requirements of the applicable national legislations. The applicable national legislations include the Environmental Management Act Cap 191; Environmental Impact Assessment and Audit Regulations (2005); and Environmental Impact Assessment and Audit (Amendment) Regulations (2018).

1.7 Objective and Scope of EIA Study

As per the Environmental Impact Assessment and Audit Regulations of 2005 as amended in 2018, the objectives of environmental impact assessment study are as listed hereunder;

(a) To establish before a decision is taken by any person, authority, corporate body or unincorporated body including the Government and local government authorities intending to undertake or authorise the undertaking of any activity impacts that may likely or to a significant extent affect the environment or have environmental effects on those activities;
(b) to promote the implementation of the Act and all laws and decision-making process through which the goal and objective in paragraph (a) may be realised;
(c) to encourage the development of procedure for information exchange, notification and consultation between organs and persons when a proposed activity is likely to have significant environmental effects on transboundary or an environment bordering regions, districts, municipalities, towns and villages;
(d) to ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
(e) to anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposal;
(f) to protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
(g) to promote development that is sustainable and optimises resources use and management opportunities.

The scope of the work will involve preparation of ESMP, HSMP and ESMoP to be used during the mobilization, construction and operation phases of the project

1.8 The Report Format

The preparation of this ESIA report has been carried out in accordance with the requirements of Sub-regulation 18(1), 18(2) and 18(3) of the Environmental Impact Assessment and Audit Regulations (2005) as amended in 2018.

The report is divided into two main parts, whereby Part I is Executive Summary and Part II is the Main Text. The main text is comprised of 13 Chapters, whereby Chapter One is Introduction, followed by Project Background and Project Description in Chapter 2.

Chapter 3 deals with Policy, Legal and Institutional Framework, followed by Description of Environmental Baseline Conditions in Chapter 4

The Stakeholder Consultations and Public Participation is provided in Chapter 5, which is followed by Assessment of Impacts and Analysis of Alternatives in Chapter 6. In Chapter 7, the report outlines Environmental Mitigation Measures, followed by Chapter 8 which outlines the Environmental and Social Management Plan (ESMP); which is immediately followed by Environmental Monitoring Plan in Chapter 9.

The report provides Resources Evaluation and Decommission Plan in Chapter 10 and Chapter 11, respectively. Finally, the report ends up with Summary and Conclusion in Chapter 12, which is followed by References in Chapter 13 and Appendices.

CHAPTER 2: PROJECT DESCRIPTION

2.1 Project Location and Existing Situation

2.1.1 Project Location

The proposed project is located in a surveyed plot or area (Block J, Plot No.9), the plot has the total area of 28.19 Acres corresponding to 11.408 Ha at Bomu Hamlet, Soga Village, Soga Ward, in Kibaha Township, Kibaha District Council (KDC), Pwani Region. At Soga, MPL own three (3) plots, the other two plots (10 & 11) will be developed in future as shown in **Figure 2.1-1**.

KDC is bordered by Morogoro Region to the West, Chalinze DC to the North, Kisarawe DC to the South and Kibaha TC to the East as shown in **Figure 2.1-2**. The existing neighborhood consists mainly of residential developments, Meat processing Factory (Tan choice Ltd – Slaughterhouse), and SGR Railway workshop (**Yapi Merkezi SGR Railway Workshop**) as shown in **Figure 2.1-3**.

The proposed project area/site currently has no any development or infrastructures within, the proposed plot is separated by Mtaa roads in both sides, the future development nearby is also intended to be used as the industrial area by the Proponent.

From the City of Dar es Salaam, the project is located along Morogoro Road, about 46 km. The project site can be accessed via earth road from the Morogoro road about 6km. on the other hand the project can be accessed via SGR as shown in **Figure 2.1-3**. The proposed MPL project area is demarcated by the following coordinates;

Table 2.1-1: Coordinates of the project area

STATION	NORTHINGS	EASTINGS	HOW FIXED	DESCRIPTION
GPS43	9252385.329	480767.477	Datum	SEE PLAN NO. E…….
GPS46	9247668.409	495939.380	″ ″	″ ″
Coordinate for the Plot to be used in this phase				
IPC1	9245958.738	483526.897	Coordinated	Iron Pin Concrete
IPC2	9245900.302	483904.269	Coordinated	Iron Pin Concrete
IPC3	9245536.070	483793.847	Coordinated	Iron Pin Concrete
IPC4	9245771.250	483477.613	Coordinated	Iron Pin Concrete
Coordinates for the two (2) Plots to be used for Future extension as shown in Figure 2.1-1				
IPC5	9245737.348	483468.702	Coordinated	Iron Pin Concrete
IPC6	9245558.725	483657.808	Coordinated	Iron Pin Concrete
IPC7	9245433.965	483620.111	Coordinated	Iron Pin Concrete
IPC8	9245517.025	483410.786	Coordinated	Iron Pin Concrete
IPC9	9245551.664	483687.014	Coordinated	Iron Pin Concrete
IPC10	9245428.981	483649.944	Coordinated	Iron Pin Concrete

Figure 2.1-1: The plot to be developed with other flanking plots own by the proponent
Source: Survey Report, June 2024

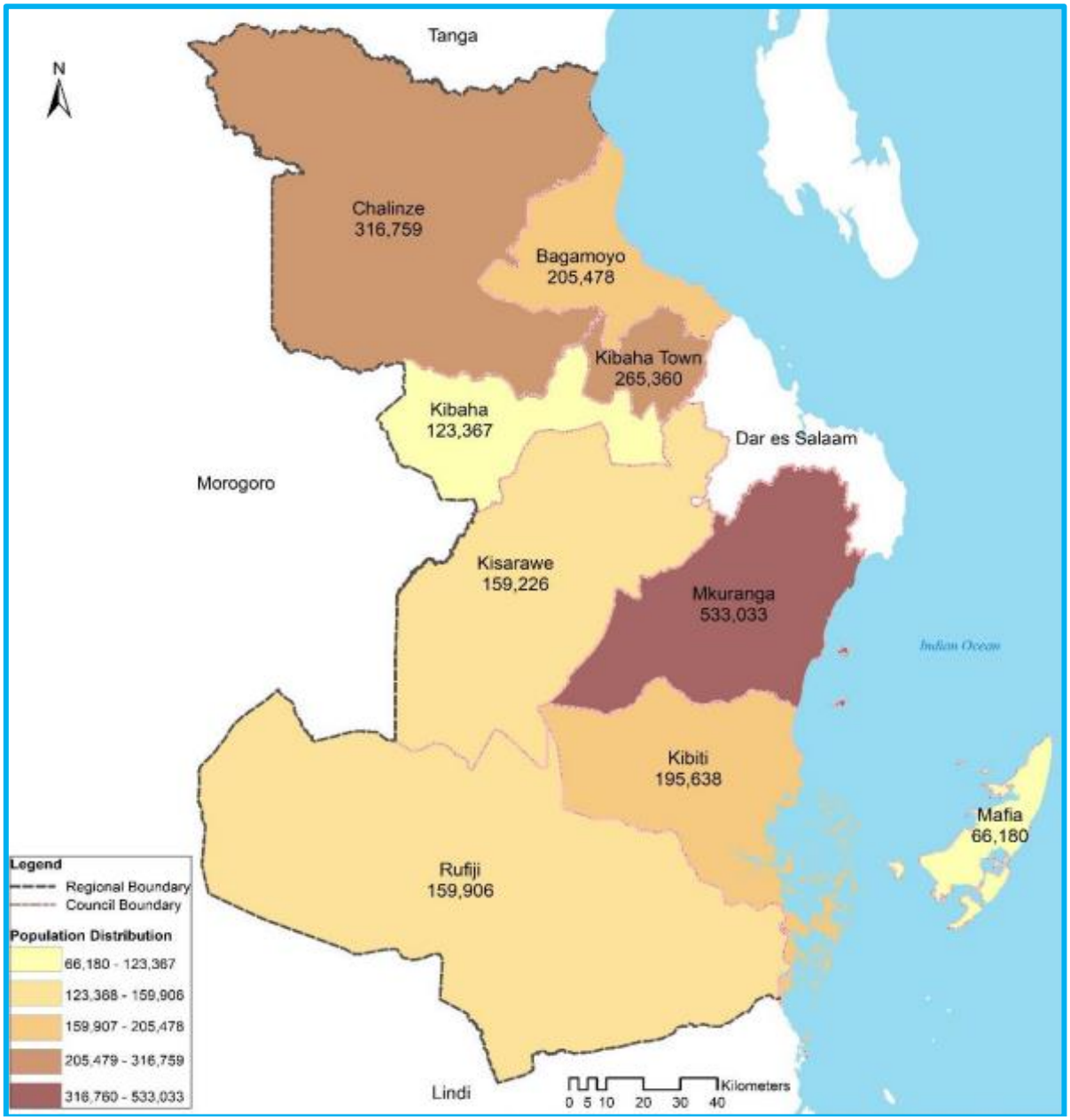


Figure 2.1-2: Project Location
Source: Administrative_units_Population_Distribution_Report_Tanzania_volume1a, 2022

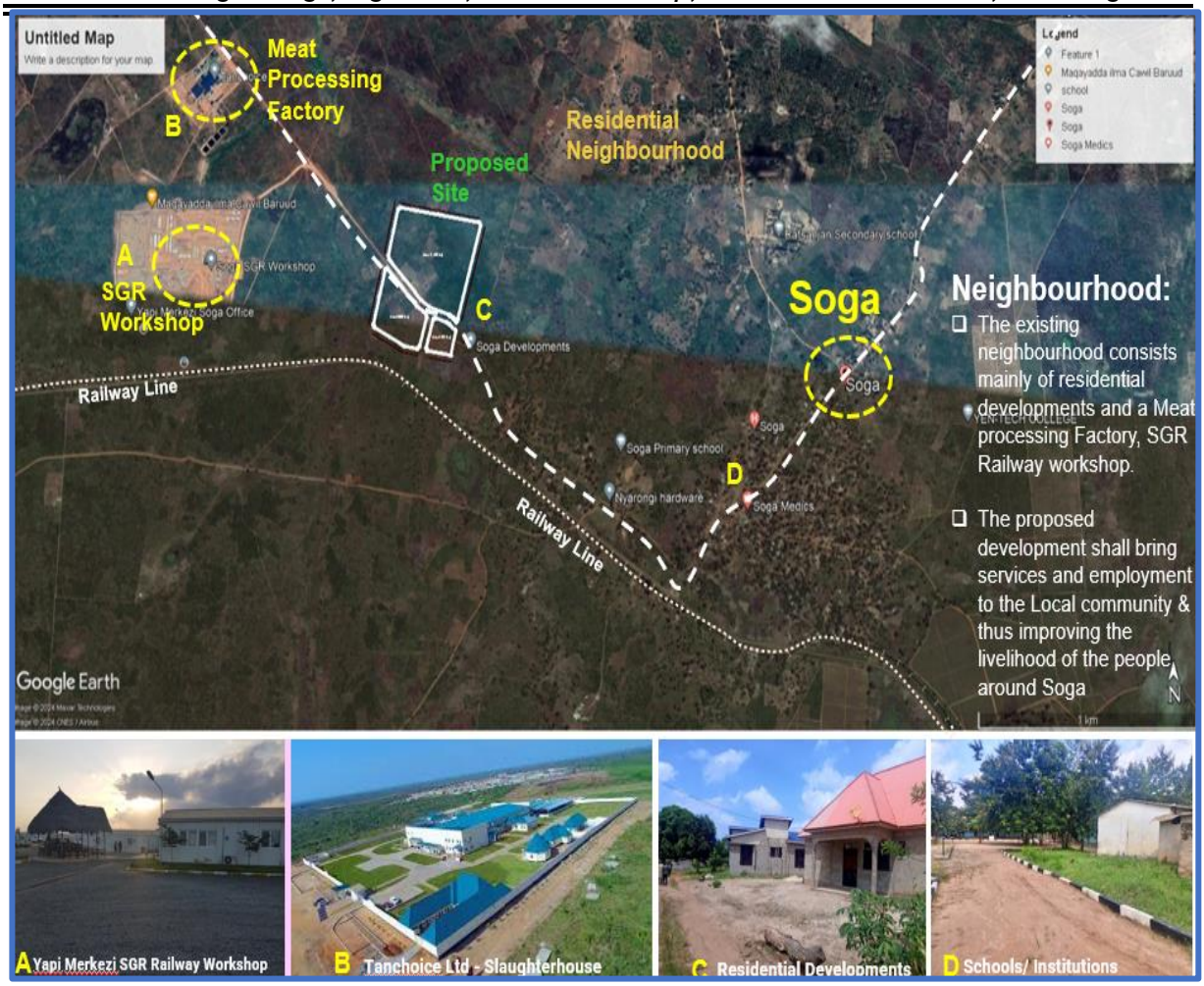


Figure 2.1-3: Neighborhood of the project area

2.1.2 Existing Situation in the project area

The proposed project site is covered with vegetations with no any structures so far within. Types of vegetation that are existing at the proposed site are; shrubs, tick trees, and baobab trees, mango trees and coconut trees as shown in **Photo 2.1-1** to **2.1-4**. The project is also close to the residential area as shown in **Figure 2.1-3**.

Plate 2.1-1: Cashew nut trees available in the project area

Plate 2.1-2: Baobab tree available in the proposed plot

Plate 2.1-3: Mango trees located within the project area

Plate 2.1-4: coconut trees found in the project site

Plate 2.1-5: Access road towards Mzenga, it crosses the SGR & MGR railway lines

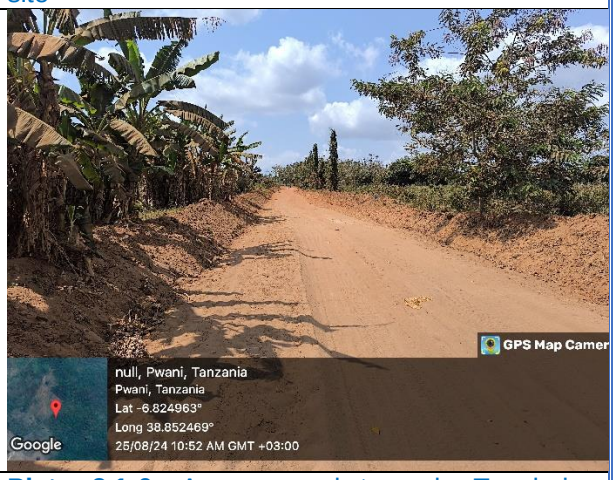


Plate 2.1-6: Access road towards Tanchoice meat industry

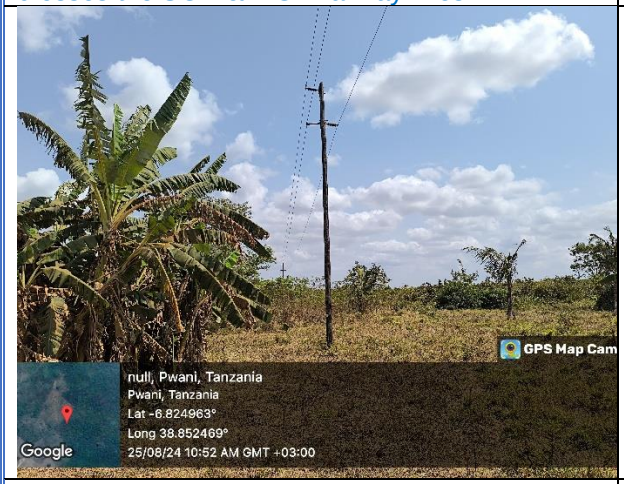


Plate 2.1-7: High voltage power line toward tanchoice industry to east site of the plot

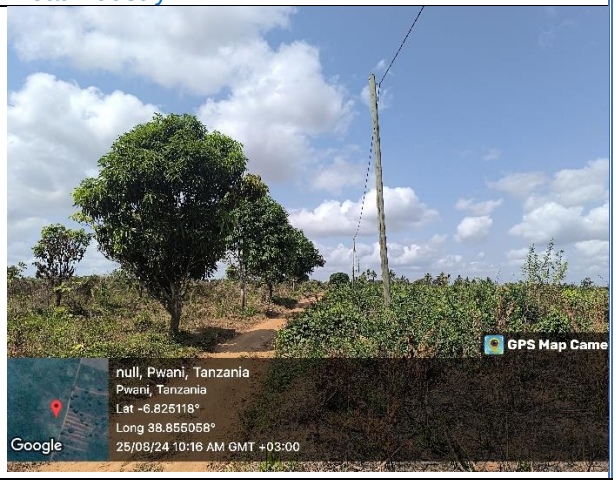


Plate 2.1-8: REA power line traversing from south to north to the west side of the plot

2.2 Nature of the Undertaking

Movit Products Ltd (MPL) is planning to construct and operate the manufacturing factory at Soga in Tanzania. The industry is expected to produce cosmetic product, SIM plastic for packaging of Movit products, and Aerosol products within the same compound as shown in **Figure 2.2-1.**

This is a personal care firm that produces various personal care items in Uganda and the same product will be produced at Soga, the products are the like of Movit, Radiant, Baby Junior, Skin Guard, Pine, and NAN.

Movit is also well recognized for its Body Milk Lotion, Junior Petroleum Jelly, Movit No Base Relaxer, and many other items. The products will be supplied in the local market and to the whole SADC countries as discussed earlier.

2.3 Site Layout and Project Components

2.3.1 Site Layout

The proposed project will be implemented in the plot with the total area of about 28.19 Acres or 11.408 Ha. As per the project layout in **APPENDIX VII**, the project is designed to comprise the following facilities; Normal buildings, warehouses/factories, waste management facilities, parking lots, access roads, landscaping and utilities as listed hereunder.

2.3.1.1. Normal Buildings

Weighbridge area (267 sqm)
Accommodation (660 sqm)
Casual staff dinning & clinic rest rooms area (425 sqm)
Administration block (210 sqm)
Maintenance workshop

2.3.1.2 Warehouses

Aerosols warehouse (1,800 sqm)
Raw materials and packaging materials (rm/pm 6,300 sqm)
Finished good area (6,300 sqm)
SIM-plastic factory - 1(6,300 sqm)
SIM-plastic factory - 2(6,300 sqm)
Production area (6,300 sqm)

2.3.1.3 Utilities

SIM Plastic utilities (300 sqm)
Movit Product utilities (300 sqm)
RM storages silo tanks (946.5 sqm)
Gas tanks area

2.3.1.4 Waste management facilities

Waste treatment area (74.4 sqm)

2.3.1.5 Parking lots and landscaping

60-Parking lots for small vehicles
70-parking lots for offloading and loading
Access roads
Landscape and greening area

The mentioned facilities are summarized into five components such Offices/ Administration, Pre-Production, Production, Post Production and Utility Services as shown in **Figure 2.3-1**.

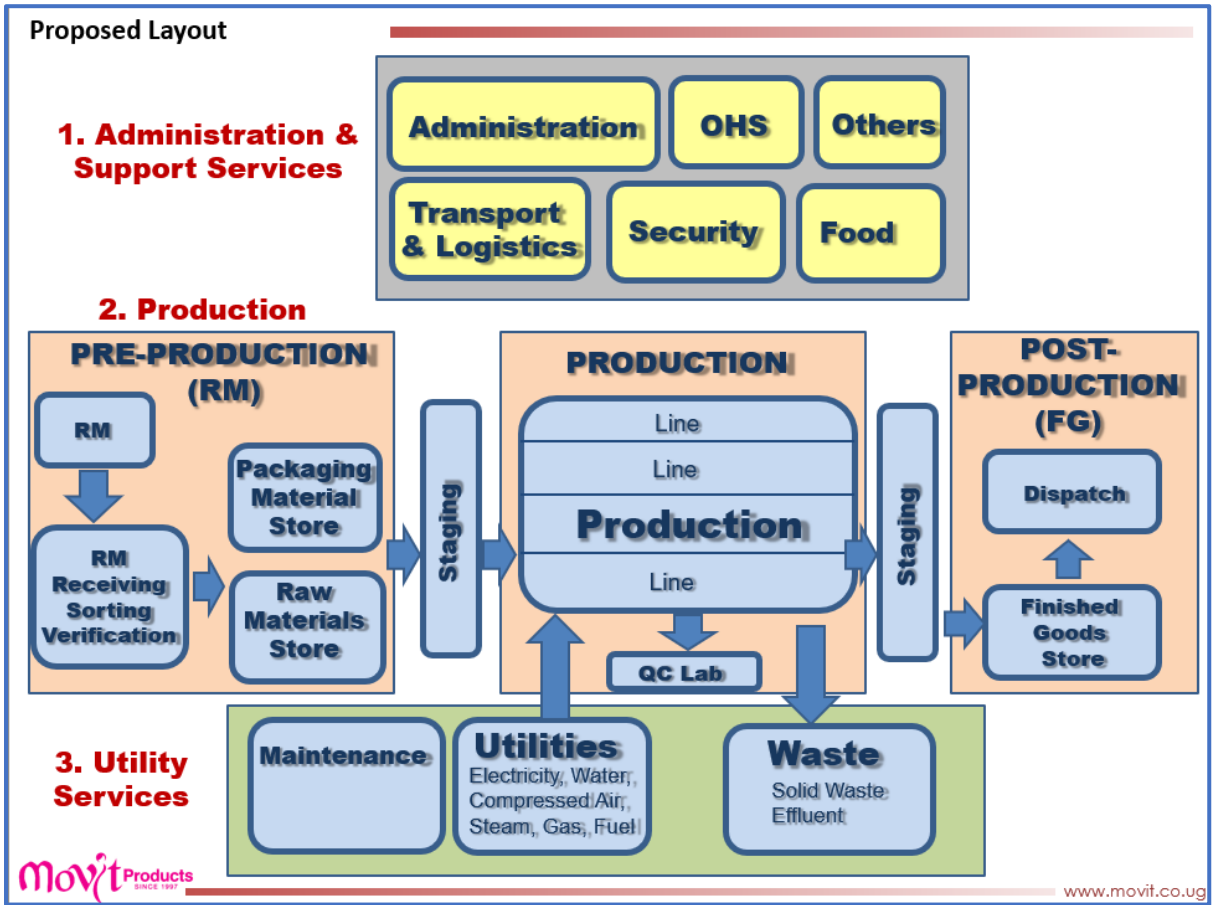


Figure 2.3-1: Project Layout
Source: Project Design, 2022

2.3.2 Land Use Planning in the Proposed Plot

2.3.2.1 Zoning

The project is divided into three zoning such as Zone 1, Zone 2 and Zone 3 as shown in **Figure 2.3-2.**

2.2.2.2 Access to the Site

The proposed site is accessed by using two (2) main gates located south and north of the site. The accesses are open into the central zone and are visible to all and shall ease circulation to the other 2 zones as shown in **Figure 2.3-2**.

2.2.2.3 Central Courtyard

This is central to the complex and will be the most welcoming & captivating to the visitors. It should tell the story of the Movit brand and leave a lasting impression. It should tell the story of the Movit brand and leave a lasting impression to all staff and visitors.

2.2.2.4 Factory Space

The factor spaces are divided into five spaces as follows; Raw Materials (RM) & Packaging Material (PM), Production, Finished Goods (FG), Staff Facilities, and Services.

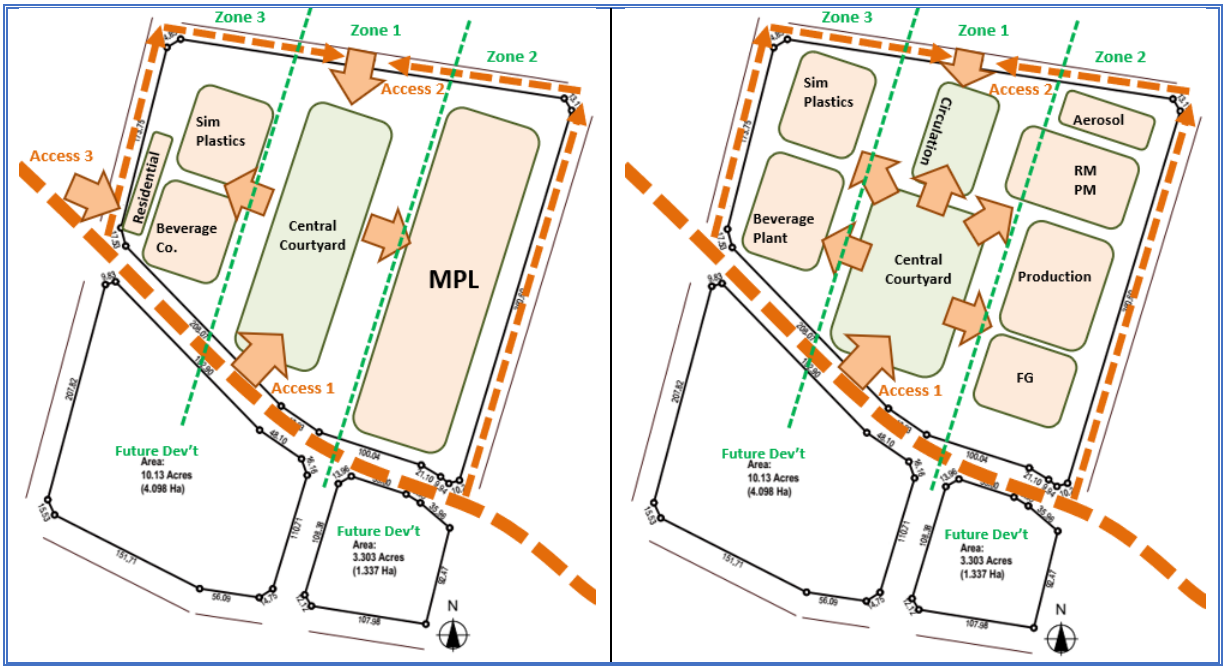


Figure 2.3-2: Land Use Planning in the Project Plot
Source: Project Design, 2022

Figure 2.3-2: land use plan through the Site Plan
Source: Design Report 2022

Figure 2.3-3: Aerial view of the Site Plan
Source: Design Report 2022

2.4 Design of the Project Components and Civil Works

2.4.1 Functions of the Project Components

As discussed in section 2.3.1, general the assignment involves construction of Offices/ Administration, Pre-Production, Production, Post Production and utility services as shown in **Figure 2.3-1.** The detailed function of the components is provided here under.

2.4.1.1 Buildings or Blocks

Administration Block (1,255 sqm)

The proposed building is designed to contain two floors, ground and first floor. The total area to be covered by the building is 210 sqms. **Table 2.4-1**, provides the detailed function of the administration building.

Table 2.4-1: Functions of the Administration Block (G+1)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilets Facilities
Ground Floor				
1.	Conference Hall	1,255	250	
2.	Kitchen			
3.	Toilets		Ladies & Gents	7WCs, 6HB, 3UR
4.	Lift provision			
5.	Staircases – 2 locations			
6.	The ground floor is designed to have five (5) Offices		63	
7.	PEP Store			
8.	Boardroom		18	
9.	Reception			
10.	Waiting & exhibition room			

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilets Facilities
11.	Restaurant		81	
First Floor				
1.	Conference hall extension	210		
2.	Toilets		Ladies & Gents	7WCs, 6HB, 3UR
3.	Staircase - 1			
4.	The first floor is designed to contain six (6) Offices		114	
5.	Boardroom		18	
6.	PEP store			
7.	Stair case – 2 locations			

Figure 2.4-1: View of the Administration Block

Accommodation Block (660 sqm)

The proposed building will be used for residential purposes for senior staffs will be residing. The block is designed to cover 220 sqms. Table 2.4-2, provides the detailed function of the accommodation buildings.

Table 2.4.-2: Functions of the Accommodation Building (G+3)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
Typical ground to fourth Floor – three (3) Block				
1.	Four houses each with a master bed-room, lounge, balcony, mini-kitchen and stair case	660	48	-

Figure 2.4-2: View of the Accommodation Blocks

Weighbridge Bock (267 sqm)

The proposed building will be used as weighbridge area with the provision of offices and weighing area. The weighbridge building is designed to cover 298.45 sqms. **Table 2.4-3**, provides the detailed function of the weighbridge building.

Table 2.4-3: Function of the Weighbridge Building (G+1)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilets Facilities
Ground Floor				
1.	Weighing area	267		
2.	Weighbridge office		20	
3.	Staircase			
First Floor				
1.	Weighbridge Offices	267	20	
2.	Staircase			

Figure 2.4-3: View of the Weighbridge Block

Casual staff dinning & clinic rest rooms area (425 sqm)

The proposed building will accommodate casual staff as rest room and clinic. The block is designed to cover 298.45 sqms. **Table 2.4-3**, provides the detailed functions of the Casual staff dinning & clinic rest rooms building.

Table 2.4-4: function of Casual staff dinning & clinic rest rooms area (425 sqm)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
Ground Floor				
1.	Gents' restroom	425	3	
2.	Ladies' restroom		3	
3.	Dispensary			
4.	Workers record room			
5.	Toilet		Ladies & Gents	5WCs, 3HB, 4SH, 3UR
6.	Kitchen house			
7.	Kitchen store			
8.	Workers dining room			

Figure 2.4-4: View of the Casual Staff Dinning & Clinic Rest Rooms

2.4.1.2 Warehouses Blocks

A. Production warehouse (6,300 sqm)

The proposed building is designed to contain two floors, ground and first floor. The total area to be covered by the building is 6,300 sqms. The warehouse will be used for production of the skin care products. **Table 2.4-5**, provides the detailed function of the production warehouse building.

Table 2.4-5: Function of the Production Warehouse (G+1)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
Ground Floor				
1.	Warehouse	6300		
2.	The ground floor is designed to contain five (5) Offices		110	
3.	Meeting room		10	
4.	Reception			
5.	store			
6.	Staircase area			
7.	Changing room			
8.	Toilet - 1		Ladies & gents	4 WCs, 2 HB, 2UR
9.	Toilet - 2		Ladies & gents	5WCs, 5HB, 2UR
10.	Toilet - 3		Ladies & gents	4WCs, 7HB, 2UR, 6SH, 2-lockers, 2-benches
11.	Toilet - 4		Ladies & gents	4WCs, 2HB, 2UR
First Floor				
1.	Warehouse	6300		
2.	The first floor is designed to contain five (5) Offices		136	
3.	Toilet - 1		Ladies & gents	4WCs, 5HB, 2UR
4.	Toilet - 2		Ladies & gents	4WCs, 5HB, 2UR
5.	Meeting room - 1		10	

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
6.	Meeting room - 2		10	

B. Raw and Packaging Materials (RM/PM 6,300 sqms)

The proposed building is planned to contain two floors, ground and first floor. The total area to be covered by the building is 6300 sqms. The warehouse will be used for receiving and packaging of raw materials ready for production of skin care products. **Table 2.4-6**, provides the detailed function of the production warehouse building.

Table 2.4-6: Function of the RM/PM Warehouse (G+1)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
Ground Floor				
1.	Warehouse	6300		
2.	Verification area			
3.	Dispatch area			
4.	The ground floor is designed to contain five (5) Offices		110	
5.	Meeting room		10	
6.	Reception			
7.	Store			
8.	Staircase area			
9.	Changing room			
10.	Toilet - 1		Ladies & gents	4 WCs, 2 HB, 2UR
11.	Toilet - 2		Ladies & gents	5WCs, 5HB, 2UR
12.	Toilet - 3		Ladies & gents	4WCs, 7HB, 2UR, 6SH, 2-lockers, 2-benches
13.	Toilet - 4		Ladies & gents	4WCs, 2HB, 2UR
First Floor				
1.	Warehouse	6300		
2.	The first floor is designed to contain five (5) Offices		136	
3.	Toilet - 1		Ladies & gents	4WCs, 5HB, 2UR
4.	Toilet - 2		Ladies & gents	4WCs, 5HB, 2UR
5.	Meeting room - 1		10	
6.	Meeting room - 2		10	

C. Finished Good (FG) Area (6,300 sqm)

The proposed building is planned to contain two floors, ground and first floor. The total area to be covered by the building is 6300 sqms. The warehouse will be used for receiving and packaging of finished goods of the skin care products. **Table 2.4-7**, provides the detailed functions of the production warehouse building.

Table 2.4-7: Function of the FG Warehouse (G+1)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
Ground Floor				

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
1.	Warehouse	6300		
2.	Verification area			
3.	Dispatch area			
4.	The ground floor is designed to contain five (5) Offices		108	
5.	Meeting room		10	
6.	Reception			
7.	Storage			
8.	Staircase area			
9.	Quality control room			
10.	Visitors Changing room			
11.	Changing room			
12.	Dispatch area			
13.	Toilet - 1		Ladies & gents	5 WCs, 5 HB, 2UR
14.	Toilet - 2		Ladies & gents	4WCs, 2HB, 2UR
15.	Toilet - 3		Ladies & gents	4WCs, 7HB, 2UR, 6SH, 2-lockers, 2-benches
16.	Toilet - 4		Ladies & gents	4WCs, 2HB, 2UR
First Floor				
1.	Warehouse	6300		
2.	The first floor is designed to contain five (5) Offices		136	
3.	Toilet - 1		Ladies & gents	5WCs, 5HB, 2UR
4.	Toilet - 2		Ladies & gents	5WCs, 5HB, 2UR
5.	Meeting room - 1		10	
6.	Meeting room - 2		10	
First Floor				
1.	Warehouse	3,874.44		
2.	The first floor is designed to contain five (5) Offices		136	
3.	Toilet - 1		Ladies & gents	5WCs, 5HB, 2UR
4.	Toilet - 2		Ladies & gents	5WCs, 5HB, 2UR
5.	Staircase – 2 locations			
6.	Meeting room - 1		10	
7.	Meeting room - 2		10	

D. SIM-plastic Warehouse (6,300 sqm)

The proposed building is designed to contain two floors, ground and first floor. The total area to be covered by the building is 6,300 sqms. The warehouse will be used for production of SIM plastic products for packaging of MPL. **Table 2.4-9**, provides the detailed functions of the SIM Plastic warehouse building.

Table 2.4-9: Function of SIM Plastic Warehouse (G+1)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet Facilities
Ground Floor				
1.	Warehouse	6,300		
2.	The ground floor is designed to contain four (4) Offices		70	
3.	Verification area			
4.	Dispatch area			
5.	Loading Deck			
6.	Pantry			

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet Facilities
7.	Meeting room		10	
8.	Reception			
9.	Storage			
10.	Staircase area			
11.	Quality control lab			
12.	Quality control booth			
13.	Visitors Changing room			
14.	Changing room-1			
15.	Changing room-2			
16.	Toilet - 1		Ladies & gents	4WCs, 2HB, 2UR
17.	Toilet - 2		Ladies & gents	4WCs, 2HB, 2UR
18.	Toilet - 3			5WCs, 5HB, 2UR
19.	Toilet - 4		Ladies & gents	4WCs, 7HB, 2UR, 6SH, 2-lockers, 2-benches
First Floor				
1.	Warehouse	6,300		
2.	The first floor is designed to contain five (5) Offices		136	
3.	Toilet - 1		Ladies & gents	5WCs, 5HB, 2UR
4.	Toilet - 2		Ladies & gents	5WCs, 5HB, 2UR
5.	Meeting room - 1		10	
6.	Meeting room - 2		10	

E. Aerosols warehouse (1,800 sqm)

The proposed building is designed to contain two floors, ground and first floor. The total area to be covered by the building is 1,800 sqms. The warehouse will be used for storage of aerosols, the products which will be in form of dust, fume, mist, smoke, and fog. **Table 2.4-10**, provides the detailed function of the Aerosols warehouse building.

Table 2.4-10: Function of the Aerosol Warehouse (G+1)

S/n	Functions	Area Covered (sqm)	No. of Users	No. Toilet facilities
Ground Floor				
1.	Warehouse	1800		
2.	The ground floor is designed to contain two (2) Offices		10	
3.	Raw materials receiving area			
4.	Finished Good holding area			
5.	Reception			
6.	Staircase area			
7.	Parking area			
8.	Toilet - 1		Ladies & gents	3WCs, 3HB, 2SH, 2UR
First Floor				
1.	Warehouse	1800		
2.	The first floor is designed to contain two (2) Offices		10	
3.	Toilet - 1		Ladies & gents	5WCs, 5HB, 2UR
4.	Staircase			
5.	Storage			

Figure 2.4-5: view of the warehouses

2.4.1.3 Utilities

The proposed industrial area is planned to contain various utilities for the purpose of productions works during operation phase. Each warehouse location will be provided with its own utilities. The utilities to be provided are such as gas, water, electricity and etc. the utility to be provided and its coverage area are such as; SIM Plastic utilities (300 sqm), Aerosol Utilities (300 sqm), MPL utilities (300 sqm), RM storages Silo Tanks (946.5 sqm) and Gas tanks area (500 sqm).

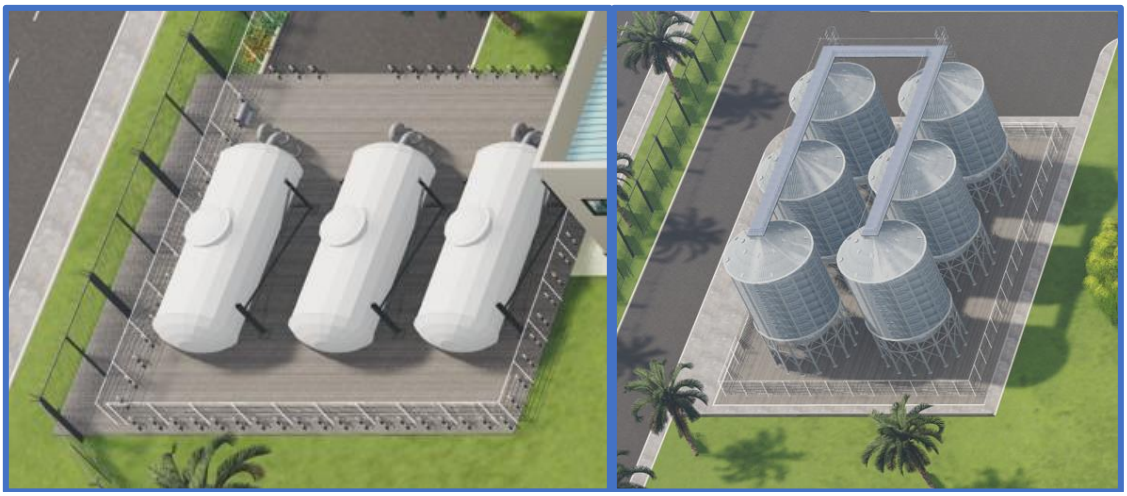


Figure 2.4-6: view of the utilities

2.4.1.4 Waste Management Facilities

The proposed industrial activities will be producing waste in various location depending with the domestic and production activities throughout the project cycle. The proponent has planned the area to be used for collection of wastes and provision of treatment facilities. The designated area for treatment facilities is estimated to be 100 sqms as shown in the project layout (**Figure 2.3-2**).

2.4.1.5 Parking lots, landscaping and access road

The industrial area is planned to have 130 parking lots, the accommodation and administration blocks areas are provided with about 60-Parking lots for small vehicles. While the warehouse locations are provided with about 70-parking lots for offloading and loading of the luggage's.

The industrial area is planned to be accessed by the several accessed roads from one building to another. The access roads are planned to be constructed to bitumen standards. However, the project will be designed as per the available topography with provision of

greening or vegetation as shown in the project layout. The green areas to be provided will be helping to absorb stormwater and then termed as the sustainable drainage (SuDs).

Figure 2.4-7: view of the parking lots

2.4.2 Civil Works

The project will construct the access road in the project area to bitumen standards. On the other hand, the project will also include parking lots as part of civil works in various location within the project area.

2.4.3 Project Phasing

The project will be constructed in three (3) phases as shown in **Figure 2.4-1**. The project will construct half of the proposed buildings except for the aerosol building which will be done fully. The second phase will finish the buildings for the planned projects and the third phase will be for the reserved area to be used for future expansion.

Figure 2.4-6: Project Phasing During the Construction
Source: Design Report 2022

2.5 Learn Flow Requirement

a) Provision of necessary, ample and systematic yards to minimise Congestion.
b) Provision of adequate storage (Raw material (RM), Finished Goods (FG), Packaging Material (PM) to minimise congestion in halls.
c) Provision of ample height of Warehouses (more than 8 meters) to facilitate end to end automation.
d) Provision of safe storage of combustible materials (Butane, LPG, HFO & other flammable chemicals)
e) Provision of proper cross ventilation & air conditioning where necessary.
f) Proper and planned movement of Vehicle & people
g) Provision of well laid out and accessible storage spaces to minimise expiry of goods in the stores
h) Creation of adequate employee facilities
i) Provision of standard manufacturing structures
j) Properly Planned flow of services (mechanical, electrical & plumbing works)
k) User and environmentally friendly landscaping
l) Avoid over handling of materials.
m) Provision of a proper drainage system.
n) Provision of easy to clean working spaces.

2.6 Cosmetic Factory

2.6.1 Raw Materials

The proposed cosmetic factory will use various raw materials for manufacturing processes. The materials will be imported from various countries as provided in **Table 2.6-1**. The raw materials will be sourced worldwide. In East Africa the raw materials will be collected from Kenya and Uganda only, while Uganda is the leading one in producing more raw materials that will be used for production works.

Table 2.6-1: Raw Materials and Country of Origin

S/N	Material Description	Country of Origin	S/N	Material Description	Country of Origin
1.	ACNET	South Africa	2.	CRODAMOL S	China
3.	ACETONE	Thailand	4.	CRODAQUEST /EDTA	China, India
5.	ALLUMINIUM STEARATE (P)	India	6.	CRODOMOL STS	South Africa
7.	AMMONIA	India	8.	CROTEIN Q/TCC / TRICLOCARBON CHEMICAL	China
9.	ANNABEL FRAGRANCE AR 168930	UK	10.	CRS-1055 WAX	China
11.	ARGAN OIL DEODOURISED	UK/Morocco	12.	CSABT WAX/BTMS	China
13.	ASCORBIC ACID	Uganda, Kenya	14.	DEHYQUART GUARN	Germany
15.	AUGAHERB ALOE VERA EXTRACT SI	UK	16.	DEHYQUAT F 75	Germany
17.	AUTHENTIC PERFUME 1022230	Spain	18.	DEHYTON PK 45	Germany
19.	AVOCADO /SHEA BUTTER FRAGRANCE - 1022276	Spain	20.	DICAPIMINE PF	China
21.	REFINED AVOCADO OIL	UK, France, Kenya	22.	DOWCORNING 556	South Africa, Kenya
23.	BABY OIL 1022289	Spain	24.	DRAKKER FRAG	Egypt
25.	BABY POWDER LOT FRAGRANCE #78328	USA	26.	EFF 261049 SHIELDED	UK/ France
27.	BEHENTRIMONIUM CHLORIDE	China	28.	EGG YELLOW COLOUR	Uganda
29.	BELSIL DM 350/DEMETHICONE / XIAMETER PMX 200/350CS FLUID	South Africa, USA	30.	ELEGANT PERFUME 1022335	Spain
31.	BERRY PLEASSURE	South Africa	32.	EUPERLAN PK 771BENZ (UFABLEND MPL)	Germany
33.	BLENDING WAX	Hungary	34.	EUXYL K 320	South Africa
35.	BLOSSOM HAIR TONIC F005	Dubai	36.	FORMALIN	Uganda
37.	BRILLIANT BLUE COLOUR	India	38.	TOUCH OF PINK (EFF 268593)	UK, France
39.	CARAMEL COLOUR	France, Kenya	40.	GIVER PERFUME 1022216	Spain
41.	CARBOPOL 940 /TS- CARBOMER 940	USA	42.	GLYCERINE OIL	Germany, Brazil, Malaysia
43.	CARBOPOL ULTREZ 21 - C002/TSCARBOMER 21	USA	44.	GLYCEROX HE	USA
45.	CAUSTIC SODA PEARLS	Saudi Arabia	46.	HAIR MOISTURISER	UK
47.	CETIOL AB	Germany	48.	HEAVY WHITE OIL/LIQUID PARAFFIN HEAVY	India
49.	CETIOL C	China	50.	HERBAL FRAGRANCE 147601	UK
51.	CETIOL CM	China	52.	HONEY	Uganda
53.	CETOSTEARYL ALCOHOL (LANETTE D) - CSA	India	54.	HYDRODROLYSED PROPLY SILANETRIOLL	China
55.	CHOLESTEROL	China	56.	HYDROGEN PEROXIDE (50%)	South Korea, Thailand
57.	CITRIC ACID	Uganda	58.	CRODAMOL S	China
59.	COCODIETHANOLAMIDE/UFANON KDS -	India	60.	CRODAQUEST /EDTA	China, India

S/N	Material Description	Country of Origin	S/N	Material Description	Country of Origin
	CDEA				
61.	COCONUT MODERN FRAGRANCE 147170	UK	62.	CRODOMOL STS	South Africa
63.	COLANYL CARMINE FBB 130	South Africa	64.	CROTEIN Q/TCC / TRICLOCARBON CHEMICAL	China
65.	COLANYL GREEN GG 131-ZA	South Africa	66.	CRS-1055 WAX	China
67.	COLANYL RED GG 131-ZA	South Africa	68.	CSABT WAX/BTMS	China
69.	COLANYL YELLOW G 132-ZA	South Africa	70.	DEHYQUART GUARN	Germany
71.	CONDITIONER BASE	China	72.	HYDROXYBENZOIC/SALICYLIC ACID	China
73.	COSMO WAX D	China	74.	HYDROXYTHYLCELLULOSE H002(NATRASOL)	China
75.	CREMOPHOR A6 / EMULGADE A6	Germany	76.	ISOPROPYL MYRISTAT (IPM)	Malaysia, India
77.	CREMOPHOR RH 40 PEG 40-HYDROGENATED CAST	Germany	78.	ISOPROPLY PALMITATE (IPP)	Malaysia, India
79.	CREMOPHOR WO7/DEHYMULS HRE7	Germany	80.	KISS OF JOY	UK
81.	CRILL 6 / SPAN 120-LQ-(RB)	UK	82.	KERAVIS	South Africa
83.	CRODAMOL GTCC	South Africa	84.	KIWI MELON GRAPEFRUIT	UK
85.	LANOLIN ANHYDROUS/LANOLIN BP	Germany	86.	ORCHID PERFUME 1022222	Spain
87.	LANOLIN PEG 75 /SOLAN E	China, South Africa	88.	ORGASAL K181	China
89.	LEMON FRAGRANCE	UK	90.	PARAPHENYL DIAMINE PPDA	China, India
91.	LUVIQUART PQ 11AT 1	Germany	92.	PCMX/PECO SX/PCMX	China
93.	LUVIQUAT ULTRA CARE	Germany	94.	PEAR & MIMOSA #61390	USA
95.	MAGIC ORGANICS FRAGRANCE #97173	UK	96.	PETROLEUM JELLY	India, Dubia, Turkey
97.	MAGNESIUM SULPHATE	Kenya	98.	PHOSPHERIC ACID	Uganda
99.	MARULA OIL & COCONUT FRAGRANCE	France	100.	PLANTACARE 818 UP	Germany
101.	2- AMINOETHANOL (MEA)MEA	China	102.	POLAWAX	China
103.	MECOSE 140	China	104.	POLYBASE W50	China
105.	MENTHOL CRYSTALS	China	106.	POLYSORBATE 20 (PS20)	India
107.	METHYL PARABEN B. P	China, Kenya	108.	POLYTHYLENE GLYCOL MONOOLEATE	China
109.	MONOPROPYLENE GLYCOL- MPG	China	110.	PROGEL HP	China
111.	NIVEA FOR MEN TYPE #77906	USA	112.	SODIUM SULPHATE	China, India
113.	NIVEA POWERFRUIT PERFUME #88815	USA	114.	SOLVENT RED 24	India
115.	NOIR VERT 215372	UK	116.	SOLVENT YELLOW COLOUR	India
117.	OIL MAGIC FRAGRANCE #89453	USA	118.	STEARIC ACID	Malaysia, China, India
119.	OLIVE OIL	UK	120.	STYLISH PERFUME 182292	UK
121.	OPULYN 301/ACUSOL TM OPACIFIER	USA	122.	SWEET ALMOND OIL	Kenya
123.	ORANGE GEL 250125	UK	124.	SWEET STRAWBERRY 1107517	Spain

S/N	Material Description	Country of Origin	S/N	Material Description	Country of Origin
125.	PROPYL PARABEN	China, Kenya	126.	TALCUM POWDER	India
127.	GLYCERINE MATCH FRAGRANCE AR 175909	Dubia	128.	TARTRAZINE YELLOW DYE	India
129.	PVP K 30	Germany	130.	TEA TREE OIL	India, China, UK
131.	REFINED SULPHUR POWDER	Turkey, China	132.	TERPINEOL/PINE OIL	India, China, UK
133.	RELAXING SHEEN #97707	USA	134.	THIOGLYCOLIC ACID 99%	Japan
135.	RESORCINOL	China	136.	TITANIUM DIOXIDE (EX-HUNTSMAN)	Uganda
137.	SALCARE SC 92 / COSMEDIA S 92	Germany	138.	TRIETHANOLAMINE 99%	China
139.	SLES 70% (TEXAPON) SODIUM LAURYL ETHER SULPHATE	South Korea, Turkey, India, China	140.	TRIMETHICONE/PEDETICONE	China
141.	SOAP NOODLES	Malaysia, Indonesia	142.	WAXOL BRILL BLUE COLOUR	India
143.	SODIUM CHLORIDE	Kenya	144.	WHITE OIL/ LIQUID PARAFFIN LIGHT	India, Dubia
145.	ZANAHEM PERFUME 201009	UK	146.	XANTHAM GUM 80 MESH,EX SHANDONG FUFENG;4	Kenya
147.	ZEAL SUPER PERFUME 107396	UK	148.	XIREZITONE	China
149.	ZINC OMADINE 106309 FPS 48%	USA	150.	YUATHANOL	China
151.	ETIOLICE KCO ET621593P	Uganda	152.	WM-PQ47	China
153.	MALE E_ 1518313	France	154.	WM-PQ44	China
155.	XIAMETER (PMX 245)/SK.SF 1202	South Africa, USA	156.	MONOMULS 90-018	Germany
157.	IRON OXIDE	China	158.	MICRO WAX SR 190	Korea
159.	OSMOLIN GL 7021	China	160.	MICRO PARAFFIN WAX	Iran
161.	WM-8501 SILICON OIL	China	162.	FANTASY BODY SPLASH	UK
163.	WM-8345 SILICON OIL	China	164.	EXTRA NEUTRAL SPIRIT (PREMIUM)	Kenya
165.	A-37108 ELIZABETH ARDEN REDDOOR	China	166.	AEROSOL PROPELLANT GAS	Dubia
167.	PHELPHTHALIN INDICATOR	China	168.	SEA SURF CONCETRATED_EFF276741	UK
169.	FDC PINK COLOUR FOR CREAMS AND LOTIONS	India	170.	HAPPY BEBE 674	South Africa
171.	KANZIRONZIRO	Uganda	172.	CARBOPOL ULTREZ 20	USA
173.	TEGOSOLV ATG	China	174.	REFINE APRICOT KERNEL OIL	France
175.	ERCAREL CS	China	176.	35/60 STERILISED ENGLISH WALNUT SHELL	USA
177.	VESTOL EC70	China	178.	FRUITY HAIR POLISHER 2 E1807573	France
179.	POLYSIL C-35P	China	180.	FORSTED REDBERRIES EFF280920	UK
181.	BERRY BUBBLY SFX2571	South Africa	182.	HERBAL TALCUM 1494018	Spain
183.	JUICY PEACH E1786247	France	184.	BABY SOAP 1494023	Spain
185.	DEHYQUART A-CA	Germany	186.	TENDER CARESS 149021	Spain
187.	SALCARE SC 96	UK	188.	MERQUAT 550L	USA

S/N	Material Description	Country of Origin	S/N	Material Description	Country of Origin
189.	D- PANTHENOL CARE	UK	190.	MERQUAT 2001	USA
191.	VITAMIN E ACETATE CARE	UK	192.	SILKY CREAM- 713651	Germany
193.	CLAY - EFF296481	UK	194.	WHITE MIRACLE- 862681	Germany
195.	SHEA BUTTER PRESSED& REFINED	UK	196.	SUNNY MOD -205004	Germany
197.	D&C COLOR / RED GR LOT NO. SE/1210/2019	Germany	198.	ELEMENT-701358	Germany
199.	SOFTLY SOOTHING FRAGRANCE 831092	UK	200.	ARGAN OIL HAIR MASK RM	Germany
201.	SWEET DREAMS FRAGRANCE 831093	UK	202.	ARGAN OIL SHAMPOO RM	Germany
203.	DRAKKOUS FRAG.FOR HAIR GEL	Egypt	204.	CARBOPOL 990	USA
205.	SPARKLE & FRESH - 957646	Germany	206.	CARBOPOL XTRA 2101	USA
207.	ACTIVE - 898000	Germany	208.	COSMO MA32	China
209.	FRESH MINERAL- 956778	Germany	210.	SODIUM LAURYL SULFATE	China
211.	RED COLOUR PIGMENT	India	212.	RESPLANTA ARGAN MB	South Africa
213.	POLYTHYLENE GLYCOL (16)	China	214.	RESPLANTA OLIVE MB	South Africa
215.	DEKABEN IT	USA	216.	JBC W400	South Africa
217.	LUSH GARDEN 245030	USA	218.	JBC W-O EMULSIFIER BASE 3	South Africa
219.	PURE PARADISE 245029	USA	220.	SILIX AT12	China
221.	BENTONE C14	China	222.	BMHM	China
223.	PELITONE 391	China	224.	PELAIT DA14	China
225.	OCEAN BREEZE EFF316911	UK	226.	HERBAL CLAIRE	UK
227.	GREEN APPLE EFF316912	UK	228.	TOP SANTAL OUD	UK

Source: MPL-Primary Data, 2022

2.6.2 Manufacturing Process

The manufacturing process will involve 14 six steps, such as gathering of raw materials, mixing, holding tanks, jars unscrambler, filling, cooling, capping, labelling, cooling tunnel, bundling and overwrapping, cartooning, sealing and check weighing, pelleting the finished goods as shown in **Figure 2.6-1**.

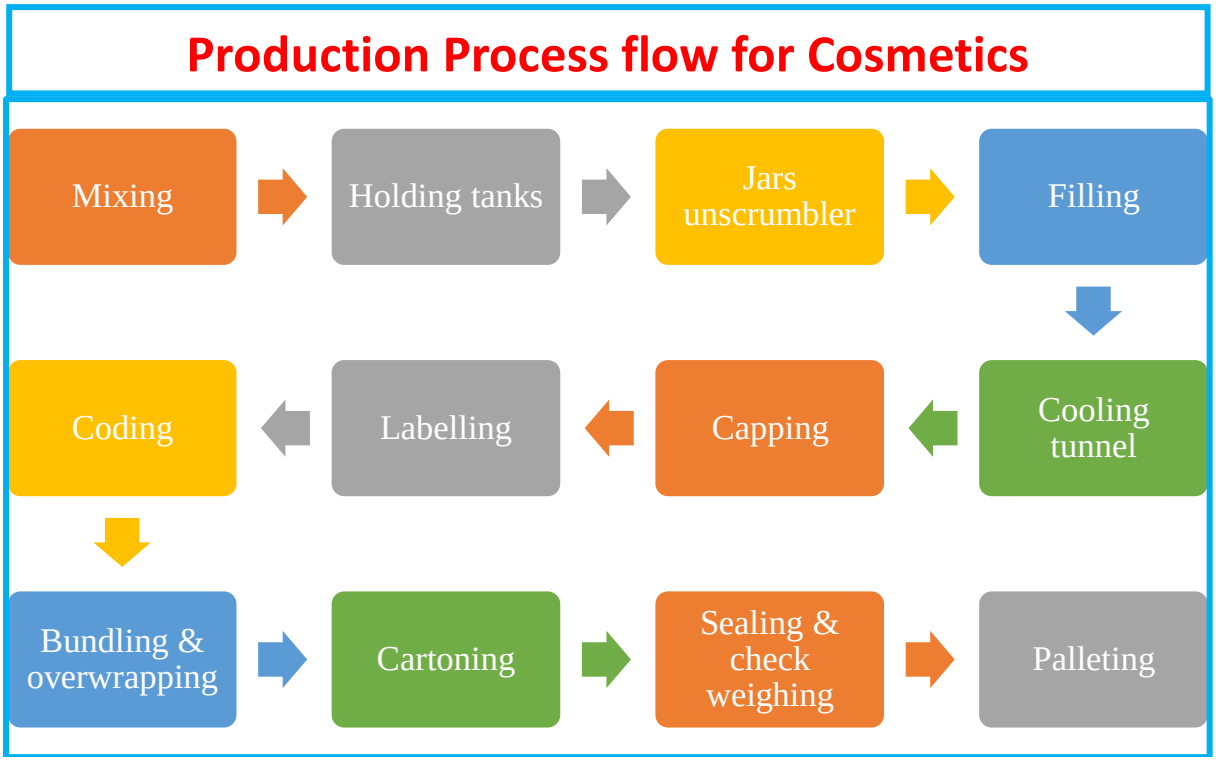


Figure 2.6-1: Cosmetic Factory Manufacturing Flow chart
Source: Design Report 2022

2.6.2 Cosmetic Products

The manufacturing process of the cosmetic products is expected to produce various commodities as follows; Pure glycerine (50,60g&100ml), Shampoo egg & apple (1,2.5,5&20ltrs), Conditioner yellow & white (1 & 5ltrs), Sheen spray, Petroleum Jellies (50,100&200g), Pine hair shampoo, pine hair conditioner (40mls), Curl activator (80 & 140g), Styling Gel (50g & 150g), and Relaxer.

2.6.3 Product Families

A product family is a collection of related products which are useful for grouping of the production lines and products during the Lean Factory Design at MPL. **Table 2.6-2**, provides the product category and the product samples.

Table 2.6-2: Product category and Samples

SN	Product category	Product samples
1	Category 1	Movit family soap Skin guard soap Herbal soap
2	Category 2	Herbal Jelly
3.	Category 3	Baby jelly Movit Petroleum jelly Baby junior jelly Avocado Hair food Pomades Shampoo
4	Category 4	Relaxers Creams Lotions Glycerine Shower gels
5	Category 5	Dye Coldwave
6	Category 6	Sheen spray Roll on Remover

(source: Primary data, 2022)

Source: Design Report 2022

2.7 Aerosol Factory

2.7.1 Raw Materials

Aerosol raw materials include propellants, active chemicals, solvents, surfactants, additives, and packaging materials, among other items. The aerosol product's intended use such as personal care, domestic cleaning, pharmaceuticals, or industrial applications will determine the precise formulation. Comprehending these raw components is essential for the creation, manufacturing, and control of aerosol products.

2.7.1.1 Aerosol Propellants

Materials called aerosol propellants are used to increase the pressure inside aerosol containers so that the product can be released as a fine mist or spray. Common propellants include:

Hydrocarbons
The hydrocarbons used for aerosol are propene, butane and Isobutane.

Propane;
It is frequently combined with other hydrocarbons.

Butane;
Often found in household cleansers and personal care items.

Isobutane;
utilized often in formulations for aerosols.

Compressed Gases
Nitrogen utilized in numerous aerosol applications as an inert gas and Carbon Dioxide (CO_2) utilized in a few personal care items.

2.7.1.2 Active Ingredients
These merely depends with the products to be produced as described hereunder;

Personal Care Products
Hair Products
For example, conditioners and styling sprays that could contain silicones and polymers.

Household Products
Cleaning Agents
Cleaning sprays contain solvents, disinfectants, and surfactants.

Insecticides
Active components for pest management, such as organophosphates or pyrethroids.

2.7.1.3 Solvents and Carriers

Active chemicals in aerosol formulations are dissolved or dispersed using solvents. Common solvents include:

Water
frequently found in aerosols containing water

Alcohols
As ethanol or isopropyl alcohol, which are frequently found in hand sanitizers and other personal hygiene items.

Organic Solvents
such as toluene or acetone, which are utilized in specialized and industrial settings.

2.7.1.4 Surfactants and Emulsifiers
Surfactants enhance the dispersion of active compounds and stabilize aerosol compositions. Common surfactants include:

Non-ionic Surfactants
For example, ethoxylated alcohols and polysorbates.

Anionic Surfactants
Sodium lauryl sulfate, for instance

2.7.1.5 Additives
Aerosol formulations may contain a variety of additives to improve functionality, stability, or user experience:

Preservatives
To stop microorganisms from growing in water-based products

Stabilizers
For emulsions or suspensions to remain stable

Colorants:
For aesthetic reasons in housekeeping and personal care items.

Fragrance
To improve the product's sensory experience

2.7.1.6 Packaging Materials
Another crucial factor to take into account is the packaging of aerosol items.

Metal Containers
Generally, pressurized aerosol cans are made of steel or aluminium.

Plastic Containers
Plastic containers with particular features may be used for some aerosol items in order to withstand pressure.

Valves and Actuators
Elements that regulate the aerosol product's discharge.

2.7.2 Aerosol Manufacturing Process
From the selection of raw materials to the final packing of the aerosol product, an aerosol production flow chart outlines the essential steps in the process. The process of producing aerosols is depicted in the simplified flow chart as shown in Figure 2.7-1:

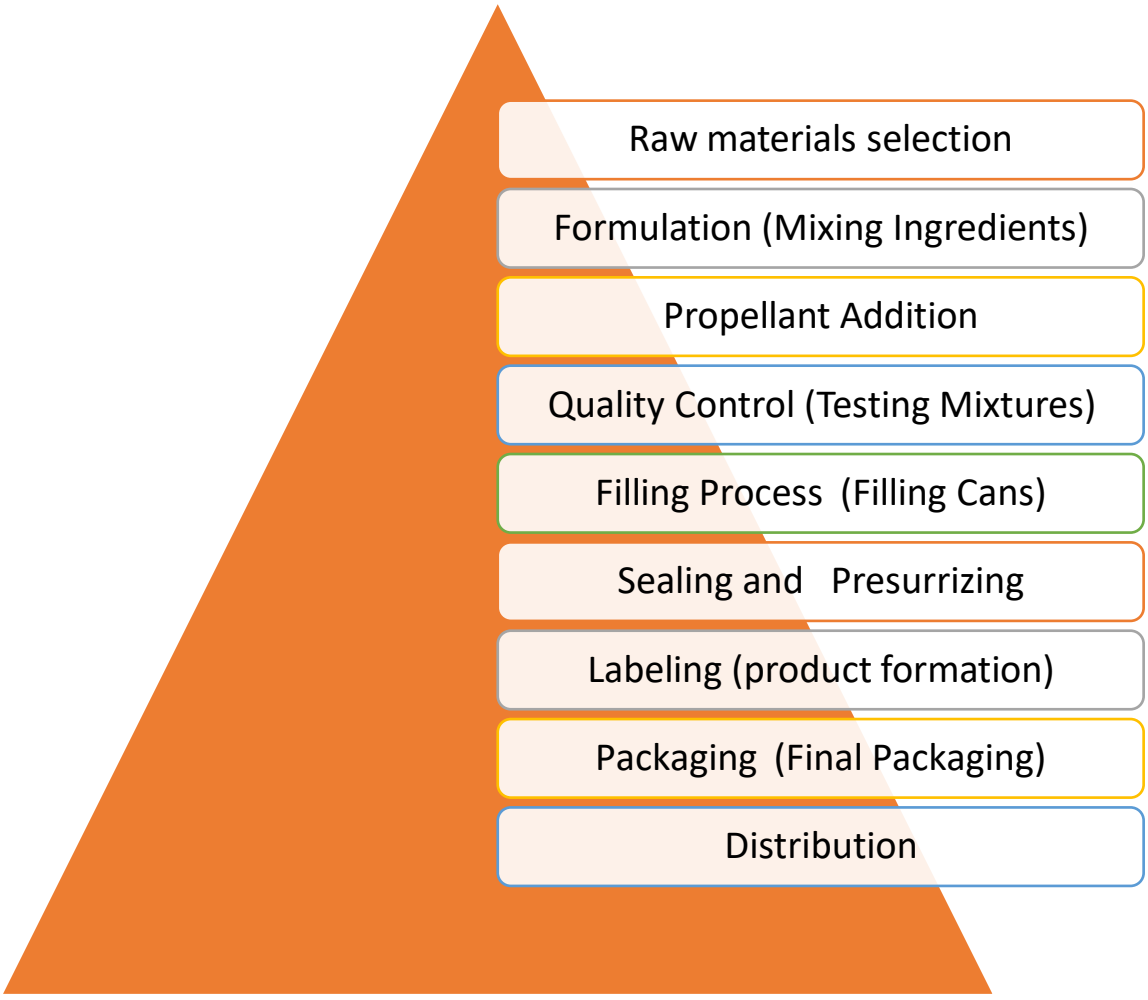


Figure 2.7-1: Aerosol Production Chart

2.7.3 Aerosol Products

As discussed earlier, the aerosol factory will be producing hair care products such as Hair Sprays to be used for styling and holding hair in place, Dry Shampoos which absorb oil and refresh hair without water, Fragrances such as perfumes and body sprays that provide scent, and Shaving Products such as shaving foams and gels that facilitate a smooth shave.

2.8 SIM Plastic Factory

2.8.1 Raw Materials

The plastic substances to be produced in the factory will be used for packaging of the products from aerosol and skin care products factories. The plastic substance will be used for handling of aerosol, skin care products to be produced in the market.

In its raw state, plastic is made up of a range of organic polymers, including polyethylene and ethylene. In a soft state, plastic can be moulded into the desired shape and then cast into a solid state. The plastic raw materials to be used include polyethylene terephthalate and high-density polyethylene.

2.8.2 Manufacturing Process

Seven (7) processes are expected to be applied during the manufacturing processes. The processes include gathering of plastic materials, mixing, Blow Moulding (BM) & Injection Blow Moulding **(**IBM), output, weighing and stores. The **Figure 2.8-1**, provides the plastic production flow chart.

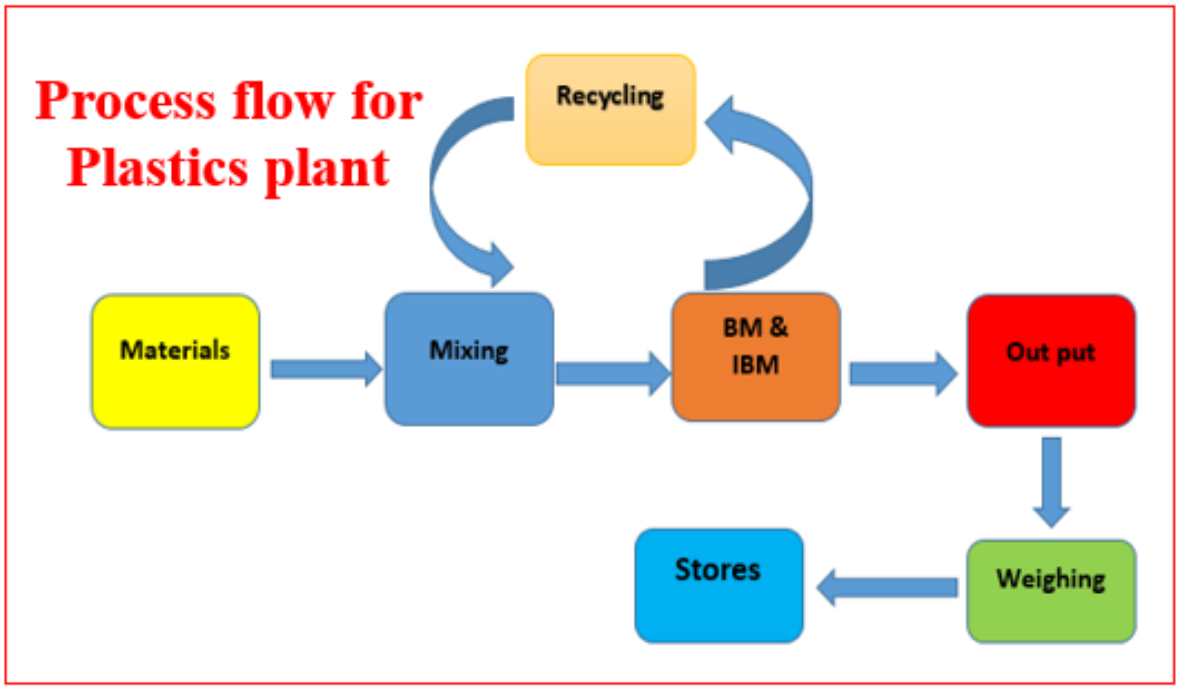


Figure 2.8-4: Plastic production flow chart
Source: Design Report 2022

2.8.3 Plastic Product

For skin care products, LDPE will be preferred due to its flexibility for squeeze bottles and tubes. PVC (Polyvinyl Chloride) will also be used for skin care products packaging like blister packs for lip glosses and mascaras. PVC is versatile plastic material known for clarity and durability, commonly used in transparent cosmetic packaging.

Polyethylene Terephthalate will be used for packaging of the aerosol such as water, juice and soda.

2.9 Planned Sales Volume for the First Year

In the first year of production the MPL will produce the total 1,241,517 CTN of the as shown **Table 2.9-1**. Movit Baby Jelly 200 G (**286,738 CTN)** will be the leading product, followed by Movit Baby Jelly 50G (187, 810 CTN).

During the end of the first year the following product its production will not be started as shown in **Table 2.9-1**; Movit Hair Ultra Relax 150GM, Movit Baby Jelly 120G, Movit Conditioner White 20 L, Movit Baby Jelly 120G, Movit Glycerine Extra Pure, Movit Hair Super Relaxer 2 KG -Promotion.

Table 2.9-1: Products and Estimated Catton within the First Year of Production

M.code	Material	Total	M.code	Material	Total
4000000	MOVIT APPLE SHAMPOO 1 LT	**13,538**	4000261	PINE HAIR CONDITIONER 40 ML	**800**
4000001	MOVIT APPLE SHAMPOO 20 LT	**65**	4000369	MOVIT OIL SHEEN SPRAY 100 ML	**8,694**
4000002	MOVIT APPLE SHAMPOO 5 LT	**8,076**	4000414	MOVIT BABY JELLY 70G	**34,319**
4000008	MOVIT BABY JELLY 20G	**121,434**	4000415	MOVIT BABY JELLY 120G	**-**
4000035	MOVIT CONDITIONER WHITE 1 L	**2,700**	4000498	MOVIT PURE GLYCELINE PINK 60ML	**5,778**
4000036	MOVIT CONDITIONER WHITE 20 L	**-**	4000499	MOVIT BABY JELLY 50G	**87,810**
4000037	MOVIT CONDITIONER WHITE 5 L	**1,740**	4000502	MOVIT PURE GLYCERINE WHITE 60ML	**371**
4000038	MOVIT CONDITIONER YELLOW 1 L	**2,700**	4000504	MOVIT GLYCERINE EXTRA PURE WHITE 20L	**-**
4000039	MOVIT CONDITIONER YELLOW 20 L	**-**	4000515	MOVIT HAIR SUPER RELAXER 250 GM B	**65,329**
4000040	MOVIT CONDITIONER YELLOW 5 L	**1,740**	4000516	MOVIT HAIR SUPER RELAXER 500 GM B	**9,960**
4000041	MOVIT CURL ACTIVATOR 140 GM	**7,795**	4000608	MOVIT BABY JELLY 200 G	**86,738**
4000042	MOVIT CURL ACTIVATOR 360 GM	**13,748**	4000612	MOVIT HAIR SUPER RELAXER 2 KG - PROMOTION	**-**
4000043	MOVIT CURL ACTIVATOR 700 GM	**1,295**	4000624	MOVIT BABY JELLY 425 GM-NEW	**39,279**
4000044	MOVIT CURL ACTIVATOR 80 GM	**41,850**	4000629	MOVIT STYLING GEL 50G	**4,049**
4000045	MOVIT CURLING LOTION 100 ML	**546**	4000642	MOVIT BABY JELLY 100G	**4,780**
4000046	MOVIT CURLING LOTION 500 ML	**1,012**	4000654	MOVIT BABY JELLY COCOA BUTTER 20 G	**2,271**
4000048	MOVIT EGG SHAMPOO 1 LT	**13,454**	4000655	MOVIT BABY JELLY COCOA BUTTER 50 G	**3,968**
4000049	MOVIT EGG SHAMPOO 20 LT	**38**	4000656	MOVIT BABY JELLY COCOA BUTTER 100 G	**2,885**
4000050	MOVIT EGG SHAMPOO 5 LTR	**5,779**	4000657	MOVIT BABY JELLY COCOA BUTTER 200 G	**4,533**
4000053	MOVIT GLYCERINE EXTRA PURE PINK 50 ML	**20,734**	4000658	MOVIT BABY JELLY COCOA BUTTER 425 G	**1,862**
4000054	MOVIT GLYCERINE EXTRA PURE WHITE 50ML	**9,525**	4000659	MOVIT BABY JELLY ALOEVERA 20 G	**1,762**
4000101	MOVIT OIL SHEEN SPRAY 250 ML	**7,402**	4000660	MOVIT BABY JELLY ALOEVERA 50 G	**4,081**
4000102	MOVIT OIL SHEEN SPRAY 470 ML	**13,742**	4000661	MOVIT BABY JELLY ALOEVERA 100 G	**2,399**
4000131	PINE HAIR SHAMPOO 40ML	**894**	4000662	MOVIT BABY JELLY ALOEVERA 200 G	**3,974**
4000140	MOVIT PURE GLYCERINE PINK 100ML	**1,680**	4000663	MOVIT BABY JELLY ALOEVERA 425 G	**1,112**
4000141	MOVIT PURE GLYCERINE WHITE 100ML	**1,680**	4000664	MOVIT BABY JELLY MILD SCENT 20 G	**1,793**
4000209	MOVIT STYLING GEL 150 GM	**65,343**	4000665	MOVIT BABY JELLY MILD SCENT 50 G	**3,312**
4000210	MOVIT STYLING GEL 250 GM	**10,083**	4000666	MOVIT BABY JELLY MILD SCENT 100 G	**2,137**
4000211	MOVIT STYLING GEL 500 GM	**3,864**	4000667	MOVIT BABY JELLY MILD SCENT 200 G	**4,298**

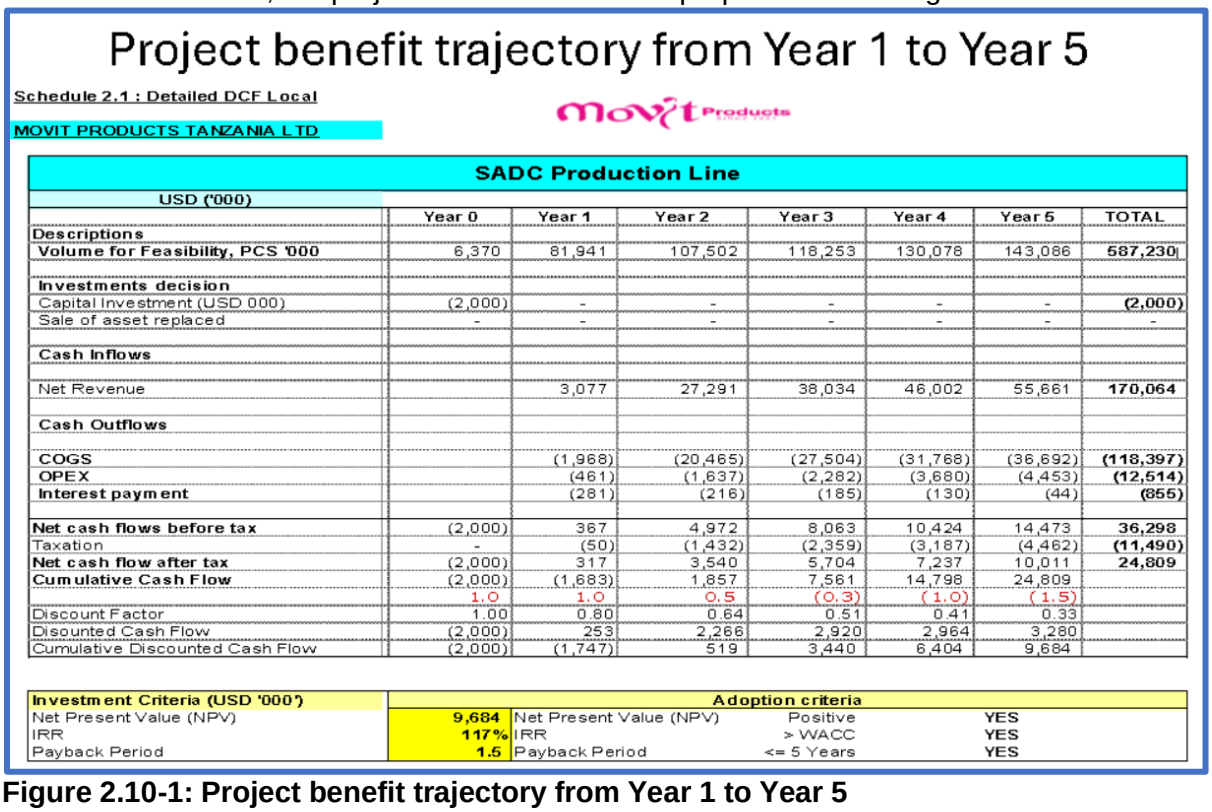
M.code	Material	Total	M.code	Material	Total
4000216	MOVIT HAIR SUPER RELAXER 1 KG	**27,703**	4000668	MOVIT BABY JELLY MILD SCENT 425 G	**1,482**
4000217	MOVIT HAIR SUPER RELAXER 150 GM	**123,359**			
4000218	MOVIT HAIR SUPER RELAXER 2 KG	**12,934**	4000261	PINE HAIR CONDITIONER 40 ML	**800**
4000220	MOVIT HAIR SUPER RELAXER 4 KG	**5,927**	4000369	MOVIT OIL SHEEN SPRAY 100 ML	**8,694**
4000228	MOVIT HAIR ULTRA RELAXER 1 KG	**176**	4000414	MOVIT BABY JELLY 70G	**34,319**
4000229	MOVIT HAIR ULTRA RELAX 150GM	**-**	4000415	MOVIT BABY JELLY 120G	**-**
4000230	MOVIT HAIR ULTRA RELAXER 2 KG	**4,048**	4000498	MOVIT PURE GLYCELINE PINK 60ML	**5,778**
4000231	MOVIT HAIR ULTRA RELAX 250GM	**-**	4000499	MOVIT BABY JELLY 50G	**87,810**
4000232	MOVIT HAIR ULTRA RELAXER 4 KG	**5,134**	4000502	MOVIT PURE GLYCERINE WHITE 60ML	**371**
4000233	MOVIT HAIR ULTRA RELAX 500GM	**-**	4000504	MOVIT GLYCERINE EXTRA PURE WHITE 20L	**-**

Source: Movit Data, 2024
Source: Design Report 2022

2.10 Project Benefit Trajectory from Year 1 to Year 5

Capital that will be used to invest in the proposed project will be sourced from the sales of assets. The capital to be invested in five years of operations will be 2,000,000 USD as stipulated in **Figure 2.10-1.** After five years of the project operation the net cash flow without tax will be 24,809,000 USD.

The total amount that will be used as the tax payment according to the **Figure 2.10-1** in five years will be 11,490,000 USD. Some of the amount will be earned by the government of Tanzania. Therefore, the project is beneficial for the proponent and the government.



Project benefit trajectory from Year 1 to Year 5

Schedule 2.1 : Detailed DCF Local

MOVIT PRODUCTS TANZANIA LTD

SADC Production Line

USD ('000)

Descriptions	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Volume for Feasibility, PCS '000	6,370	81,941	107,502	118,253	130,078	143,086	**587,230**
Investments decision							
Capital Investment (USD 000)	(2,000)	-	-	-	-	-	**(2,000)**
Sale of asset replaced	-	-	-	-	-	-	-
Cash Inflows							
Net Revenue		3,077	27,291	38,034	46,002	55,661	**170,064**
Cash Outflows							
COGS		(1,968)	(20,465)	(27,504)	(31,768)	(36,692)	**(118,397)**
OPEX		(461)	(1,637)	(2,282)	(3,680)	(4,453)	**(12,514)**
Interest payment		(281)	(216)	(185)	(130)	(44)	**(855)**
Net cash flows before tax	(2,000)	367	4,972	8,063	10,424	14,473	**36,298**
Taxation	-	(50)	(1,432)	(2,359)	(3,187)	(4,462)	**(11,490)**
Net cash flow after tax	(2,000)	317	3,540	5,704	7,237	10,011	**24,809**
Cumulative Cash Flow	(2,000)	(1,683)	1,857	7,561	14,798	24,809	
	1.0	1.0	0.5	(0.3)	(1.0)	(1.5)	
Discount Factor	1.00	0.80	0.64	0.51	0.41	0.33	
Disounted Cash Flow	(2,000)	253	2,266	2,920	2,964	3,280	
Cumulative Discounted Cash Flow	(2,000)	(1,747)	519	3,440	6,404	9,684	

Investment Criteria (USD '000')		Adoption criteria		
Net Present Value (NPV)	**9,684**	Net Present Value (NPV)	Positive	YES
IRR	**117%**	IRR	> WACC	YES
Payback Period	**1.5**	Payback Period	<= 5 Years	YES

Figure 2.10-1: Project benefit trajectory from Year 1 to Year 5
Source: MPL Design Report, 2022

2.11 Project Activities

The implementation of the proposed project activities will fall under four (4) phases such as mobilization, construction, demobilization and operation. The said phases of the project are as described in detailed hereunder.

2.11.1 Mobilization Phase

The mobilization phase is the initial stage of the project cycle, during which the Contractor will start to mobilize equipment and workforce for the project. For this project the following are some of the major activities to be carried out by the Contractor:

- Topographical survey and geotechnical investigations.
- Design review.
- Excavation and transportation of construction related solid wastes / spoil materials to the dumping sites ready for construction of campsite.
- Establishment of Contractor's site office / camp site and materials storage yard.
- Recruitment of construction workers and administrative staff.
- Mobilization and transportation of construction equipment / machinery to the site.
- Transportation of construction materials (e.g., blocks, stone aggregates, sand, cement, gravel, and etc.) to the site.
- Installation of concrete batch
- Installation of asphalt batch
- Installation of safety / security fence around the camp site and construction site.
- Installation of temporary safety sign boards.
- Regular cleansing of the mobile toilets.
- Project registration with OSHA, CRB, and ERB
- Medical checkup for the construction workers as the baseline information.

2.11.2 Construction Phase

The second stage is construction phase, overlaps with mobilization phase, whereby some of the activities from mobilization phase will continue during the construction phase. During construction the following activities will be performed;

- Earth works including vegetation clearance, removal of top soils, excavation of foundation for the proposed facilities
- Transportation of machinery and equipment to construction sites.
- Collection and transportation of soil/spoilt materials and tree logs wastes to the dumping site.
- Transportation of construction materials such as gravel, sand, aggregates, cement bags, corrugated iron sheets, reinforcement bars to the materials storage yards.
- Fabrication of concrete slabs, curb stones, and concrete lining of storm water drainages.
- Production of concrete
- Production of asphalt
- General construction works
- Installation of the plumbing and electrical services.
- Construction of boundary wall/fence.
- Installation of permanent safety signs, and security lights in the compound.
- Installation of CCTV camera for security purpose.
- Painting of the buildings and fence facilities.
- Regular cleansing of the mobile toilets.
- Monitoring of the health for the construction workers.
- Borehole drilling

2.11.3 Demobilization Phase

This is the third stage of the project cycle, which involves restoration of the project site at least to its original conditions. The following are some of the major activities to be carried out by the Contractor during demobilization phase:

- Removal of temporary infrastructure, and equipment from the campsite;
- Disposal of contaminated materials including used oil, solid wastes (plastics, wood, metal, papers etc.) to the authorized areas;
- Disassembling and transportation of construction equipment/machinery from the construction sites.
- Landscaping
- Worker's Retrenchment

2.11.4 Operation Phase

The operation phase is the fourth stage in the project cycle, which involves factory manufacturing and general operation of the proposed industrial activities. The following are some of the major activities to be carried out during the operation phase:

- Equipment mobilization, fixing and testing
- Transportation of the raw materials
- Processing of raw materials
- Productions
- Product Packaging
- Transportation of the product to the markets
- Periodic maintenance of the industrial infrastructures,
- Regular maintenance and repair of machinery, equipment etc.
- Replacement of the machinery and equipment
- Periodic maintenance of the warehouses and other buildings
- Replacement of furniture in the offices, administration and accommodation building

2.12 Materials and Equipment requirements

2.12.1 Construction Materials Requirements

The identified material and sources that will be used during construction works are as described in the subsequent subsections.

2.12.1.1 Hard Rocks

The material is expected to be used for foundation works. The source of hard rocks for construction works will be from Lugoba area, Chalinze DC, in Pwani Region. Lugoba is about 110 Km from the project area. The estimated hard rock quantities are 18,900 cum.

2.12.1.2 Aggregates

The material is expected to be used for foundation works, access roads, beam, floors and column. The source of aggregates for construction works will be from Lugoba area as well. The location has number of quarry sites owned by the private owners. The estimated 30,000 cum of aggregates is required for construction of the project.

2.12.1.3 Gravel

Gravel such as G-7, G-15 and G-25 will be used for construction of various pavement layers in access road and other areas where pavement will be required. Gravel also will be used for backfilling in the foundation of the proposed buildings and the boundary wall.

The gravel sources will be investigated nearby the project area since there is some of the ongoing road projects under TARURA and SGR which uses the same materials close to the proposed project. The estimated gravel materials to be used is 66,000 cum.

2.12.1.4 Sand

Sand is among of the major source of construction materials for the construction works. Sand as construction material will be used for concrete and finishing works. The source of sand is from commercial area within the project area.

2.12.1.4 Building Blocks

Cement sand blocks will be used for walling in warehouses, administration buildings and fence or boundary wall. Huge number of blocks are expected to complete the whole construction works. The source of cement blocks will be from block making areas within the proposed project area. It is estimated that, 88,000 pieces of blocks are will be used to construction works.

2.12.1.5 Water for Construction

Water is one of the most common elements in construction works. Source of water is expected to be from the boreholes that will be drilled in the project area.

2.12.1.6 Other Materials

Other important construction materials that are required for construction purposes are such as; cement, paving blocks, tiles, reinforced steel bars, steel beams, timber, glass, aluminum sheets. The mentioned materials are available in bulks in hardware and industrials within the region.

2.12.2 Equipment and Human Resource

2.12.2.1 Equipment for Construction Works

The type of equipment to be used will depend on the prevailing conditions on the site. However, like any other construction of buildings and civil works, the required equipment/machinery include hauling tucks/lorry tippers, bulldozers, concrete mixer, roller and plate compactors, wheeled loader, hydraulic excavator, vibrators, fuel and water tankers (bowsers), graders, vehicles, dewatering pump, site dumper, hydraulic cranes, etc.

2.12.2.2 Equipment for Operation Works

The equipment to be used depends with the product to be produced in the proposed factories. The proposed product and equipment to be used for operation works are as provided **in the Table 2.12-1**. The equipment's are expected to increase or change in the future of the project operation due to change in technology.

Table 2.12-1: Equipment requirement during Project Operation

PRODUCTS	EQUIPMENT	HS CODES	QTY
Pure glycerin (50,60g & 100ml), Shampoo egg & apple (1,2.5,5&20ltrs), Conditioner yellow & white (1 & 5ltrs), Sheen spray, Petroleum Jellies (50,100&200g)	Fire extinguishers	8424.10.00	5
	Pallet trolleys	8428.39.00	2
	Generator 125KVA (From MPL)	8501.53.00	1
	Electric stackers	8428.39.00	2
	Electric drum tilter	8428.39.00	1
	Lab equips	n/a	29
	ETP (Mobile)	8421.21.00	1
	Water- cooled screw chiller AGS-100WSH (64.3m3/h, 73.9Kw)	8418.61.20	1
	Steam boiler (Gas)	8403.10.00	1
	Shrink tunnel	8422.40.00	2
	Compressors (IMM & EBM): Low pressure:GA55	8414.80.10	1
	Glycerin semi-automatic machine	8422.30.00	1
	Lotion filling/conditioner semi auto machine.	8422.30.00	1
	Labeling machine	8422.30.00	1

PRODUCTS	EQUIPMENT	HS CODES	QTY
	1MT holding vessel (2)	7309.00.00	2
	5MT Jelly mixing vessel	7309.00.00	1
	5MT Jelly Holding Tank	7309.00.00	1
	Jelly filling machine	8422.30.00	1
	IMM machine (X2)	8477.10.00	2
	I MT multipurpose mixing vessel	7309.00.00	1
	Baby jelly molds (IMM-cap & jar)	8477.90.00	6
	Sheen spray filling line	8422.30.00	1
	5MT Single layer Sheen spray mixing vessel	7309.00.00	1
	5MT Sheen spray holding tank	7309.00.00	3
	PET Blowing machine	8477.30.00	1
	Installation cost for phase 3	n/a	
Pine hair shampoo, pine hair conditioner (40mls), Curl activator (80&140g), Styling Gel (50g&150g), Relaxer	1MT Single layer mixing vessel for cold processes (curl act & Styling Gel)	7309.00.00	1
	Mold (curl act & Styling gel)	8477.90.00	2
	2 semi-automatic machines (Repeat A)	8422.30.00	2
	3MT Twin Relaxer mixing vessel	7309.00.00	1
	6MT Relaxer Holding Vessel	7309.00.00	1
	Hospitality Filling Machine	8422.30.00	1
	Installation cost	n/a	

++++ Generator 125KVA (From MPL) will be used as alternative energy source
Source: MPL Design Report, 2022

2.12.3 Human Resources

2.12.3.1 Human Resource during mobilization and Construction Phase

The project is expected to deploy both skilled, semi-skilled and unskilled labors to execute the works. The estimated 20 skilled labor will be deployed from both Contractor and Supervision Consultant, while 15 semiskilled and 200 unskilled will be employed by the Contractor.

2.12.3.2 Human Resource during Operation Phase

The team of full and part-time professionals and technicians will serve in various capacities such as production, sales, finance, laboratory technician, quality control and marketing. The proponent is expecting to engage about 1800 employees throughout the operation phase.

2.13 Waste Management

2.13.1 Mobilization Phase

This phase covers construction equipments, workforces and construction campsite. At this stage the construction of the campsite will be underway, so there will be no staffs residing in the project site and it is expected that, those who will be dealing with the construction works at this phase, due to the nature of the works, mobilization waste that will mainly be involved in mobilization stage will be coming from home or staying at lodges nearby the project area.

The most common types of wastes to be generated during this phase are;

2.13.1.1 Solid waste

Food waste, plastic tins, construction materials packaging like cement bags and etc., pieces of metals, blocks and timbers. The domestic waste that will be generated at site during working hours are provided in Table below.

S/No.	Description	Computation	Amount (kg)
1.	Solid waste = Generation rate * workers * Duration	0.35 x 20 x 30	210
2.	Solid waste = Generation rate * visitor * Duration	0.35 x 5 x 30	75.00
3.	Total		285.00

This portray that within a month of mobilization phase 285 kg of waste will be produced

2.13.1.2 Liquid waste

During mobilization, liquid waste such as toilet and bathrooms are expected to be generate during working hours. Proponent is advised to use mobile toilet since now days they are available in most location in the country to avoid pollution of ground water for digging temporary pits. The quantity of domestic liquid wastes to be generated is provided hereunder.

S/n	Description	Water Consumption (L/Day)	Wastewater Generation @ 80 % (L/Day)
1.	Domestic [Total 20 Workers × 120 LPCD*]	2,400.00	1,920.00
2.	Domestic [Total 5 Visitors × 120 LPCD*]	600.00	480.00
Total		**3,000.00**	**2,400.00**

This reveal that 3000 l/day of clean water will be used and thereafter 2,400.00 l/day of wastewater will be generated per day.

2.13.1.3 Hazardous waste

Waste like used oil, grease and paints in paints containers, scrap metals, and oil filters are expected to be generated from the construction related works, vehicles, equipment, and plants. The estimates of quantity of hazardous waste to be produced during this phase are as listed hereunder.

S/No	Hazardous wastes	Amount to generated
1.	Used Oil	30 l/month
2.	Oil filter	20 pieces/month
3.	Grease	10 l/month
4.	Paints	5 l/month
5.	Scrap metals	45 kg/month

2.13.2 Construction Phase

2.13.2.1 Domestic waste

Liquid Waste

The operation of Contractor's and Consultant campsites is expected to generate wastewater from kitchen, bathrooms and toilets. Types of wastewaters to be generated are the grey and black water from bathroom and toilet respectively, and kitchen water. The wastewater will be conveyed to the septic and soak away pit as the onsite sanitation or treatment facilities through pipes and manholes connections.

S/No	Description	Water Consumption (L/Day)	Wastewater Generation @ 80 % (L/Day)
1.	Domestic [Total 235 Workers × 120 LPCD*]	28,200.00	22,560.00
2.	Domestic [Total 5 Visitors × 120 LPCD*]	600.00	480.00
Total		**28,800.00**	**23,040.00**

This reveal that 28,800.00 l/day of clean water will be used and thereafter 23,040.00 l/day of wastewater will be generated per day.

Solid Waste

The operation of campsites is expected to generate solid waste from cafeteria, offices, rooms, bathrooms and toilets. The type of solid wastes to be generated from cafeteria are such as vegetable peels, leftover food, egg shells rotten fruits, vegetables, plastic bottles, food cans, and broken glass. Solid waste from bathrooms and toilets are such as pieces of soap, soap packaging material, and sanitary pads. The solid waste to be generated from offices are food waste, plastic bottles, plastic papers, and waste papers, etc.

All the waste will be collected in separate dust bins before being composted for the compost waste and others being transported to the approved Kibaha township dumpsite. Waste will be produced by both workers and visitors.

S/No.	Description	Computation	Amount
1.	Solid waste = Generation rate * workers * duration	0.35x 235 x 30	2467.50
2.	Solid waste = Generation rate * visitor * duration	0.35x 5 x 30	52.50
Total			2,520.00

This indicates that within a month of construction 2,520.00 kg of waste will be produced

2.13.2.2 Construction waste

Solid waste

Non-Hazardous Waste

Solid waste to be generated from the construction works are such debris, excavated soils, cement bags and other construction packaging materials, pieces of metals, concrete rubbles, timbers, corrugated iron sheets, and blocks.

Hazardous waste

Liquid Waste

Construction works will involve the use of oil and grease for operations of the vehicles, equipment and plants. After being used for sometimes oil and grease will be replaced with the new ones and the used one is termed as the waste.

Solid Wastes

Hazardous waste is expected to be generated from construction and garages works. Type of hazardous waste to be produced are Asbestos, Chemicals, Acidic Batteries, Fluorescent Tubes, Solvents, Pesticides, Oils and grease. The following methods will be used to reduce the magnitude of the anticipated impact; Prevention, if possible, Reuse, Recycling, Recovery, and Disposal.

Hazardous wastes are expected to be collected by the registered contractors/firms by the Vice President Office and NEMC.

E-Wastes

Construction site will involve generation of the following E-waste, computers, monitors, television, cellphones, printer and power tools. Haphazardly disposal of E-waste causing negative impacts to the environment. E-wastes are also expected to be collected by the registered contractors/firms by the Vice President Office and NEMC.

The estimate for hazardous waste to be produced are as stipulated hereunder;

S/No	Hazardous wastes	Amount to generated
1.	Used Oil	500 l/month

2.	Oil filter	36 pieces/year
3.	Used battery	44 pieces/year
4.	Grease	35 l/year
5.	Paints	40 l/year
6.	fluorescent tubes	15 pieces/year
7.	Scrap metals	350 kg/year
8.	Computers,	5 Pieces/year
9.	Monitors,	5 Pieces/year
10.	Television,	1 piece/year
11.	Cell phones,	5 pieces/year
12.	printer	1 piece/year
13.	Printer Cartridge	No one/refilling is practiced

2.13.3 Operation Phase

The operation phase is expected to generate both sold waste, liquid waste and hazardous waste. The quantity of waste to be produced during the operation phase are as discussed in the following sub-sections.

2.13.3.1 Solid Waste

The waste like food, plastic, tins, glasses and papers are expected to be generated. The domestic waste that will be generated are provided hereunder. The project is expected to engage 1800 workers during the operation phase.

S/No.	Description	Computation	Amount (Kg)
1.	Solid waste = Generation rate * workers * duration	0.35 x 1800 x 30	18,900.00
2.	Solid waste = Generation rate * visitor * duration	0.35 x 20 x 30	210.00
Total			**19,110.00**

This portray that within a month of operation phase, 19,110.00 kg of waste will be produced within the project area.

2.13.3.2 Liquid Waste

During operation, liquid waste from toilet, washing basin and bathrooms are expected to be generated during working hours. The liquid waste depends with the amount of supplied water in project area. The quantity of liquid wastes to be generated is as provided hereunder.

S/n	Description	Water Consumption (L/Day)	Wastewater Generation @ 80 % (L/Day)
1.	Domestic [Total 1800 Workers × 120 LPCD*]	216,000.00	172,800.00
2.	Domestic [Total 20 Visitors × 120 LPCD*]	2,400.00	1,920.00
Total		**218,400.00**	**174,720.00**

This reveal that 218,400.00 l/day of clean water will be used and thereafter 174,720.00 l/day of wastewater will be generated per day. The waste will be stored and treated on onsite sanitation facilities like bio-digester. Other waste type to be produced are as tabulated in Table 2.13-1.

Table 2.13-1: Waste to be produced during operation phase

Wastes	Type of waste	Source	Estimated waste/year	Disposal
Hazardous Waste – Liquid	Used oil	Garage	400 kg/year	Collected and disposed by the registered contractor/firm
	Used batteries	Garage	103 pieces/year	
	Used oil filter		60 pieces/year	
	Used grease	Garage	45 l/year	

Wastes	Type of waste	Source	Estimated waste/year	Disposal
E-Waste	Computers,	Offices	24 Pieces/year	Collected by the registered contractor/firm
	Monitors,	Offices	24 Pieces/year	
	Television,	Offices	12 piece/year	
	Cell phones,	Offices	48 pieces/year	
	Printer	Offices	12 piece/year	
	Printer Cartridge	Offices	No one/refilling is practiced	

2.14 Liquid waste management

During operation phase, the factory is expected to generate wastewater with chemical contents from the manufacturing works. A fully operational wastewater treatment plant shall be established to manage and treat all liquid waste from production halls and ware houses. Domestic sewage will be treated using a biodigester with a grease trap. A certified waste handler shall be used to ensure liquid -non treatable waste is disposed off to recommended disposal sites.

The wastewater to be generated will have the following chemicals; Caustic soda (sodium hydroxide) 99%, Hydrochloric acid 33%, Sugar to energy microorganisms (rarely used)

The following will be observed by the proponent during operation;

- Records of quantities of liquid waste shall be tracked and records submitted to required authority.
- Spill response plan shall be established and regular drills conducted to ensure preparedness in case of any emergencies.
- MPL shall implement practices that reduce the volume of liquid waste generated such as production processes optimization, use of less harmful materials to reduce on toxicity level and implement initiatives to improve on water efficiency throughout its processes.
- All liquid waste generated shall undergo secondary treatment to all re-use for other processes in the factory.
- Recovery systems for chemicals shall be put in place for re-use in production processes to reduce on volume of liquid waste generated.
- Adequate secondary containments shall be implemented in all chemical storage facilities to reduce on possibilities of accidental spills.
- MPL shall conduct destination audits and maintain records of waste transfer to treatment facilities.
- MPL shall train all employees in proper liquid waste handling, treatment and disposal
- Campaigns shall be conducted to create more awareness within communities regarding waste handling, management and disposal.
- In addition, MPL shall establish strategies of energy recovery from liquid waste in order to reduce on the volumes generated.

2.15 Solid Waste Management Facilities

The proponent due to his understanding that the project will generate various waste including solid waste, he has provided the dedicated location for managing waste within the industrial compound as shown in the site layout plan. The facility will be used for collection of waste prior being transported to the authorized dumpsite and authorized dealers.

2.16 Land Ownership

The land to be used for project implementation is located in Soga Village, Block J, Plot No. 9, L.O. No. 1071682 with the total area of 114,078 sqm. The land is owned by the Tanzania Investment Centre (TIC) and here referred as LESSOR while MOVIT PRODUCT T. LIMITED hereinafter referred to as the LESSEE. The Leasehold Agreement is appended as **APPENDIX VI.**

2.17 Stormwater Management

During the rainy season, stormwater will be generated from roof and paved areas during the operation of the MPL factory. Stormwater will be managed as follows;

- MPL proposes to dispose off storm water via main cut-off drains that route all storm water around the plant facilities into the local drainage channels available.
- MPL shall install provide oil separators at key drainage outlet points to remove oils, greases and other hydro carbons from storm water before discharging into the drainage system.
- MPL shall conduct regular quality test analysis on storm water to ensure the parameters are in compliance with environmental regulations.
- MPL shall explore possibilities of detention basins construction to temporarily hold storm water, releasing it slowly to downstream systems to prevent flooding and erosion in the neighboring communities.
- MPL shall develop a clear storm water management plan with a comprehensive site assessment to identify potential sources of storm water pollution and areas prone to run offs and put in place measures to effectively manage storm water.
- Spill containment systems shall be implemented to prevent spills from contaminating storm water.
- Effective inspection and maintenance schedules for storm water drainages shall be put in place to ensure no contamination.
- MPL shall explore avenues for retaining and re-use of storm water for non-potable applications in plant facilities such as cleaning.
- MPL shall use underground piping systems to efficiently convey storm water to discharge points

2.18 Electronic waste management - e-waste

A range of e-waste will be generated during both the construction and operational phases of the projects. These include car batteries, computers and other associated IT accessories, Laboratory equipment.

MPL's waste management design philosophy commits the company to comply with the principles underpinning the waste hierarchy which are wherever possible to avoid or reduce the generation of waste at source and or re-use or recycle waste before considering disposal options.

This philosophy is as well enshrined in most international waste management standards and guidelines including IFC /World Bank. The following mitigation measures for e-waste management are proposed;

- All e-waste materials will be stored in covered areas on impermeable surfaces
- MPL shall strictly enforce the requirements of Tanzanian legislation and the waste hierarchy through environmental management plan (EMP) and ensure all reasonable measures are taken to minimize, separate, sort and recycle e-waste before disposal.
- All personnel will be trained in responsible e-waste management and necessary color-coded bins provided for separation at source, training will be provided during induction, meetings and toolbox talks.
- All e-waste produced shall be monitored and records tracked to ensure compliance.
- MPL shall engage in donation programs and donate functional electronics to schools, charities in communities.
- MPL shall utilize certified e-waste handlers to ensure waste is disposed of appropriately.
- MPL shall work with other key government and non-governmental entities to create awareness and address concerns of e-waste management

2.19 Occupation Health and Safety

2.19.1 Provision of Drinking Water

The provision of clean, safe, and wholesome drinking water is a requirement under Section 54 of the Occupational Health and Safety Act No. 5 of 2003. It is expected that all the staffs as stipulated in section 2.9.1 in this report, regardless of their qualifications they will be provided with drinking water throughout their contract duration.

2.19.2 Provision of PPE

The provision of Personal Protective Equipment (PPE) is the requirement under Section 62 of the Occupational Health and Safety Act No. 5 of 2003. Staffs from Contractor and Consultant are expected to be provided with PPEs while they are at sites to protect them from accidents incidences.

2.19.3 Presence of first aid facilities,

Provision of First Aid Facilities is the requirement under Section 58 of the Occupational Health and Safety Act No. 5 of 2003 and its amendment of 2015. The construction campsite is required to be provided with special room for the first aid facilities and the qualified personnel for that work. The first aid kit with adequate facilities is expected to available at the campsite throughout the construction duration.

2.20 Storm Water Management

Management of waste water will be implemented into two approaches, the first approach water will be collected from the roofs to the ground tanks to be used for the watering grasses in landscaping, cleaning, washing and bathing.

2.21 Project Boundaries

2.21.1 Spatial Boundaries

The spatial boundaries of the project environment have been divided into Project Development Area (PDA), Local Assessment Area (LAA), and Regional Assessment Area (RAA). The spatial boundaries of the project environment are illustrated in **Figure 2.3-1.**

(a) Project Development Area (PDA)

The Project Development Area (PDA) is the most basic and immediate are of the Project. The PDA is limited to the anticipated area of the physical disturbance associated with the Construction and Operation of the Project. For this Project, the PDA consists of the areas that will be occupied factory. The total area to be occupied by the factory is estimated to be about 11.408 Ha.

(b) Local Assessment Area (LAA)

The Local Assessment Area (LAA) is the maximum area within which Project-related environmental effects can be predicted or measured with a reasonable degree of accuracy and confidence. The LAA is commonly referred to as the “Zone of Influence” of the Project and may include areas that could experience Project environmental effects that arise beyond the area of physical disturbance by the Project. The LAA includes the PDA and any adjacent areas to the project site, where Project-related environmental effects may reasonably be expected to occur. The definition of LAA varies from one VEC to another, depending on the local conditions, biological characteristics, socio-economic factors, cultural values and other factors.

(c) Regional Assessment Area

The Regional Assessment Area (RAA) is the area within which the Project’s environmental effects may overlap or accumulate with the environmental effects of other projects or activities that have been or will be carried out such that cumulative environmental effects may potentially occur. The RAA are defined for each VEC depending on the physical and

biological conditions and the type of and location of other past, present, or reasonably foreseeable projects or activities that have been or will be carried out.

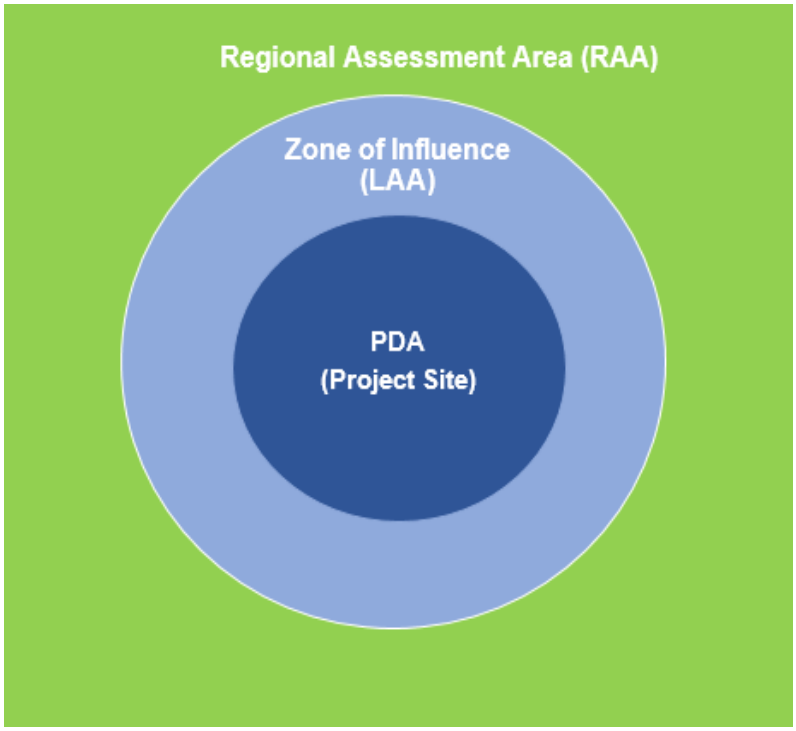


Figure 2.21-1: Spatial boundaries of the Project Environment

2.21.2 Temporal Boundaries

The temporal boundaries of the project refer to timing and duration of Project. The temporal boundaries of the project consist of the durations for mobilization, construction, and demobilization phases of the project. In addition, the temporal boundaries are the design periods of the factory.

The following are the temporal boundaries of the project during mobilization, construction, and demobilization phases:

Activities	Duration
Mobilization phase:	2 months
Construction phase:	20 months
Demobilization phase:	2 months
Operation phase:	50 years (Life span).

The Decommissioning Phase of the project is not expected to occur so long as the need for factory infrastructure continues. Instead, the factory infrastructure will continue to be undergoing regular maintenance and improvement depending on the future requirements.

2.21.3 Institutional Boundaries

Institutional boundaries for the project refer to various institutions, government agencies, and local government authorities that are relevant to the project implementation. It specifies the roles and responsibilities of each institution for environmental management at national, regional, district, ward, village, and sub-village ("Kitongoji") level. The following are the relevant institutions for implementation of this project:

- Ministry of Lands, Housing and Human Settlements Development,
- Ministry of Industry and Business,
- Pwani Region,
- Occupational Safety and Health Authority (OSHA),

- Tanzania Bureau of Standards (TBS),
- Government Chemist Laboratory Authority (GCLA)
- Tanzania Fire and Rescue Force,
- Kibaha District Council (KDC),
- Soga Ward,
- Soga Government Office,
- Neighbors nearby the project area;

CHAPTER 3: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1 Policy Frame Work

3.1.1 National Environment Policy (2021)

The National Environment Policy (NEP, 2021) is the main policy document governing environmental management in the country. The policy addresses environmental issues as both natural and social concerns, and adopts the key principle of sustainable development. The policy has also proposed framework environmental legislation to take account of the numerous agencies of the Government involved in regulating the various sectors. Thus, the policy provides strategic plans on environmental management at all levels. It provides the approach for mainstreaming environmental issues for decision-making and defining sectoral policy action plans. In terms of environmental management and protection the policy identifies 8 keys problem areas as:

- Land degradation;
- Lack of access to good quality water;
- Environmental pollution;
- Loss of wildlife habitat and biodiversity;
- Deterioration of aquatic ecosystems and
- Deforestation.
- Climate change
- Safe use of modern biotechnology

The policy requires Environmental Impact Assessment study to be mandatory for all development projects likely to have significant environmental impacts. The intention is to ensure that the development projects are implemented in an economically sustainable manner while safeguarding environmental and social issues for the benefit of the present and future generations.

Relevance to the project:

The proponent is complying with the policy through preparation of this ESIA study and will continue to do it through implementation of ESMP throughout the project duration.

3.1.2 The National Investment Promotion Policy (1996)

The policy identifies overall long-term goal of Tanzania's socio-economic development, which is to attain society with sustainable human development. The policy puts strategies that will formulate a society of educated and healthy individuals, culturally dynamic and economically sustainable. Among of the others, the following are highlighted main development goals in the policy:

- To ensure economic prosperity and improve living standards of people;
- To ensure economic justice and equity through productive employment and enterprise, paying special emphasis to gender balance;
- To transform Tanzania from rural based subsistence agricultural economy to a more diversified industrialized one; and
- To balance accelerated economic growth with a more efficient management of the environment and use of the country's natural resources in a way which will ensure sustainability.

Relevance to the Project

The proponent will comply with the policy through provision of employment to locals within the proposed project in both phases. On the other hand, the proponent will be protecting the environment of the project area through implementation of ESMP.

3.1.3 Sustainable Industrial Development Policy (1996-2020)

This document contains the national industrial policy which articulates the framework for the country's industrial development process within short-, medium-, and long-term perspective. This policy is codified "Sustainable Industrial Development Policy (SIDP)". The time horizon of SIDP is 25 years. It replaces the 20 year "Basic Industry Strategy (BIS)" which expired at the end of 1995. The BIS was Tanzania's first long-term industrial development strategy since independence in 1961. The expiry of the BIS in 1995, and the economic crisis facing the country, necessitated the formulation of a new policy that would take cognizance of the emerging macroeconomic environment. The SIDP provides a framework with broad guidelines on principal factors which influence the direction of industrialization covering industrial sector growth and development strategies. The main national goals addressed by SIDP towards which the industrial sector will be geared include: -

- Human development and creation of employment opportunities;
- Economic transformation for achieving sustainable growth; and
- Environmental sustainability and equitable development

Relevance to the Project

The proposed project is required to address creation of employment, economic transformation and environmental sustainability issues during project stages.

Thus, the developer will ensure equitable development through a balance between industrial growth and environmental protection against pollution.

The proponent should also engage specialized HSE expert during both phase of the project to ensure environmental protection.

3.1.4 The National Policy on HIV/AIDS (2001)

The National Policy on HIV/AIDS (2001) was formulated by the Government of Tanzania under technical support from the World Health Organization Global Programme on AIDS (WHO-GPA) that led to the establishment of National HIV/AIDS Control Programme (NACP) under the Ministry of Health.

However, due to its multi-sectoral nature the need to involve all sectors and community participation was found to be crucial. One of the government strategic initiatives is to establish Tanzania Commission for AIDS (TACAIDS) under the Prime Minister's Office. The Commission provides leadership and coordination of national multi-sectoral response to the HIV/AIDS epidemic. The management functions, institutional and organizational arrangement of TACAIDS is outlined in the National Policy.

The Policy identifies HIV/AIDS as a global disaster, hence requiring concerted and unprecedented initiative at national and global levels. It recognizes HIV/AIDS as an impediment to development in all sectors, in terms of social and economic development with serious and direct implication on social services and welfare. Thus, the policy recognizes the linkage between poverty and HIV/AIDS, as the poor section of the society are the most vulnerable.

The main policy objective is reflected well in the establishment of TACAIDS. However, the policy has also set a number of strategic objectives to deal with specific HIV/AIDS problems:

- Prevention of transmission of HIV/AIDS;
- HIV Testing;
- Care for People Living with HIV/AIDS (PLHAS);
- Enhance Sectoral roles through participation and financial support;

- Promote and participate in research on HIV/AIDS-including dissemination of scientific information and development of HIV vaccine;
- Creating a legal framework through enactment of laws on HIV/AIDS-governing ethical issues and legal status of HIV/AIDS affected families;

Other objectives:

- Monitoring and safeguarding rights of infected or affected people;
- Prevent human rights abuse, discrimination and social injustice;
- Provide effective treatment for opportunistic diseases;
- Promote fight against drug substance abuse;
- Prohibit misleading advertisements of drugs and other products for HIV/AIDS prevention, treatment and care.

Relevance to the project

The proponent will be required to ensure HIV/AIDS prevention and control programs are prepared and implemented to workers and flanking community by the experienced personnel or firm to ensure transmission is minimized.

This is because during the project implementation there will be interaction between jobseekers and local community and this may cause increase the risk of the said disease.

3.1.5 The National Human Settlements Development Policy (2000)

The overall goal of the National Human Settlement Development Policy (2000) is to promote development of sustainable human settlement and to facilitate provision of adequate and affordable shelter to all people, including the poor. The policy outlines a number of objectives including the environmental protection within human settlement and protect natural ecosystem against pollution, degradation and destruction with the aim of attaining sustainable development.

The policy recognizes the role of the National Environment Policy and other sectoral policies for attainment of urban and rural development. Thus, the policy identifies the need for coordination and cooperation with other sectors / stakeholders, including CBOs, and NGOs in urban development planning.

It recognizes environmental planning and management as one of the broad human settlement issues. According to the policy, “environment means the physical, economic, and social conditions in which people live, influencing their feelings and development. Human activities take place in human settlements affecting the environment positively or negatively. In that regard the policy identifies environmental protection as one of the strategic issues in human settlement planning and development.

On environmental management the policy singles out poor solid waste management, crude dumping of industrial toxic chemical compounds, industrial effluents and air pollution due to industrial and gasoline emissions as one of the health problems facing well-being of urban and rural population. As such major issues in the policy include:

- Poor management of solid and liquid waste, leading into environmental deterioration;
- Emission of noxious gases from vehicles and industrial activities as a major cause of air pollution in urban areas;
- Encroachment into fragile and hazardous lands (river valleys, steep slopes and marshlands-leading into land degradation, pollution of water sources, etc.;
- Increasing dependence on wood fuel and charcoal as a main source of energy in human settlements leading into depletion of forests, hence environmental deterioration and air pollution and
- Unauthorized sand mining in river valleys leading into environmental hazards.

On urban and rural agriculture, the policy recognizes its importance as a source of income, source of supplementary food supply at affordable prices and employment to urban population. However, improperly practiced urban agriculture leads into conflict with other urban land use and land degradation, water pollution and a potential threat to health and safety of urban population. Thus, policy calls for well-planned urban agriculture to minimize land use conflicts and environmental degradation.

Relevance to the project

Proponent has to ensure that all the proposed measures for environmental, health, safety and social protection issues in this report are effectively implemented during both construction and operation to protect the public.

3.1.6 The Construction Industry Policy (2002)

The policy regards construction industry as a fundamental economic sector in the country. The important issues of major concern in the policy document range from planning, design, construction / production, procurement, repair, maintenance and demolition of physical infrastructure. It recognizes the need for delivery of good quality and valuable service in the development and maintenance of physical infrastructure.

According to the policy the important infrastructures of major concern include:

- Buildings
- Transportation systems and related facilities: airports; harbors; highways; subways; bridges; railroads; transit systems; pipelines and transmission / power lines
- Structures–water treatment and distribution, sewage collection and treatment, systems; sedimentation lagoons, dams and irrigation and canal systems
- Underground structures such as tunnels and mines

The policy recognizes the importance of involving various organizations and people including companies, firms and individuals working as consultants, main contractors and sub-contractors, materials and equipment producers, plant and equipment suppliers, builders and merchants. According to the government as a purchaser, financier, regulator and operator maintain close relationship with clients and other financiers.

Relevance to the project

The policy requires the proponent to ensure employment opportunity priority is given to local people at the project area. Whenever possible, the Proponent is required to instruct contractor to purchase/use the locally available materials to raise the economy of the individual and local industry in the project area.

3.1.7 The National Mining Policy (2009)

The Mineral Policy outlines strategies for development of the mineral resource and mitigation associated with mining activities. These strategies include:

- Protection of environment through ensuring that ESIA studies are carried out for mining projects and comprehensive Environmental Management Plan (EMP) are developed for all mining projects.
- Addressing women and children's issues in mining.
- Strengthening community participation in mining activities.
- Addressing health and safety issue through provision of social infrastructure and hygiene enhancing facilities such as water supply and sewerage systems in community development plans in highly concentrated mining areas.
- Development of rules through legal and regulatory instruments, for setting up reclamation funds/rehabilitation bounds to restore land to alternative use after mining.
- Development of guidelines for mining in restricted areas, such as national parks, forest reserve etc.

The policy requires mining activities to be carried out in a sustainable manner. According to the policy reclamation of lands must be done after mining activities.

Relevance to the project

The mining activities are related to quarrying and excavation of borrow materials from available sources. In this regard, the proponent has to ensure Contractor implements the policy by carrying out restoration of quarry sites and borrow pits areas if a new one is established; together with this contractor has to ensure he has a quarrying and borrow permit from the recognizable institutions.

The proponent has to ensure contractor is complying with by laws of the project area through paying of the village charges regarding the use of the said construction materials.

If the Contractor is purchasing materials, the owner of the quarries and borrow areas has to ensure the areas are reinstated. The owners also have to ensure the environmental studies have been conducted prior collection of the materials in their areas.

3.1.8 The National Gender Policy (2002)

The National Gender Policy, which was enacted in 1992 as amended in 2002. The objective of this policy is to provide guidelines to ensure gender sensitive plans, programmes and strategies in all sectors and institutions. The policy gives emphasis on gender equality.

The policy aims at establishing strategies on poverty eradication through ensuring that both women and men get access to existing resources for their development. It values the role played by women in bringing about development in the society.

The construction industry is also highly committed to gender mainstreaming at all levels, through provision of equal opportunities to both men and women in construction related works.

Also sporting activities are highly committed to gender mainstreaming at all levels, through provision of equal opportunities to gender participation in all sports.

Relevance to the project

The policy requires the proponent to ensure gender issues are given emphasis. It also requires that women and men are given equal employment opportunities in the project, whenever possible. The proponent has to ensure no any kind of discernment regarding genders in the project area throughout the project duration.

3.1.9 The National Water Policy (2021)

The policy objective is to develop a comprehensive framework for sustainable management of the national water resources. In this case the policy recognizes the need to protect water sources against pollution and environmental degradation.

Relevance to the Project

The construction activities could result into pollution of water sources, especially surface and ground water through effluents from onsite sanitation, grease and oil spills and excavation works. Therefore, the proponent will be required to ensure pollution of water sources is avoided or minimized during construction both phases.

This will only be possible if the construction works and project management team to comply with what is proposed in the ESMP of this report. On the other hand, refuelling at site is not advised unless the activity is done in paved areas and spilled oil are collected and treated in a safe way.

3.1.10 The National Strategy for Growth and Reduction of Poverty (NSGRP) 11 (2025)

The National Strategy for Growth and Reduction of Poverty (NSGRP, 2025)3 is a national strategy to achieve economic growth and reduce poverty. The strategy emphasis is on the growth momentum to fast tract the targets of vision 2025 for high and shared growth, high quality livelihood, piece, stability and unity, good governance, high quality education, and international competitiveness.

The NSGRP calls for involvement of all stakeholders from grass root to central government. The strategy pays attention at mainstreaming cross-cutting issues such as environment, HIV / AIDS, gender, employment, and settlement.

Relevance to the project

This is an industrial development project. In this regard, the proponent is required to engage various stakeholder as done in this study and has to continue doing it in the construction and operation phase. On the other hand, proponent has to ensure employment is given to locals, HIV/AIDS is prevented and controlled in the project area.

3.1.11 Small and Medium Enterprises Development Policy of 2003

This policy foresees the Tanzania Development Vision that by the year 2025, "Tanzania should have created a strong, diversified, resilient and competitive economy, which can effectively cope with the challenges of development and, which can also easily and confidently adapt to the changing market and technological conditions in the regional and global economy".

The overall objective of this policy is to foster job creation and income generation through promoting the creation of new SMEs and improving the performance and competitiveness of the existing ones to increase their participation and contribution to the Tanzanian economy. The policy covers the following scope;

- Reviewing and reconsidering public policies and regulations that discriminate against or hinder the start-up, survival, formalization and growth of SMEs.
- Enhancing the growth of the sector.
- Identifying and assigning clear roles of key actors.
- Developing strategies that will facilitate provision of financial and nonfinancial services to SMEs.
- Developing and institutionalizing public-private partnerships for SME sector development.

Relevance to the project

The enterprises play a major important in national and economic development thus, the proponent will comply with the policy through creation and provision of various job opportunities to the local residents thus increases the individual, local and national development.

3.2 LEGAL FRAMEWORK

3.2.1 The Constitution of Tanzania (1977)

The constitution of the United Republic of Tanzania recognizes the basic rights for its people as outlined in Part III Article 14 and 24 (Act No. 15 of 19874). Article 14 states that every person has the right to life – that every person has the right to live and to the protection of his / her life by the society in accordance with the law.

[3]The NSGRP is popularly known by its Kiswahili abbreviation of MKUKUTA

Article 24 stipulates that every person is entitled to own property and has a right to the protection of his property held in accordance with the law. However, there are certain limitations upon enforcement and preservation of basic rights, freedom, and duties as stipulated in the Act No. 15 of 1984 Section 6 and Act No. 34 of 1994.

Article 30(2) - has the provision contained in the constitution, which states that "freedom and duties do not invalidate existing legislation or prohibit the enactment of any legislation or the doing of any lawful act in accordance with such legislation for the purpose of – among others-ensuring the defence, public safety, public order, public morality, public health, rural and urban development and utilization of minerals or the increase and development of property or any other interest for the purpose of enhancing the public benefit".

Relevance to the project

The national constitution must be observed by project proponent throughout the project duration, especially in matters concerning human rights including protecting the franking environment and public health.

3.2.2 The Environmental Management Act (2004) and its Amendments

The Environmental Management Act No. 20 of 2004 as amended in the year 2016 and 2021 is the principal legislation governing environmental management in the country. The Act recognizes the right of every citizen to clean, safe and heathy environment, and the right of access to environmental resources for recreational, educational, health, spiritual, cultural, and economic purposes.

Thus, the Act provides a legal framework for coordinating harmonious and conflicting activities by integrating those activities into overall sustainable environmental management system by providing key technical support to Sector Ministries.

Relevance to the project

The Act required proponent to conduct EIA study for the project (this report) and therefore to protect the environment through implementation of ESMP and monitoring of the environmental, health, safety and social parameters during project implementation as proposed in this report.

3.2.3 The Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018

The Environmental Impact Assessment and Audit Regulations (2018) are made under Environmental Management Act No. 20 of 2004. The regulations provide basis procedure for undertaking Environmental Impact Assessment (EIA) and Environmental Audit for various development projects with significant environmental impacts in the country.

Relevance to the project

The proponent has engaged the EIA expert and the EIA study has been executed as per the procedures as stipulated in the EIA and EA regulations.

3.2.4 The Environmental Management (Air Quality Standards) Regulations of 2007

These are Regulations made under Sections 140, 145, and 230 (2) (s) of the Environmental Management Act No. 20 of 2004. Part II of the Environmental Management (Air Quality Standards) Regulations of 2007 provides setting for the National Environmental Management Standards Committee of Tanzania Bureau of Standards (TBS) to establish minimum air quality standards in the country. Regulation 7(1) of Environmental Management (Air Quality Standards) Regulations of 2007 requires every person to comply with the minimum air quality standards approved and published by the National Environmental Management Standards Committee.

Moreover Regulation 8-(1) & 8-(2) makes prohibition to emission of hazardous substances, chemicals and materials. It has been stated that "No person shall emit or release any hazardous substance, chemical, gas or mixture containing gaseous and hazardous substances into the environment unless such emission or release is permitted under these Regulations or any other written law" and "A person who releases any hazardous substance, chemical, gas or mixture containing gaseous and hazardous substances into the environment or into any other segment of the environment contrary to these Regulations commits an offence".

Relevance to the project

The construction works will involve emission of smokes and fumes from vehicles, heavy construction equipment such as dozers, graders, and plants that will likely significantly cause air pollution. In similar way excavation of materials from borrow pits and quarry sites, as well as regular movement of trucks along the earth road will also increase the rate of air pollution.

During industrial operations, it is expected the industry will generates fumes from operation machines and generators. In order to comply with the regulation, proponent has to observe and implement the developed mitigation measures for control of air pollution which have been highlighted in the ESMP.

3.2.5 Environmental Management (fees and charges) Regulations of 2021

The regulation established the fees and charges for the followings; application and submission of Environmental Impact Assessment reports; accessing EIA information such as scoping, EIS, EA reports, Approvals, Copy of Certificates and Environmental Expert Register; and review of Environmental Impact Assessment and Audit as stipulates in section 1.

The regulation also stipulates Environmental Experts Registration fees, this includes application for registration, registration certificates and annual subscription for individual and firms in section two (2). While in section three (3) the regulation provides environmental compliance monitoring and audit which includes annual charges for Environmental Monitoring and Audit for different categories and facilities as mentioned.

Furthermore, the regulation provides the fees and permit for; environmental standard, ozone depleting substances, hazardous waste permits, nonhazardous waste permits, solid waste permits, biosafety permits, noise and vibration permits and other permits.

Relevance to the project

The project complied with some of the fees and charges in first phase (design phase) of the project through engaging the registered environmental experts who often pays the annual subscription fees, the proponent has also paid the registration and review cost for the submitted ESI report.

As per the regulation, the proponent is also required to comply with the charges and permits related to project during construction and operation phases.

3.2.6 The Environmental Management (Registration and Practice of Environmental Experts) Regulations, 2021;

The regulations explain the registration of the Environmental Experts responsible for conducting Environmental studies should be registered by the Director responsible for environmental assessment from the council (National Environment Management Council (NEMC)) as categorized into three categories;

- Category I- Graduate Environmental Experts which are newly registered and certified experts.

- Category II- Professional Environmental Exerts consisting graduate experts with proven practical experience of at least 3 years in their areas of expertise.
- Category III-Consulting Environmental Experts consisting Professional Environmental Experts with proven practical experiences at least 5 years in their area of expertise.

The regulation bolded that the registered environmental experts must be Tanzanian and study Environmental Studies related Degree from recognizable institution. The regulation went far by stipulating that, every registered environmental expert in any category project shall not conduct or practise any environmental study without a practising certificate or license given by a recognizable environmental institution (NEMC).

Relevance/Compliance

The proponent has complied with the regulation through engagement of the registered and licenced EIA expert with a valid practising licence with no outstanding annual fees. The proponent will be required to do the same during the implementation of ESMP and throughout the project operation.

3.2.7 The Environmental Management (Hazardous Waste Control and Management) Regulations, 2021

The regulation explains principles of environment and sustainable development relevant to hazardous waste control and management guiding on how to generate, collecting, storing, transporting, treating, recycling, recovering and disposing of all types of hazardous waste inclusive of domestic wastes and industrial wastes to the sustainable disposal sites for a cleaner and sustainable environment.

The principles guiding sustainable waste management and control include; Precautionary principle, Polluter Pays Principle and Producer extended responsibility.

For a cleaner production, hazardous and toxic waste can be minimized by adopting following cleaner production principles;

- Improvement of production process through conserving raw materials by
  - Eliminating the use of hazardous and toxic raw materials within such times as may be prescribed by the Minister
  - Reducing toxic and hazardous waste to a level prescribed in the applicable national environmental quality standards
- Monitoring the product cycle from beginning to the end by identifying and eliminating potential negative impacts of the product, enabling the recovery and re-use of the product where possible and reclamation and recycling

Relevance/Compliance

The project is expecting to generate hazardous wastes in various phases. Despite of the proponent to deploy the HSE personnel throughout the project duration, the regulation advises proponent to engage the hazardous waste collector who is registered by VPO and has the reputable experience for collection and safe disposal of the wastes.

3.2.8 The Environmental Management (Standards for The Control of Noise and Vibrations Pollution) Regulations, 2015

The regulations were enacted to manage and control noise and vibration pollution in various sectors and activities. These regulations aim to protect human health and the environment from the adverse effects of excessive noise and vibration.

The key objective of these regulations is to impose on noise and vibration emissions from different sources such as construction sites, transportation, and any other source that may

contribute to noise and vibration pollution. The regulations provide guidelines and standards that must be followed to minimize and mitigate the impact of noise and vibration pollution.

The Environmental Management (Standards for the Control of Noise and Vibration Pollution) Regulations, 2015 set specific noise and vibration level for different types of activities and areas. These limits are designed to prevent any harmful effects on human health and ensure that noise and vibration levels are within acceptable ranges.

Relevance / Compliance.
The proposed project is likely to generate construction related noise and vibration that can structurally harm the surrounding buildings and the ongoing activities.

The proponent has to ensure that, the foreseeable noises and vibrations pollutions to be generated by the project, should fall within the acceptable national and internation standards.

This will be possible through regular monitoring of impacts and provision of acceptable mitigation measures.

3.2.9 The Environment Management (Prohibition of Plastic Carrier Bags and Plastic Bottle Cap Seals) Regulations, 2022

The regulation aims to tackle the problem of plastic pollution by prohibiting the production, importation, sale, and use of plastic carrier bags in a specific jurisdiction.

The regulations define a plastic carrier bag as any bag with handles, including plastic flat bags, plastic mailing bags, and plastic bags without handles. The use of biodegradable or compostable plastic bags is also prohibited under these regulations, as they still contribute to environmental pollution.

The goal of these regulations is to encourage the use of alternative materials for packaging and to promote sustainable practices. It is part of a larger effort to reduce the amount of plastic waste that ends up in landfills, water bodies, and other natural environments.

Relevance / Compliance.
The project will involve the use of plastic materials for packaging and handling of the product ready to be transported to the market. The proponent is advised to use boxes/recyclable materials as handling of Catton to the market or the use of plastic materials with cost-effective recycling approaches. It is also prohibited to provide plastic seals in the tin caps.

On the other hand, the proponent should encourage the recycling and reuse of the packaging materials since plastics will be produced and utilized throughout the project duration.

3.2.10 The Environmental Management (Control and Management of Electricity and Electronic Equipment Waste) Regulations, 2021

The Environmental Management (Control and Management of Electricity and Electronic Equipment Waste) Regulations, 2021 serve as a vital framework for the proper handling, disposal, and management of waste generated from electrical and electronic equipment (EEE). These regulations aim to address the growing concerns related to the environmental impact of electronic waste and establish guidelines to mitigate its adverse effects.

The regulations outline the responsibilities, procedures, and authorities related to the control and management of electricity and electronic equipment waste. They set forth measures to ensure the safe collection, transportation, recycling, and disposal of EEE waste. By doing so, the regulations aim to minimize the negative consequences associated with improper handling of electronic waste, including potential harm to human health and the environment.

Relevance / Compliance:
The project will involve the use of electricity and electronic equipment (EEE) for various purposes, such as lighting, communication, and machinery operation. The use of EEE materials will trigger waste generation eventually and this will be throughout the project duration.

The proponent will comply with the Act through proper collection, transportation, recycling, and disposal of the EE waste through engagement authorized reputable firms.

3.2.11 The Fire and Rescue Force (Safety Inspections and Certificate) Regulations, 2012

The Fire and Rescue Force Act, of 2007 (No. 14 of 2007) regulates safety inspections and certificates related to fire safety. The "Fire and Rescue Force (Safety Inspections and Certificates) Amendment Regulations, 2012" further amend these regulations to enhance safety measures and enforcement. The amendments emphasize the need for safety inspections and certificates for various property types., the regulations indirectly underscore the importance of adhering to safety standards during and after construction of projects.

Construction Site Safety: The definition of "Construction site" underlines fire safety during construction phases, aligning with construction project needs.

Outdoor Storage Areas: The defined "Outdoor storage area" aligns with storage practices common in construction projects, highlighting safety in storing equipment and materials.

Renewal of Certificates: Compliance involves renewing Fire Safety Certificates, relevant for temporary structures, equipment, and changing site conditions in construction.

Safety Integration: These regulations indirectly emphasize the importance of fire safety measures in construction projects.

Relevance/compliance
The project is likely to cause fire due to the activity and equipment planned to be used during both phases including the use of electricity, petroleum and etc.

The proponent is advised to complying with fire and rescue force recommendation during the stakeholder's consultation through provision of fire extinguishers and fire hydrant.

The proponent is also required to comply with the law through engaging the fire and rescue force for regular inspections, renewal of fire safety certificates by paying fire levies and to ensure workers are safe from fire risks.

3.2.12 The Urban Planning (uses group and use classes) Regulations of 2018

This regulation explains different uses group and uses classes responsible for urban planning which has a general purpose of planning and the control of development, all uses of land and buildings are categorized in the use groups and use classes in the First Schedule.

There are different categories of uses group and uses classes such as shops, industrial area, dwelling houses, communication and public house, educational buildings etc. where by Residential Buildings (other than dwelling houses) and its respective Use Classes include,

(a) Boarding Houses.
(b) Block of flats, apartment houses.

(c) Housing estate meant for different housing density but principally of maisonettes and/or detached and/or terraced dwelling house.
(d) Residential accommodation over or attached to shops and offices, so far as it applies to that portion designed for dwelling purposes only.
(e) Residential Clubs.
(f) Convalescent and nursing homes.

Relevance to the project

The proponent is required to designed and implement the project in according with regulations. This will help to reduce conflicts between the user group and maintain peace in the flanking society.

Implementing the project in a complete residential area may cause conflicts in society due to the results of the activities that are expected to be executed there, and such activities are noises due to plant operations and regular use of heavy trucks for loading and offloading of the raw materials and the products to the markets.

To avoid all of this, the proponent is implementing the project to the land that is planned for industrial purposes.

3.2.13 The Urban Planning (space standards) Regulations of 2018

The Urban Planning (Space Standards) Regulations include standards for residential areas, unplanned settlements, building height, building lines and setbacks, floor area, plot coverage and plot ratio, health facilities, education facilities, recreation facilities, beach facilities, golf course, passive and active recreation, public facilities by planning levels, public facilities by population size, parking and road width and agricultural show grounds.

Adequate and functional space shall be allocated in accordance with the Urban Planning Space Standards prescribed in the Schedule to these Regulations and the space standards used shall be applied to create compact towns.

Relevance to the project

The proponent is required to designed and implement the proposed buildings in the project area in according to Urban Planning (space standards) regulations, through proper use of the proposed land and hence increase scenic beauty of the project location.

To comply with the regulation the proponent will design and request the building plan from the Kibaha District Council.

3.1.14 The Environmental (Solid waste Management) Regulations, of 2009 as amended in 2016

This Principal Regulation is amended by deleting regulation 45 and substituting it with the following clauses;

i. A person who commits an offence under this part shall be convicted by “Penalty of litter” and will be subjected to a fine of not less than fifty thousand shillings but not exceeding two hundred thousand shillings or to imprisonment of not less than three months but not exceeding seven years or both.
ii. In case of a corporate body which commits an offence under this part shall be convicted by “Penalty of litter” and will be subjected to a fine of not less than five million shillings.

Relevance to the Project

Since the project will generate various types of solid waste during construction and operation phases. The Proponent has to ensure effective solid waste management is implemented in the project location to prevent pollution, prevent spread of diseases, to conserve the environment and increase the scenic of the project area thus increases sustainability of the environment throughout the project duration.

3.1.15 The Tanzania Food, Drugs and Cosmetics (Food Fortification) Regulations, 2011

This regulation states the restriction on the manufacture, import and sale of unfortified food where by, no person shall be authorized to manufacture for sale, import or export for sale any food regulated under this regulation unless that food meets the minimum requirements for fortified food as prescribed in the First Schedule to these regulations or the existing national standards for fortified foods.

During the manufacturing of the fortified foods and cosmetic, the manufacturer is required to use fortificants or pre mix that complies with national standards or international standard as approved by the Authority. Upon not adhering to above regulations, a person contravenes the offense under this Act.

Relevance to the Project

The Proponent is required to adhered with regulation through observing the quality of the products to be produced to meet the given national and international standards for the purpose of protecting the general public.

All the product should be approved by the relevant authority before being supplied to the market.

3.2.16 The Land Act (Cap 113 R.E 2019)

The Act provides for the basic law in relation to land other than the village land, the management of land, settlement of disputes and related matters. Section 156 of the Act requires compensation to be paid to any person for the use of land of which he / she is in lawful or actual occupation as a communal right of way and with respect to a way leave or the building owners.

These include: any damage suffered in respect of trees, crops, and demarcation of buildings as result of creation of way leave or building of industry and mining sites; and damage due to surveying or determining the route of that way leave or the buildings. It is the responsibility of the government department of Ministry, Local Government authority or corporate body that applied for the right of way to pay compensation.

Section 118 of the Act provided that, in assessing compensation of Land acquired in the manner provided for in this Act, the concept of opportunity shall be based on the following;

- Market value of the real property
- Disturbance allowance
- Transport allowance
- Loss of profits or accommodation
- Cost of acquiring or getting the subject Land and;
- Any other cost loss or capital expenditure incurred to the development of the subject land

Relevance / Compliance

The project is not involving land acquisition for its implementation since the proponent has leased the land from Tanzania Investment Centre.

3.2.17 The Income Tax Act, (Cap 332 R.E 2023)

The Act make provision for the charge, assessment and collection of Income Tax, for the ascertainment of the income to be charged and for matters incidental thereto. Including an action, agreement, course of conduct, dealing, promise, transaction, understating or undertaking, whether express or implied, whether or not enforceable by legal proceedings and whether unilateral or involving more than one person.

Section 94 requires an assessment on the asset that includes currency, goodwill, know-how, property, a right to income or future income and a party of an asset. For instance, a person's income from a business for a year of income is the person's gains or profits from conducting the business for the year of income. Subject to the provisions of subsection (3), there shall be include in calculating a person's gain or profits from conducting a business for a year of income as follow;

- Service fees
- Incoming for trading stock
- Gain from the realization of business assets or liabilities of the business as calculated
- Amount derived that are effectively connected with the business and that would otherwise be included in calculating the person's income from an investment.

Relevance to the project

The proponent is required by the Act to pay all the taxes related with running of the project throughout the project duration.

3.2.18 The Standards Act of 2009

An Act to provide for the standardization of specifications of commodities and services, to re-establish the Tanzania Bureau of Standards and to provide better provisions for the functions, management and control of the Bureau, to repeal the and to provide for other related matters.

This Act establishes the Tanzania Bureau of Standards (TBS) as a body corporate and makes provision with respect to the publication and enforcement of standards in Tanzania. It repeals the standards Act, Cap. 130 and provides better provisions for the functions, management and control of the TBS. In Section 3-(2) the Standard Act of 2009 requires TBS to be the custodian and overseer of observance of standards in Tanzania. The TBS shall, among other things, required to perform the following functions: -

- Undertake measures for quality control of commodities, services and environment of all descriptions and to promote standardization in industry and trade;
- Make arrangements or provide facilities for the examination and testing of commodities and any material or substance from or with which, and the manner in which, they may be manufactured, produced, processed or treated;
- Assist industries in setting up and enforcing quality assurance and environmental management systems procedures;
- Provide for the inspection, sampling and testing of locally manufactured and imported commodities with a view to determining whether the commodities comply with the provisions of this Act or any other law dealing with standards relevant to those commodities.

Relevance to the project

The construction works will involve procurement of manufactured materials from local and external markets. In this regard, the proponent is advised that, the construction material must be in compliance with the TBS standards through being tested from the reputable laboratories in the country.

On the other hand, the proponent has to ensure all the products to be produced should meet the set standards related to production of cosmetics, aerosol and plastics in the country.

3.2.19 The Public Health Act No. 1 of 2010

An Act to provide for the promotion, prevention and maintenance of public health with a view to ensuring the provisions of comprehensive, functional and sustainable public health services to the general public and to provide for other related matters. The Act requires every authority in Tanzania mainland to: -

- Take lawful, necessary and reasonable measures to prevent the occurrence of or deal with any out-break or prevalence of any infectious or communicable and non-communicable disease;
- Cause an appropriate Environmental Health Impact Assessment Study to be conducted for all activities as may be provided for under the Environmental Management Act;
- Safeguard and promote the public health standards;
- Issue notices for rectification of any breach of public health standards;
- Implement and enforce public health standards through bylaws;
- Promote public health standards in its area through creation of awareness and educational campaigns;
- Carry out inspections; and
- Exercise the powers or perform duties in respect of the public health in accordance with this Act or any other written law.

Part IV of the Public Health Act requires any person or authority not cause or suffer from a nuisance, likely to be of injurious or dangerous to health, existing on any land, premises, air or water. Furthermore, the Act sanctions authorities to set aside areas of adequate size for the purpose of solid and liquid waste disposal; manage solid and liquid wastes generated in accordance with the respective prepared sustainable plans; ensure appropriate sorting of wastes is made at the source and undertake periodic studies to determine the type of solid and liquid wastes generated from markets, institutions and industries.

Relevance to the Project

The proponent is required to safeguard and promote public health standards by ensuring proper and sustainable management of solid and liquid wastes at site. Thus, it is a duty of the proponent to ensure waste is collected; transported and safely disposed from generation areas throughout the project phases.

The disposal area has to be authorised and the management of disposal area shall also ensure that the area is adequate and ready to receive waste from the industry.

3.2.20 The Land Use Planning Act (2007)

The Land Use Planning Act No. 6 of 2007 was enacted on 24th April 2007. The Act provides for procedures for preparation, administration and enforcement of land use plans, to repeal the Land Use Planning Commission and to provide for related matters.

The Act has distinctive authorities of land use planning in Tanzania, and establishes land use planning authorities. It outlines their functions and powers conferred upon. The authorities established under the Act include:

- Village Councils – that are responsible for planning and managing village lands.
- District Councils – that are responsible for planning and managing all lands in the district and assist Village Councils to plan and manage their areas of jurisdiction.
- Land Use Planning Commission – which prepares national land use planning framework plan and assist the lower echelon to prepare plans and manage their lands.

Relevance to the Project

The proponent in collaboration with the local authority is required to ensure the project is designed and implemented in accordance to the land use plan in the local areas.

3.2.21 The Local Government (Urban Authorities) Act, R.E 2002

This Act provides for the establishment composition and legislative powers of the urban based local government authorities in Tanzania. The urban council comprises of the governing bodies of Townships, municipalities, and cities.

Section 42 of the Act provides for the establishment of the committees of urban authorities other than city councils. These committees are for; finance and administration; economic affairs, health and education; urban planning and environment; a city council is required to establish such committees as may be determined by the minister in the order establishing it.

The objectives and functions of the urban authorities are provided for under section 54 of the Act. These includes; to facilitate the maintenance of peace, order, good governance, promote the social welfare and economic wellbeing of people within their areas; further suppression of crimes and protection of public and private property; regulate and improve agriculture, trade and industry, further and enhance health, education and the social, cultural and recreational life of the people and fight against poverty and distress.

The Act also contains provisions relating to environmental management and protection. These provisions include section 55(1) which provides for the general duties of the urban authorities including to take and require the taking of measures for conservation of natural resources, prevention of soil erosion and prohibition and control of cultivation; etc.

The Act under section 80(1) provides that the urban authorities may, subject to the consent of the proper officers make by-laws to be applicable in their areas. Some of these by-laws may be on environmental and natural resources management. Section 80(1) requires the authorities to give public notice to the local inhabitants of the intention to make the by-laws for the comments. After the expiry of the notice, the draft of the by-law has to be submitted to the Minister for approval. Upon being approved, the by-laws shall be gazetted and shall have full force from the date of publication of the by-laws.

Relevance to the project

The proponent has to abide with the by-laws in the project area regarding environmental management and protection including public health and social issues. This includes payment of the taxes related to project within the project area throughout the project duration.

3.2.22 The Water Resource Management Act (2009) as Amended 2022

The Act was enacted to provide for institutional and legal framework for sustainable management and development of water resources; to outline principles for water resource management; to provide for the prevention and control of water pollution; to provide for participation of stakeholders and general public in implementation of the National Water Policy, repeal of the Water Utilization (Control and Regulation) Act Cap. 331 of 2002 and to provide for related matters.

The objective of this Act is to ensure that water resources are protected, used, developed, conserved, managed and controlled in ways which take into account fundamental principles. Section 5 outlines the principles of sustainable water resource management. These include:

- The precautionary principle;
- Polluter pays principle;
- The principle of eco-system integrity;
- The principle of public participation in the development policies, plans and process for the management of the water resources;

- The principles of international co-operation in management of environmental resources shared by two or more states; and
- The principle of common but differentiated responsibilities.

Section 9 requires Environmental Impact Assessment to be carried out for any proposed development in a water resource area or watershed to which this Act applies, whether that development is proposed by or is to be implemented by a person or organization in the public or private sector in accordance with the provisions of the Environmental Management Act Cap 191 of 2004 and its amendments.

Drilling Permit" as stipulated under the Water Resources Management (WRM) Act, No. 11 of 2009 Part VII Section 54 as amended in 2022. A driller must keep and submit any relevant data on groundwater to the Basin Water Board, as stipulated under the WRM Act No. 11 of 2009 Part VII section 57 as amended in 2022.

Relevance to the project

The proponent is required to play a key role in protection of ground and surface water sources if it will be required to use onsite sanitation by following the basic principles of implementing onsite facilities in the project area. The proponent also should ensure waste is properly treated within the industry area and reuse it for other activities.

As described earlier, the project will involve borehole drilling to be used for supply and industrial operation. The proponent is required to secure all the permit for having borehole in the project area from the relevant institutions.

3.2.23 The Occupational Health and Safety Act (2003)

The Occupational Health and Safety Act No. 5 of 2003, deals with regulation of health, safety and welfare of workers in factories / workplaces. Some of the provisions that could be relevant to the construction works include:

- Appoint safety and health representative and committee;
- Register their workplace (campsite, borrow pit and quarry sites) before operation.
- Provide safety precautions;
- Ensure health and welfare of workers
- Ensure proper handling of hazardous materials / chemicals and process.

Relevance to the project

The proponent is required to ensure proper PPEs are provided to workers and provision of drinking water. The proponent is also required to engage HSE personnel during project execution and engaging the registered firm for proper handling of hazardous materials.

On the other hand, the proponent is required to register the project and conduct regular inspection as per the act, throughout the project duration.

3.2.24 The HIV and AIDS (Prevention and Control) Act No.28/2008

This is an Act to provide for prevention, treatment, care, support and control of HIV and AIDS, for promotion of public health in relation to HIV and AIDS; to provide for appropriate treatment, care and support using available resources to people living with or at risk of HIV and AIDS and to provide for related matters.

According to Section 4(1) one of the duties of every person, institution and organization living, registered or operating in Tanzania, is to promote public awareness on causes, modes of transmission, consequences, prevention and control of HIV and AIDS.

Section 6(1) requires every ministry, department, agency, local government authority, parastatal organisation, institution whether public or private, to design and implement gender and disability responsive HIV and AIDS plans in its respective area and such plans should be mainstreamed and implemented within the activities of such sector.

Section 6(3) requires civil societies and private organisations to design and implement plans and programmes aimed or geared towards prevention, care of patients and control of HIV and AIDS in their respective areas.
Sections 6(4) require every sector preparing a plan or programme to submit such plan or programme to TACAIDS before implementation for coordination and advice.

Relevance to the project
The project will engage labours from different areas, who are likely to interact with locals, hence likely to increase transmission of HIV and AIDS. Thus, the proponent is required to promote awareness creation among the labours and general public at the project area on HIV and AIDS. The proponent is also required to ensure HIV and AIDS prevention and control plan or programme is prepared and implemented as stipulated in the ESMP and HIV and AIDS (Prevention and control) Act throughout the project duration.

3.2.25 The Employment and Labour Relations Act of 2019
The Act provides for core labour rights to establish basic employment standards to provide a framework for collective bargaining; to provide for the prevention and settlement of disputes and to provide for related matters.

The Act applies to all employees in public service of the Government of Tanzania Mainland except to members in the Tanzania People's Defence Force (TPDF); Police Force; Prisons Service and National Service. One of the objectives of the Convention is to give effect to the core Convention of the International Labour Organization (ILO) as well as other ratified Convention.

The Act restricts child employment under 14 years of age and under 18 years of age in a mine, factory or on ship or in any hazardous work conditions. However, it permits a child less than 18 years of age if that work is part of the training. The Act prohibits discrimination in the place of work directly or indirectly. It provides for the freedom of association by allowing an employee to form and to join a trade union. It also provides for an employer to form and join and employer's association.

Relevant to the project
The proponent has to ensure Contractor is not providing employment to children under 18 years of age. The proponent is required to ensure any discrimination in the working area directly or indirectly is avoided. For example, the Contractor should not pay salaries that favour non-citizens or citizens.

The proponent is also required to ensure contractor is paying minimum wages as stipulated in the Act. The proponent is required to ensure contractor is providing contract to all employees that are expected to be engaged in the project.

3.2.26 The Mining Act (Cap 123 R.E 2019)
In construction works use of building material is inevitable, some of materials are categorized as mineral and sometimes being explored from mines areas.

Section 4 of Mining Act interpret the meaning of building material as may be used in construction activities, according to the Act, construction material is interpreted as all about the form of rocks, stones, gravel, sands, clay, soil, volcanic ash/cinder scoria, purine or other

mineral being used for construction of building, roads, dams, but doesn't include gypsum, limestone being burned for production of lime or material used for manufacture of cement.

In addition to that, in order to forbid illegal quarrying of mineral for environmental conservation purposes, the Act defines the mining area as the area subjected to a special mining license, this implies that any exploration of mineral for the purpose of construction from the mineral area as per definition/interpretation found in section 4 of the Act, such act shall be treated as against the law.

In order to fulfill the availability of construction material for construction, the law requires the legal authority to authorize any exploration of construction materials/minerals this stipulated in section 6 of the Act.

Relevance to project

The project will require quarry material for construction activities such as gravel and aggregates. The Proponent has to ensure contractor seeks for a temporary permit or might have a license from the recognized authority if he will need to introduce a new quarry site. If the materials will be purchased, contractor will be required to pay some local taxes within the materials collection area.

3.2.27 The Engineers Registration Act and its Amendments 1997 as amended 2007

This is an Act to repeal and re-enact with modifications the Engineers (Registration) Act No. 48 of 1968, to establish a Board, to regulate the conduct of engineers, to provide for their registration and related matters. In section 3, subsection 1, the Engineers Registration act of 1997 establishes Engineers Registration Board (ERB) which among of other functions, shall maintain and keep a register of engineers, including consulting engineers or firms providing engineering services.

Furthermore, the Act provides registration on private practice as an engineer. It stipulates that "No person other than a registered engineer shall engage in professional engineering work or services. The subsection 13 of the Act describes professional engineering works as all activities include service consultation, investigation, evaluation, planning, designing or responsible supervision of construction or operation in connection with any public or privately owned public utilities, buildings, machines, equipment, processes works or projects where public interest and welfare, or the safeguarding of life, public health or property is concerned or involved, and that requires application of engineering principles and data; "professional engineering services" means consultancy or advisory services relating to any professional engineering work and includes selling or supplying for- gain or reward any plan sketch, drawing, design, specification or other document relating to any professional engineering work.

Relevance to project

The proponent is required to ensure engagement of professional engineers, registered by ERB for undertaking engineering works and services is practised. Such engineers must provide ERB registration certificates together with practicing licences before being deployed to undertake any engineering task throughout the project duration.

3.2.28 The Contractors Registration Act (1997)

The Act provides for the registration of contractors and establishes a Board to regulate the conduct of contractors and for the related matters. The Board established under this Act is known as the Contractors Registration Board (CRB), which among of the other functions shall: -

- Consider and decide upon application for registration, to effect Board registration of contractors; to maintain a register of contractors, and to prescribe fees for registration and annual subscription;
- Regulate the activities and conduct of contractors;
- Enter and inspect any site for construction, installation, erection or alteration works for the purpose of verifying and ensuring that the works are being undertaken by registered contractors; and that the works comply with all governing regulations and laws of the country;
- Take legal action against unregistered contractors who undertake construction; installation, erection or alteration works;
- Verify and ensure that every site for construction, installation, erection, alteration works has a sign board which shows the names and address of the project, client, consultants and the contractors of the project; and to take legal action against defaulters;
- Classify contractors into different types, categories and classes and to set class limits of projects to be executed by contractors;
- Review registered contractors with a view of ensuring that they meet the registration criteria in force of their respective types, categories and classes; and
- Take disciplinary action against registered contractors who contravene the provisions of this Act or the By-laws of- the Board

The Act provides obligation that " any person who or any firm which not being a registered contractor, trades or caries on business as contractor in Tanzania; commits an offence and upon conviction is liable to a fine of not exceeding ten percent of the contract sum or project value but not less than one percent of the contract sum or project value of an executed contract or contract in hand or five million shillings which is higher or to imprisonment for a term of not less than three years or to both that fine and imprisonment.

Relevance to the Project

The proponent is required to engage registered Contractors with CRB for undertaking construction works. The CRB registration certificates must be the awarding criterion during evaluation of Contractors for the purpose of undertaking this project.

3.2.29 The Workers Compensation Act (Cap 263 R.E. 2015)

This is an Act to provide for compensation to employees for disablement of death caused by or resulting from injuries or diseases sustained or contracted in the course of employment; to establish the Fund for administration and regulation of workers' compensation and to provide for related matter.

The relevant Sub-sections include Sub-section 34(1); Sub-section 34(2); Sub-section 71(1); Sub-section 72(1); Sub-section 73(1); and Sub-section 74(7) paid by the employer to its employees during the period with effect from the first day of March of the immediately preceding year up to and including the last day of February of the following year and; such further information as may be prescribed or as the Director-General may require.

Relevance/Commitment:

The project is likely to create accidents or health and safety risks to the workers. The proponent will adhere to the objectives of the Act. This will include submission employees' records of earnings and monthly contributions throughout the project duration.

3.2.30 The Fire and Rescue Services Act of 2015

This is an Act to provide for the better organization, administration, discipline and operation of fire and rescue services in the Tanzania Mainland. The Act under Part II establishes a National Fire Brigade which is known as the Fire and Rescue Services Force. The Force established under this Act shall be responsible to take all lawful measures for: -

- Extinguishing fires;
- Protecting life and property in case of fire outbreak or another calamity;
- Formulating policies or fire safety and advise the Government with the view to securing their implementation;
- Making necessary provision for firefighting at airport and other premises in accordance with international standards, practices and recommendations;
- Carrying out research and training in all firefighting and related fields and ensure the co-ordination of the international aspects of such research and training.

Furthermore section 9-(1) of the Act stipulates that the Force shall provide and maintain, or cause to be provided and maintained, such fire hydrants and other water installations as are necessary for securing the best practical use of the available water supply in case of the outbreak of fire, and the location of every such hydrant shall be plainly indicated by a notice or distinguishing mark or plate which may be placed on any wall or fence adjoining a street or public place.

Relevance to the project
The proponent has to ensure sufficient number of fire hydrants are designed and installed, vividly marked and thoroughly maintained in the project premises as required by law. The proponent has to ensure signages related to fire are provided in the buildings and outside. The proponent is also required to be ready for inspection during the project duration.

3.3.31 The Business Licensing Act 1972 as Amended 2002
This Act explains the process of licensing a building business where by any building or part of a building which is used as an office, Shop, Godown, store or warehouse or any place where any business is normally carried on.

The Act requires that No Entity is required to operate a Business in Tanzania without being a Holder of a Valid Business License issued by the Respective Authority.
Every business license granted under this Act shall expire on the thirty-first day of March next following the date of issue.

Relevance to the project
For the purpose of running the business the proponent has already secured the business license for the proposed activity and this will be renewed as stipulated in the Act.

3.3.32 Tanzania Food and Drugs Authority Act 2012
This Act explains the process of registering premises, products and issuing of licenses to businesses trading products related to food, drugs, cosmetics and medical services. The Authority issues the following licenses or permits of manufacturing, wholesale, retail licenses or any other license or permit as the Authority may deem fit for the purpose of this Act.

The Act requires that, no person shall manufacture for sale, sell, supply or store of the products or import, distribute or sale pre-packaged food unless regulated under this Act except in premises registered by the authority for that purpose and the Authority is required to conduct investigation of the above products if it complies with the prescribed requirements.

Any person who contravenes the provisions of the above clauses commits an offence and upon conviction shall be liable to imprisonment for a term not less than five years.

Relevance to the project
The project team has to ensure that the products to be manufactured, produced and sale are in according to the guidelines of the Act.

3.3 INSTITUTIONAL FRAMEWORK

The institutional framework for environmental management in Tanzania is presented in **Figure 3-1**. In general, the institutional framework for environmental management in the country is well established from the national level down to the village / street level. The purpose for establishing this institutional framework is to ensure effective implementation of national environment policy objective and relevant national and sectoral legislations at various levels**.** The institutional set-up for environmental management from national level to village is comprised of:

- Minister responsible for Environment;
- National Environmental Advisory Committee;
- Director of Environment (DOE);
- National Environmental Management Council (NEMC);
- Sectoral Ministries
- Regional Secretariats;
- Local Government Authorities [City, Municipal, District, and Town Councils; Township; Ward, Village, Sub-village (Hamlet), and Street (Mtaa).

3.3.1 National Level

At national level the DOE and the NEMC are the main regulatory bodies for environmental management in Tanzania. However, other sectoral ministries and agencies / institutions, have an important role in implementing environmental policy objectives. The environmental management functions of each institution are as outlined in the Environmental Management Act of 2004 and its amendments.

3.3.2 Local Authority Level

For district and urban authorities there are the following standing committees[4]:

- Standing Committee on Urban Planning and Environment – established under (1) Section 42 of the Local Government (Urban Authorities) Act, R.E 2002;
- Standing Committee on Economic Affairs, Works and Environment – established (1) of 74 of the Local Government (Urban Authorities) Act, R.E 2002.

Under each standing committee there are Environment Management Committees. These include:

- City Environment Management Committee
- Municipal Environment Management Committee
- District Environment Management Committee

There are Environmental Management Officers for each City, Municipal, District and Town Council.

For Township there is:

- Standing Committee of Economic Affairs, Works and Environment – established under (1) of Section 96 of the Local Government (District Authorities) Act, 1982
- Special Committee – established under Section 107 of the Local Government (Urban Authorities) Act, R.E 2002;

For Ward and Village there is the Ward and Village Development Committee, respectively. The Ward and Village Development Committees are established under (1) of Section 31 of the Local Government (Urban Authorities) Act, R.E 2002. The development committees are responsible for proper management of the environment and other functions as provided in paragraphs (a), (b), (c) and (d) of (1) of Section 38 of the Environment Management Act,

[4]Standing Committees of the local government authorities Act No. 7 and 8 of 1982.

2004. There are Environmental Management Officers for Townships, Wards, Villages, hamlet (sub-village) and Mtaa (Street).

3.3.3 Institutional Framework at Project Level

Movit Products Tanzania Limited is responsible for project implementation. Thus, **Movit Products Tanzania Limited** is the overall overseer of the project implementation but shall also be required to collaborate with relevant stakeholders including the Mtaa and Ward authorities during construction and operations.

The Ward and Mtaa authorities shall be responsible for mobilizing the local residents and creating awareness among the local residents, and making sure that compensations are done efficiently.

The Mtaa and Ward authorities shall also ensure involvement of the local residents during project implementation, this includes to ensure the labours are from the Mtaa area. Whenever environmental problems become apparent the Mtaa and Ward authority and local residents in general have to alert **Movit Products Tanzania Limited**.

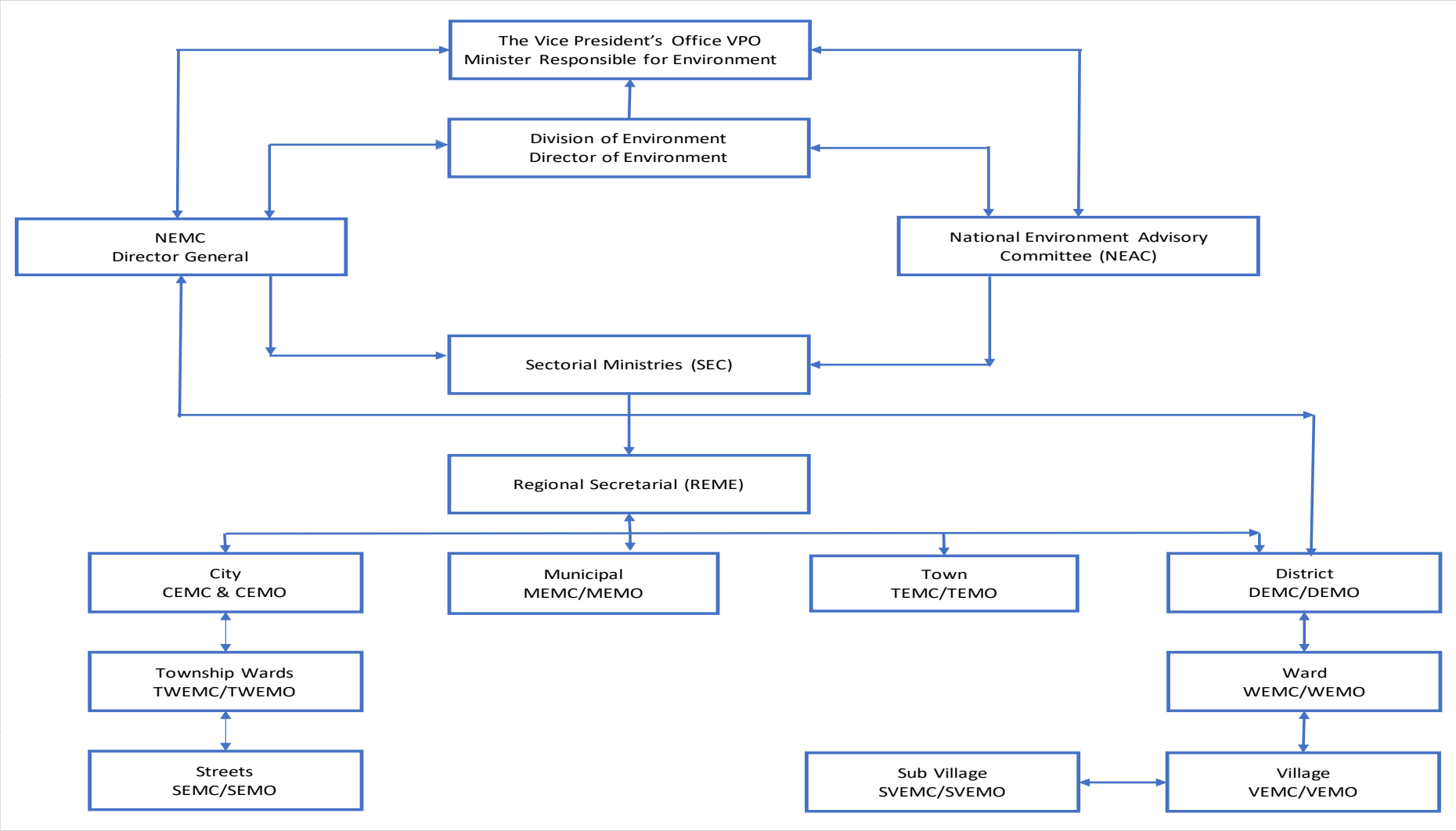


Figure 3.1-1: Institutional Framework for Environmental Management in Tanzania
Source: Guidelines for Management of Environmental Emergencies, 2014.

CHAPTER 4: ENVIRONMENTAL BASELINE CONDITIONS

4.1 Physical Environment

4.1.1 Topography

Topography of the proposed project plot is varying from the lowest elevation which is 150 m to the highest one which is 160 m from the seal level as shown in **Figure 4.1-1**. The plot is sloping towards the southern part in the direction where access road is located.

Figure 4.1-1 Topography of the project area

4.1.2 Climate

4.1.2.1 Temperature

The climate of project area is tropical climate where it experiences maximum temperature in December and minimum temperature in July each year. The region is described by Mean temperature ranges between 30 ^{O}C and 33 ^{O}C in hot season and around 24 ^{0}C and 27 ^{O}C in the cooler months.

4.1.2.2 Rainfall

The averages rainfall in the project area is between 875 mm and 1215 mm per year falling in two fairly distinct seasons i.e., between the months of October and December and between February and May

4.1.3 Water Supply

The project area and many part of the Kibaha DC is supplied water with DAWASA. Ruvu juu is the major source of water that is supplied in the project area. The industry is planning to have its own source of water by drilling the borehole within the project area during operation and this will be used as alternative source of water supply.

4.1.3 Geology of the site

The project area is characterized with three layers of the soil as identified during the hydrogeological & geophysical survey carried out on 23rd August, 2024. The soil types are the like of dry sandy formation, dry sandy stratum; moist, clayey sand/sandy clay intercalated with limestone, sandy clay-clayey strata and sandy clay - clayey sand intercalated with limestone layers.

4.1.4 Groundwater Availability

As per the hydrogeological & Geophysical survey carried out on 23rd August, 2024, three potential locations were identified for borehole drilling within the proposed plot. Water is available at 180 m deep from 179 m.a.s.l, and 183m.a.s.l. The results obtained from the hydro geological and geophysical findings indicate that the surveyed area is promising for groundwater exploration and development; water strikes are expected in clayey sand to sandy clay and /or weathered / fractured limestone rocks.

The identified potential locations for borehole drilling are as illustrated in the following table;

1st choice drilling to 180m deep;
Ground water is available about 180 m deep at Alt 179 m, a.s.l as shown below

Layers	Resistivity (Ohm.m)	Thickness (m)	UTM Coordinates	Remarks
1	500.60	6.05	0483639 E 9245460 N Alt 179 m, a.s.l	Drilling to 180m deep, 1st choice
2	6.85	54.11		
3	9.98	+++		

N.B: +++ Represent Undeterminable depth.

Layers definitions are as provided in table below;

layers	**Interpreted lithological description**
1	Dry sandy formation.
2	Clayey sandy stratum; Moist
3	Clayey sand/sandy clay intercalated with limestone

2nd choice drilling to 180 m deep;
Ground water is available about 180 m deep at at 183 m, a.s.l as shown below

Layers	Resistivity (Ohm.m)	Thickness (m)	UTM Coordinates	Remarks
1	1080.77	5.05	0483639 E 9245460 N Alt 183 m.a.s.l	Drilling to 180m deep, 2nd choice
2	18.40	20.19		
3	9.96	+++		

N.B: +++ Represent Undeterminable depth.

Layers definitions are as provided in table below;

layers	**Interpreted lithological description**
1	Dry sandy stratum.
2	Clayey sandy stratum; Moist
3	Clayey sand/sandy clay intercalated with limestone

3rd choice drilling to 180 m deep;
Ground water is available about 180 m deep at at 183 m, a.s.l as shown below

Layers	Resistivity (Ohm.m)	Thickness (m)	UTM Cordinates	Remarks
1	985.60	6.03	0483750 E 9245361 N Alt 183 m, a.s.l	Drilling to 180m deep, 3rd choice
2	20.85	19.77		
3	9.98	+++		

N.B: +++ Represent Undeterminable depth.

Layers definitions are as provided in table below;

layers	**Interpreted lithological description**
1	Dry sandy stratum.

2	Clayey sandy stratum; Moist
3	Clayey sand/sandy clay intercalated with limestone

4.1.5 Groundwater Quality

Although the area's survey data generally indicates somewhat salinized water, water samples should be taken after drilling in order to assess the water's acceptability for its intended use (i.e., domestic use) using physical, chemical, and microbiological test analyses. The raw water should be sufficiently treated if the results don't meet the necessary requirements.

4.1.6 Drainage

The project area is falling under WAMI/RUVU water basin, all runoff that are generated in the project area are collected via natural streams and then transported to the nearby river. As stated in previous section the elevation in the project area is sloping toward southern part of the plot to the location of Soga earth road. At the access road water is drained toward eastern part of the project area

The expected storm water to be generated via pavement and roof of the proposed building will be harvested and then used for watering vegetation, cleaning and cooling of the plants or equipment during operation phase.

4.2 Ambient Air Quality and Noise Level Measurement

The section describes the climatic environment and air quality at the project area. The sensitive areas around the project site, this includes information on thermal conditions, humidity, precipitation, wind speed, noise, air quality including dust and climate change.

This baseline information is used as a benchmark to identify and determine the level of potential impact due to the project. This data has to be taken into account in planning of the monitoring and mitigation requirements. The major purposes of describing the environmental settings of the study area are:

- ✓ To assess the existing environmental quality, as well as the environmental impacts of the proposed developments being studied.
- ✓ To identify environmentally significant factors that could preclude any future development.
- ✓ Additional purposes of the baseline studies are to provide sufficient information so that decision makers unfamiliar with the general location can develop an understanding of the project need.

4.2.1 Methodology

4.2.1.1 Air Quality

Air quality survey was conducted on 25/08/2024 seven sampling locations as indicated in table below for ambient air quality in **Figure 4.2-1**. A general picture of the project area air quality can be drawn from the results of the particulate matters and ambient gases measured from different location within and outside the site. All results were compared with Tanzanian guidelines on ambient air quality standards which indicate that all measurements sampled during the study (ambient gases and Particulate matters and noise levels) are below prescribed TBS/WHO limits levels and reference has been made in line with the guidelines.

Study Methodology

The baseline data collection points Air Quality Monitoring Stations (AQMS) were established based on the norms prescribed by local standards (TBS and/or National Environmental Air Quality regulations, 2007) and international guidelines. The norms include: predominant wind direction (leeward and windward) at the area during the study, workers'/operators'

positions and nearest local communities as possible receptors, size of the area to be covered, the areas where pollution was expected, as well as areas that pollutants from the project activities are likely to disperse to.

Other criteria include the areas that are easily definable and with easy future access in case of need for comparison measurements or another monitoring study. Moreover, the selection criteria for sampling stations considered point source emissions and nearby receptors (i.e. workers or operators at their working locations) that is likely to be affected by project implementation.

4.2.1.2 Dust (Particulate matter) concentrations in terms of PM10 and PM2.5

Levels of ambient pollutant gases were measured using Portable Multi Gas Detector-71-0028RK, in accordance with manufacturer's procedure that meet ISO 9001:2008 protocol. The measuring device undergoes automatic calibration once it switched ON by pumping in fresh air into the sensors to allow toxic sensors to be set to zero. A number of recordings recorded periodically at each point and used to calculate the average value of each pollutant in each station. The average values were then compared with TBS-NES limits and World Health Organization (WHO) guidelines to check their level of compliance.

4.2.1.3 Ambient Pollutant Gases

Levels of ambient pollutant gases were measured using Portable Multi Gas Detector-71-0028RK, in accordance with manufacturer's procedure that meet ISO 9001:2008 protocol. The measuring device undergoes automatic calibration once it switched ON by pumping in fresh air into the sensors to allow toxic sensors to be set to zero. A number of recordings recorded periodically at each point and used to calculate the average value of each pollutant in each station. The average values were then compared with TBS-NES limits and World Health Organization (WHO) guidelines to check their level of compliance.

4.2.1.4 Noise Levels

Noise measurements were carried out using sound level meter (model CEM DT-8852 data logger), with reference to the international standards namely IEC 61672:1999, IEC 61260:1995 and IEC 60651, as well as ISO 19961:2003 and ISO 3095:2001. During testing, the digital sound level meter was set to A-weighting scale to enable the meter to respond in the same manner as the human ear. The "A" scale is applicable for workplace compliance testing, environmental measurement, and workplace design.

4.2.2 Results and Discussion

To ensure that the proposed project implementation will be conducted in a safe working environment and do not affect workers and public health, some specific measurements on the current level of pollutant gases, dust and noise levels were taken to check their levels of compliance as indicated in **Tables 4.2-1** and **4.2-2**.

4.2.2.1 Air Quality

From the active air sampling method described, the results of the baseline ambient air quality for the field measurements are presented in **Table 4.2-1**. The measured data has been compared with the Tanzania National Air Quality Standards and IFC/WHO Air Quality Guidelines to make inferences on the ambient air quality in the Project area.

For the baseline survey, particulate matter was captured for those 10 micrometers or less in diameter i.e. PM_{10}. This is because particles in this diameter range constitute the majority of pollutants absorbed by the lungs (dust, pollen). $PM_{2.5}$ measures finer particles of 2.5 micrometers or less in diameter. By volume, ambient air contains 78.09% Nitrogen, 20.95% Oxygen, 0.93% argon, 0.04% CO_2 plus a host of other gases in small amounts (Cox).
The results obtained in the survey indicated acceptable values of O_2 and CO_2 in ambient air at all sampling stations.

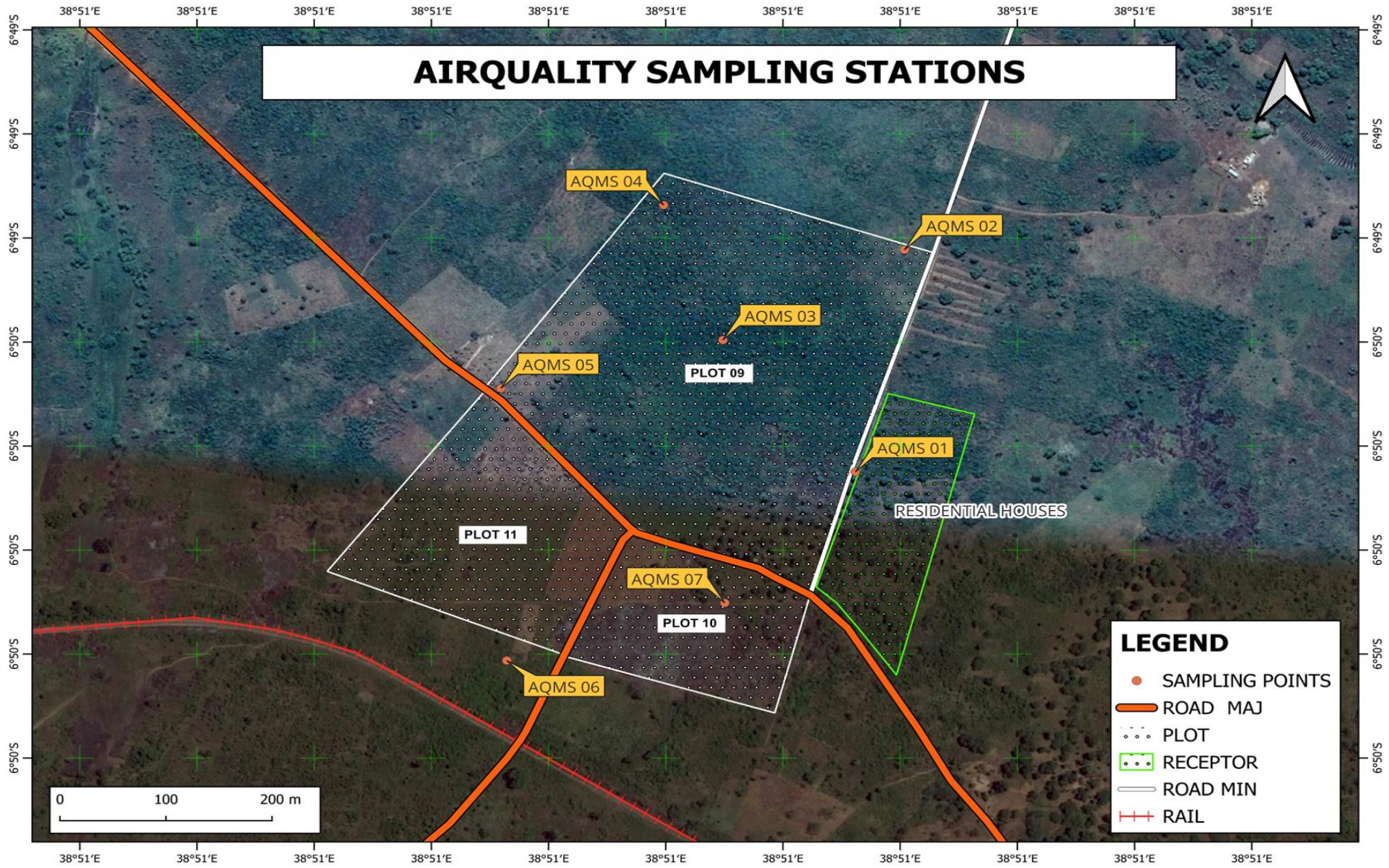


Figure 4.2-1: Air quality and noise sampling point

Table 4.2-1: Dust and Air Quality Monitoring Stations

S/N	Coordinates	PM10 ($\mu g/m^3$)	PM 2.5 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	SO2 ($\mu g/m^3$)	CO2 PPM
Sampling Location -1	-6.827247°, 38.854620°	21.26	11.06	0.04	0.06	402
Sampling Location -2	-6.825112°, 38.855038°	31.14	21.90	BDL	0.02	408.8
Sampling Location -3	-6.825980°, 38.853488°	20.46	15.42	BDL	0.02	417.2
Sampling Location -4	-6.824683°, 38.852982°	23.60	14.00	BDL	0.02	406.2
Sampling Location -5	-6.826445°, 38.851594°	25.22	18.14	BDL	BDL	425.4
Sampling Location -6	-6.829062°, 38.851644°	35.70	25.00	BDL	BDL	405.6
Sampling Location -7	-6.828508°, 38.853504°	28.20	17.90	BDL	BDL	425.7
WHO standards		50	25	200	20	-
TBS standards		50-90	25	200	20	-

Inference from Measurements

These measurements indicate a reasonably clean environment with respect to air quality; At most secluded locations where monitoring was conducted, TSP levels conformed to the draft national limit of 0.300 µg/m^3. Gas monitoring equipment did not detect CO, NO, NO_2, Cl_2, ClO_2, H_2S and combustible gases as well indicating a clean environment with respect to air quality.

4.2.3 Ambient Noise

An environmental noise survey was undertaken ON 25/08/2024 to evaluate the existing noise climate. The weather conditions were suitable for taking noise measurements: it was sunny with calm wind and no rain. Calibration of the Sound Level Meter was made before and at the end of the measurements with no relevant drift observed.

4.2.3.1 Environmental Noise Survey

Only attended survey was opted were taken on 25/08/2024. These measurements consisted of continuous 20 minutes samples. The equipment was placed at 1.5 meters height at selected locations overlooking the project site.

4.2.3.2 Noise Survey Results

For each measurement location, Table 4 shows the results of the ambient noise level (LAeq, dB(A), Results are rounded the nearest integer value.

Table 4.2-2: Noise Monitoring Stations

Noise monitoring location	Coordinates	Measured LAeq,10min dB(A) Day	Tanzania environmental management noise standards LAeq, dB(A)		IFC/WHO standards LAeq, dB(A)	
Sampling Location-1	-6.827247°, 38.854620°	46.55	55	45	55	45
Sampling Location-2	-6.825112°, 38.855038°	37.59				
Sampling Location-3	-6.825980°, 38.853488°	50.43				
Sampling Location-4	-6.824683°, 38.852982°	46.46				
Sampling Location-5	-6.826445°, 38.851594°	39.68				
STATION -6	-6.829062°, 38.851644°	43.18				
STATION -7	-6.828508°, 38.853504°	41.8				

Inference from Measurements

On the areas around the project site main source of noise are Ambient Noise, Vehicles motorcycles and passenger cars) passing on the Soga Road and anthropogenic activities. Besides the noise coming from those vehicles, audible noise can be perceived from the surrounding environment, although they cannot be considered as a dominant noise source.

As would be expected, the dominant noise source is due to activities around the site. Measurements taken to assess the noise have shown consistency on the relevant acoustic parameters (**Table 4.2-2**). Therefore, results can be considered representative of that noise environment.

Photos that indicated the evidence of the baseline data collection air quality and noise level measurement's locations.

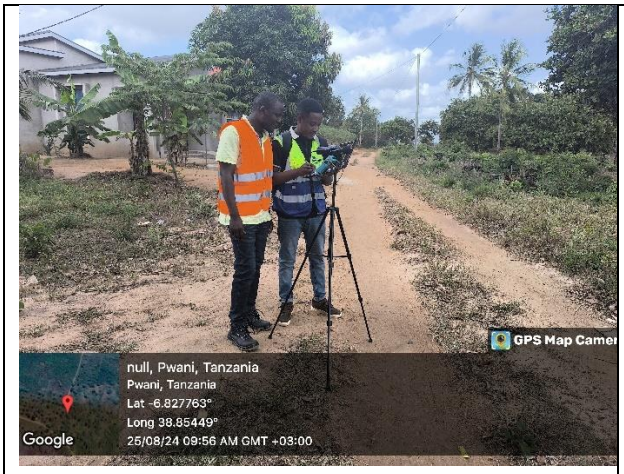


Plate 4.2-1: Sampling Location-1, where residential buildings are close to the proposed plot to the west

Plate 4.2-2: Sampling Location-2, where the proposed plot is bordered other undeveloped plot to the north

Plate 4.2-3: Sampling Location-3, at the middle of the proposed plot

Plate 4.2-4: Sampling Location-4, the location close to the access road to the south of the plot

Other points are recorded outside of the proposed plot to the plot reserved for future development, plot No. 10 and 11.

4.3 Biological Environment

4.3.1 Flora

The proposed project is located in a least developed area, with the ongoing residential, agriculture, few commercial and industrial activities. The ongoing anthropogenic activities have undergone significant disturbances of natural vegetation within the project area.

Most of natural vegetation has been cleared and even the planted ones are currently uprooted to accommodate the planned developments. The vegetation found within the project area are such as shrubs, mango trees, baobab tree, and tick trees. There is no any endangered species that are found in or close to the project site.

4.3.1 Fauna

As discussed in section 4.3.1, the ongoing human activities have affected the existence of fauna in the project area. Currently, the likes of the Grass Hoppers, Lizards, Butterflies, Snakes were found enjoying the life on the proposed site. The study has not found any species that are considered rare, endangered, vulnerable as per CITES and IUCN lists.

Butterflies, Snakes were found enjoying the life on the site. The study has not found any species that are considered rare, endangered, vulnerable as per CITES and IUCN lists.

4.4 Socio-Economic Environment

4.4.1 Administrative Set up

Pwani Region is formed with 9 districts or councils, such as Bagamoyo District, Chalinze District, Kibaha District, Kibaha Town Council, Kisarawe District, Mkuranga District, Rufiji District, Mafia District, and Kibiti District.

Kibaha District Council (KDC) falls under the jurisdiction of one administrative body but it is divided into 14 wards namely; Gwata, Dutumi, Magindu, Soga, Ruvu, Kwala, Kikongo, Mlandizi, Kilangalala, Janga, Bokomnemenla, Mtambani, Mtongani and Kawawa.

4.4.2 Population

As per 2022 census, the Kibaha DC has been estimated to have the population of 123,367 of which 62,147 were Females and 61,220 Males with household number of 35,030 in total. As per the same census, Soga ward has an estimated population of 10,283, where by 5,290 males and 4,993 females.

Soga village is the fifth for having huge population, the leading one is Jaga, followed by Mtogani, Mlandizi, Matambani then Soga.

Source: Administrative_units_Population_Distribution_Report_Tanzania_volume1a, 2022.

4.4.3 Economic Activities

4.4.3.1 Agriculture

Maize, cashew nuts, fruits, coconut and vegetables are the major agricultural economic activities in the project area. The market area for the agricultural products is within the ward and flanking villages, nearby wards, Kibaha TC, Mlandizi Township, Kibaha DC and Dar es salaam City.

4.4.3.2 Domestic Animal Keeping

Cow, goats, and poultry farms are the major animal keeping activities in the project area

4.4.3.3 Selling of Plots and Farms

Farms and plot selling are also among the income generating activities for the locals. Huge and small plots are still being sold by the people and companies from different area of the country.

4.4.3.3 Retail shops
Within the project area, individuals own shops for selling of the products that are utilized by locals in their daily life.

4.4.3.4 Money Transfer
Money transfer by using Sim Card and Bank WAKALA is also part of the economic activity that the local use to earn some money to run their life.

4.4.4 Public Social Services
4.4.4.1 Education
The Mtaa own one primary and secondary school known as Soga primary which is under the government and Rafsanjan Secondary school which are under the private sector.

4.4.4.2 Health Services
Soga Dispensary is the one and only health facility in the Mtaa area.

4.4.4.3 Water Supply
Soga village and the nearby industries are supplied with water for domestic use by DAWASA.

4.4.4.4 Electricity
Source of power in the project area is electricity and solar, electricity in the project area is supplied by TANESCO while the equipment for solar power is supplied by various companied within the country. The project area is supplied with both national grid and REA.

4.4.5 Adjacent Land Use
The flanking land use at the project site is residential area with developed and undeveloped plots to the eastern side. The project area is also flanked with undeveloped plots with full of vegetation to the western, northern and southern part of the proposed plot. The project area is also flanked with ongoing agricultural activities and industrial area like the presence of TANCHOICE industry.

4.4.6 Communication
There are dependable postal services and digital telecommunication services in KTC. The town enjoys modern landline telephone system provided by Tanzania Telecommunication Company Ltd [TTCL]. Mobile phones are also provided at a stiff competitive level. The competing companies include Vodacom [TZ], Airtel, Tigo, Halotel and Zantel KDC, social economic profile, 2022.

4.4.7 Road Infrastructures
The project is traversed by two regional roads which are currently in gravel standard, one road is from Kongowe about 12 km while the other is from Kisarawe about 40 km. All the two earth roads joins or links at the project area. The roads are well passable in dry season with some difficulties during rainy season especially when there are heavy rains events.

4.4.8 Railway infrastructures
The proposed project is traversed by both Meter Gauge Railways (MGR) and Standard Gauge Railways (SGR) infrastructures. The railways infrastructures are located about 100 m from the project area, Soga village have both MGR and SGR stations, currently the SGR passengers are using the train from Soga to Morogoro, Dodoma and Dar es Salaam, and the SGR ticket from Dar es Salaam to Soga it cost Tshs. 4,000/=. Source: consultation with local individuals, August, 2024.

CHAPTER 5: STAKEHOLDER IDENTIFICATION AND CONSULTATION

5.1 Stakeholder Identification and Analysis

The identified stakeholders can be categorized into Developers; Decision makers; Interested parties; and Affected parties positively or negatively and directly or indirectly**.** The identification of stakeholders was based on how they are related to the project, how the project is going to affect them and why should they be consulted. The list of the identified stakeholders and reasons for their consultation is provided in **Table 5.1-1.**

Table 5.1-1: Identified Stakeholders and Reasons for Consultation

S/n	Identified Stakeholders	Reasons for Consultation
1.	MOVIT PRODUCT (TANZANIA) LIMITED	The project is being implemented by the MOVIT PRODUCT (TANZANIA) LIMITED The company is also responsible for: - Ensuring that environmental and social issues are taken into consideration during project planning, design, construction and operation.
2.	Division of Environment in the Vice President's Office (VPO-DOE)	The Division of Environment as a national environmental agency is responsible for: - Formulation of environmental policy. - Coordination and monitoring of environmental issues. - Review and approval of ESIA report and issuance of EIA Certificate.
3.	National Environment Management Council (NEMC)	The Council is responsible for: - Undertaking enforcement, compliance, review and monitoring of environmental impact assessment (EIA), including the facilitation of the public participation process in environmental decision making. - Ensuring that the project is being implemented in an environmentally friendly and socially acceptable manner. - Reviewing and approval of the Scoping Report, Terms of Reference and ESIA Report.
4.	Tanzania Fire and Rescue Force	The fire and rescue force is responsible for; extinguishing fires in their area. protecting life and property in the event of fires in their area. rescuing and protecting people in the event of a road traffic collision, and. rescuing and protecting people in the event of other emergencies
5.	Government Chemistry Laboratory Authority (GCLA)	The GCLA is responsible for the quality control of food and drugs and their raw materials as stipulated in the relevant legislation; Forensic science services; chemical and environmental

6.	Tanzania Bureau of Standard (TBS)	The main responsibility of the Bureau includes formulation of standards, metrology quality control, testing and calibration, and training
7.	Occupation Safety and Health Authority (OSHA)	Responsible with regulation of health, safety and welfare of workers in factories / workplaces. Some of the provisions that could be relevant to the construction works include: • Appoint safety and health representative and committee; • Register their workplace (campsite, borrow pit and quarry sites) before operation. • Provide safety precautions; • Ensure health and welfare of workers • Ensure proper handling of hazardous materials / chemicals and process
8.	Kibaha District Council	The Local Government Authority (LGA) is responsible for: - Coordination of environmental management matters at regional level. - Land use planning and issuing of development permits within its jurisdictional boundaries. - Overseeing environmental management matters through their Environmental Management Officers (EMOs). - Monitoring the implementation of environmental mitigation measures by the Contractor through their respective Environmental Management Officers (EMOs).
9.	Ward and Mtaa Development Committees	The Ward Development Committees[5] are responsible for: - Proper management of the environment issues within their jurisdictional boundaries. - Monitoring the implementation of environmental mitigation measures by the Contractor through their respective Environmental Management Officers (EMOs). The industry will be implemented at Soga Mtaa, Soga Ward

[5] Established under Sub-section 31(1) of the Local Government Authorities Act (1982).

10.	Local Community Members	The project is likely to benefit the local communities flanking the project area through creation of temporary employment and income generation opportunities. The project is likely to affect the local communities through exposure to risk of construction related accidents, noise nuisance and dust emission during construction. The project is also likely to result into increased HIV/AIDS prevalence due to social interaction between the local people and construction workers.

Source: Consultant, Feb 2024

5.1.1 Developers

The developer of this project is the **MOVIT PRODUCTS (TANZANIA) LIMITED**. The company is registered in the country and owned by the Ugandans of P. O. Box 11858 Dar Es Salaam. The establishment of Movit Products Manufacturing Industry will be at Soga Village, Soga Ward, in Kibaha District Council, Pwani region.

5.1.2 Decision Makers

The decision-making authorities are those institutions dealing with environmental management in the country and therefore they can decide on whether a project should be implemented or should not be implemented. These include the Division of Environment in the Vice President's Office (VPO-DOE) and National Environment Management Council (NEMC).

The VPO-DOE is responsible for approval of Environmental Impact Assessment report and issuance of Environmental Impact Assessment (EIA) Certificate. The National Environmental Management Council (NEMC) is responsible for screening and registration of the project, review and approval of scoping report and review of environmental impact assessment report and submission to the VPO-DOE for approval.

5.1.3 Interested Parties

The interested parties are those stakeholders who are not directly or indirectly affected by the project but they can influence the success or failure of the project or can provide advice for improvement of the project. For this project, the interested parties are Kibaha District Council, Fire and Rescue Force, TBS, GCLA and OSHA. The Local Government Authority (LGA) is responsible for land use planning and issuance of development permits. OSHA is responsible for safety and health at working area, TBS is responsible for the maintaining standards of the Movit products to be produced while Tanzania Fire and Rescue Force will be responsible to ensure infrastructure for combating fire and rescue issues are well incorporated in the design and implemented as planned.

5.1.4 Affected Parties

These are those stakeholders who can be directly or indirectly affected, whether positively or negatively by the project. The local residents are indirectly and negatively affected due to environmental, health and safety effects associated with the project activities. It is anticipated that during construction the project is likely to create some air pollution and risk of health and safety hazards to the workforces and local residents and therefore, considered to be indirectly and negatively affected parties.

Table 5.1-2: The Identified Stakeholders and Categorization

S/n	Stakeholders	Categorization
1.	MOVIT Industry Limited	
2.	Division of Environment in the VPO	
3.	National Environment Management Council (NEMC)	
4.	Kibaha District Council (KDC),	
5.	Soga Ward Development Committee (WDC)	
6.	Soga village Development Committee (MDC)	
7.	Tanzania Bureau of Standard (TBS)	
8.	Government Chemist Laboratory Authority (GCLA)	
9.	Occupation Safety and Health Authority (OSHA)	
10.	Tanzania Fire and Rescue Force	
11.	Tanzania Electricity Supply Company Limited (TANESCO)	
12.	Dar es salaam Water Supply and Sanitation Authority (DAWASA)	
13.	Neighbor adjacent to the Project Site	

KEY:

	Developers
	Decision Makers
	Interested Parties
	Affected Parties (Directly Negatively)
	Affected Parties (Indirectly Positively)
	Affected Parties (Directly Negatively)
	Affected Parties (Indirectly Negatively)

5.2 Stakeholder Consultation

The stakeholder consultation involves face to face interviews with representatives of relevant government institutions, agencies and local government authorities. These include Kibaha District Council Officials, OSHA, GCLA, TBS, Tanzania Fire and Rescue Force, and the local government authority. The names and signatures of consulted stakeholder representatives at local and institutional level is provided in **APPENDIX IV**.

5.3 Results of Stakeholder Consultations

5.3.1 Consultation with Stakeholder Representatives / Officials

The stakeholder consultation started to be carried out on 6th December 2023 to 5th Feb 2024. In general, the stakeholders have raised some issues/concerns that provided its recommendations or mitigation measures. The record of issues / concerns raised during consultation with stakeholder representatives and local government officials are provided in **Table 5.3-1.**

Table 5.3-1: Record of Issues / Concerns Raised by Stakeholder Officials

Date	Stakeholder Name	Raised Concern
09th Jan, 2024	**Mr. Aloyce Semiono**. **OHS-** (Occupational and Health Inspector) OSHA Eastern Zone, Dar es salaam	The representative from OSHA had the following concerns during consultation with the ESIA team; • The project has to be register by OSHA • To ensure availability and use of personal protective equipment (PPE)during operation phase • The workplace registration by OSHA • To appoint proponent safety and health representative and first Aider in accordance to OSHA requirement • All safety and health representative and First Aider must be trained by OSHA • Medical examination must be done to all workers before and the monitoring has to done during the construction and operation phase of the project • To ensure work place is inspected by OSHA • Developer should conduct a baseline risk assessment and produce a report (OHS Risk Assessment Report) • Developer should prepare OHS policy that will be used throughout the project duration.
5th Jan, 2024	**Mr. Maximilian E. Mtobu** DEMO, Kibaha District Council	DEMO advised that the project implementation has to ensure the following; • Conservation of the nearby areas by planting trees • Proper management of waste at the generation point • All the generated waste has to transported to the specified dump site. • Engagement should be done to all neighbourhood around the project area

Date	Stakeholder Name	Raised Concern
		and the raised issues and concern has to be incorporated in the ESIA report • Proper management of Fumes from the processing plant/machines/equipment. • All workers should wear proper PPEs in all phases of project cycle. • Follow up of all rules and regulations concerning industry order to ensure the environment is conserved
5th Jan, 2024	**Ward and Mtaa Government Committee** – Soga ward, & Soga Mtaa	The meeting between Ward and Mtaa leader in the presence of DEMO at Mtaa office suggested/insisted the followings; • Proponent has to build a close relationship with local people and workers during construction and operation of the project. • All rules and regulations concerning environmental management has to be observed. • Mtaa leaders has accepted the project to be implemented in their area since the industry will open many other opportunities to the community. • The project will create employment opportunities to locals. • Proponent should ensure health, safety and security of the local people and the flanking properties around the project area throughout the project life. • Local community should be given a priority for the foreseeable employment opportunity that will be triggered by the project. • Proper management of wastes throughout the construction and operation phases of the project. • Developer should give back to the community when he will start getting profit related to the project implementation • The project is expected to improve the Kongowe Soga road • The project will improve the social services around the community such as water, and electricity.

Date	Stakeholder Name	Raised Concern
5th Jan,2024	NEIGHBOURS Near the project are at Soga Village	The local people flanking the project site has the following contribution during their engagement concerning the project; • The expected related to the project is dust during construction and fume during operation phase. • Proper management of waste has to be practiced throughout the project life. • The project implementation will help to improve road and other infrastructure. • Construction and operationhave have to avoid generation of noise during resting hrs (night) • Consideration of the distance from the proposed site towards the residence area. • Proponent has to consider relocation of the closest residence to rescue their health. • Proponent has to ensure boundaries of the project site and flanking individuals lands are not disturbed throughout the project life
9th Jan, 2024	**Mr. Philipo Makaro** **Senior Standard Office r– TBS** **Dar es Salaam**	The representative from TBS had the following contribution to the project during consultation; • The project area/site has to be located at industrial area or the planned area for industries • Occupational Health and Safety to workers should be managed as per ISO 45001:2018 • Noise emission should be controlled to conform to TZS 932:2017 at all levels of operation • Waste water from the industry must conform to TZS 860 standard. • Soil quality standard (TZS 932) has to be complied. • Emission of Noxious and fumes must be controlled so as to conform TZS 845 Air quality standards.
10th January,	**Mr. Emanuel Lewanga**	The representative from GCLA had the following contribution to the project during consultation;

Date	Stakeholder Name	Raised Concern
2024	**ZILS – Government Chemistry Laboratory Authority**	• Proponent should observe all the requirements of ICCA No.3 of 2003 and its regulations
28th August 2024	**Mr. Peter B. Yared** **Fire and rescue consultant** **Tanzania Fire and Rescue Force Kibaha**	The representative from fire and rescue department had the following contribution to the project during consultation; **During Planning and Design Phase;** • Plant drawings i.e., Architectural and fire protection should be submitted to the Fire and Rescue Force prior the project execution • Design and provision of the fire protection systems should be done by the register and licenced fire expert • Private water hydrant should be incorporated into the design the design of water mains (water supply and reserve tanks) **During resource mobilization and construction phase;** • Installation and testing of the fire protection system should be done by the registered and licenced fire expert in consultation with Fire and Rescue Force **During operation phase;** • A detailed plant fire safety inspection shall be performed in annual basis

Source: Consultation Field Works, Jan, 2024 and Updated August, 2024

5.3.1.1 Identified issues/concerns

The following are the identified issues / concerns by the consulted stakeholder officials:

- The project is expected to generate both solid and liquid waste during construction and operation phases.
- Construction works are expected to endanger the safety of the workforces and the community around the project area.
- Dust is expected to be the major issues to the nearby industry during construction works especially during transportation of the building materials,
- Grease or oil spillage from construction vehicles is expected to pollute soil and impair the life of living organism in the soil
- The project will provide various employment opportunities to the local community around the project area in both phases.
- The construction works is expected to generate a lot of noise during construction works.
- The project will contribute to the national income through taxes payment.

5.3.1.2 Recommendations

The following are some of the recommendations provided by the consulted stakeholder officials:

- Provision of waste water treatment system
- Contractor should provide first priority to the local community when employing workforces
- Waste that will be generated during construction and operation should be well managed to avoid environmental degradation
- Safety issues have to be identified and prioritized during all phases of the project
- Monitoring of the environmental and social issues during construction is of more important to protect the environment and the nearby community
- Contractor should deploy the construction vehicles that are in good conditions and the maintenances of the vehicles has to be done often to protect the soil from grease and oil spillage
- The excavated materials should be removed immediately from site the protect the aesthetic value of the project area

CHAPTER 6: ASSESSMENT OF IMPACTS AND IDENTIFICATION OF ALTERNATIVES

In this chapter, the assessment of impacts has been carried out in two (2) steps, whereby the first step is identification of impacts and the second one is determination of significance of impacts. The identification of impacts considers both positive and negative impacts which result from interaction between the Project related activities and Valued Environmental Components (VECs).

The assessment also considers cumulative effects/impacts; impacts of the potential environmental effects arising from credible accidents, malfunctions and unplanned events; and effects of the environment on the projects.

For the purpose of this report, the term "environmental effects" will be taken to be synonymous to the term "environmental impacts" as referred to in the EIA and Audit Regulations (2005) as amended in 2018. As such, the ESIA study considers environmental effects and impacts as defined by the national legislation. However, for convenience the term "impact(s)" shall be used throughout this report, unless otherwise specified.

6.1 Identification of impacts

The identified likely environmental impacts are based on the interaction between the Project Related Activities and Selected Valued Environmental Components (VECs). The selection of VECs was based on existing project environment (environmental baseline conditions), opinions/views obtained from stakeholder consultations, and consultant's professional judgement.

For this project the selected VECs include Atmospheric Environment; Acoustic Environment; Water Resources; Aquatic Environment; Wetland Environment; Terrestrial Environment; Public Health and Safety; Labor and Economy; Public Services Infrastructure /Utilities; Transportation; Current Land and Resource Use; and Cultural Heritage Resources. **Table 6.1-1** below, provides the potential interactions between the Project Related Activities and the Selected VECs for each phase of the project implementation.

Table 6.1-1: Potential Interactions of the Project with VECs

Valued Environmental Components	Project Phase		
	Construction	Demobilization	Operation
Atmospheric Environment	✓	✓	✓
Acoustic Environment	✓	✓	✓
Water Resources	✓	-	✓
Aquatic Environment	-	-	-
Wetland Environment	-	-	-
Terrestrial Environment	✓	✓	-
Public Health and Safety	✓	-	✓
Labor and Economy	✓	✓	✓
Public Services Infrastructure/Utilities	✓	-	-
Land and Resource Use	✓	-	✓
Current Use of Land and Resources by Indigenous Peoples	-	-	-
Cultural Heritage Resources	✓	-	-
Legend: - No Substantial Interaction ✓ Possible Interaction			

The subsequent sub-sections outline the potential environmental impacts (positive and negative) at various stages of the project implementation (i.e., mobilization, construction,

demobilization and operation phase). The findings indicate most of the identified negative impacts will occur during construction phase and positive impacts during operation phase.

6.1.1 Impacts During Mobilization Phase

The subsequent are the identified likely environmental impacts that are expected to occur during the mobilization phase:

Affected Component	Activities	Impacts	Positive	Negative
Labor and Economy	Recruitment of construction workers	Increased employment opportunities for local people.	✓	
Terrestrial Environment	Site clearance	Loss/disturbance to species and biodiversity		✓
Atmospheric Environment	Site clearance	Creation of air pollution due to dust emission		✓
		Creation of air pollution due to exhaust fume emission		✓

6.1.2 Impacts During Construction Phase

The subsequent are the identified potential environmental impacts that are expected to occur during the construction phase:

Affected Component	Activities	Impacts	Positive	Negative
Atmospheric Environment	Soil excavations, earthworks and earth moving activities	Creation of air pollution due to dust emission		✓
	Transportation of construction materials from borrow pits/quarry pits.	Creation air pollution due to dust emission along the access roads.		✓
Acoustic environment	Operation of construction equipment /machinery at the construction site.	Increased noise nuisance and vibration effects to the project area.		✓
	Transportation of construction materials from borrow pits /quarry pits.	Creation of noise nuisance and vibration effects to the project area and adjacent access roads		✓
Water Resources	Uncontrolled overflow of raw sewage waste water into the surrounding environment	Creation of ground and surface water pollution		✓
Terrestrial environment	Accumulation of excavated soil materials and construction solid wastes.	Landscape degradation and loss of aesthetic value of the surrounding environment.		✓
		Soil erosion that will be contributed by the rainy.		✓
	Accidental spillage of waste oils.	Land and water pollution.		✓
Public Health, Safety and Security	Social interaction between construction workers and local community.	Increased transmission of HIV/AIDS and STIs.		✓
	Handling and operation of hazardous materials/equipment.	Creation of occupational health and safety risks.		✓

Affected Component	Activities	Impacts	Positive	Negative
	Increased influx of people into the project site.	Increased risk of exposure to COVID-19 infection and other outbreak diseases.		✓
	Operation of mobile construction equipment / machinery.	Creation of construction related risk of accidents		✓
	Lift of heavy structures and materials overhead	Falling of materials		✓
	Movement of heavy trucks to and from construction site.	Increased risk of traffic accidents.		✓
Labor and Economy	Influx of people into the project site.	Risk of emergence of Gender-Based Violence and Sexual Exploitation and Abuse due to influx of people into the project sites.		✓
	Increased demand for food and other items due to presence of construction workers	Increased income generation opportunities for local people.	✓	
Community and Public Services Infrastructure/ Utilities	Increased demand for local housing and accommodation.	Increased income for owners of local housing and accommodation.	✓	
	Increased demand for sanitary and solid wastes disposal services.	Increased pressure on existing sanitary and solid wastes disposal facilities.		✓
Historical and Cultural Heritage Resources	Land excavation during preparation of construction sites.	Destruction of archaeological artefacts.		✓

6.1.3 Impacts During Demobilization Phase

The subsequent are the identified likely environmental impacts that are expected to occur during the demobilization phase:

Affected Component	Activities	Effects/Impacts	Positive	Negative
Labour and Economy	Retrenchment of construction workers after project completion.	Loss of temporary employment		✓

6.1.4 Impacts During Operation Phase

The subsequent are the identified potential environmental impacts that are expected to occur during the operation phase:

Affected Component	Activities	Effects/Impacts	Positive	Negative
Labor and Economy	Recruitment of workers	Employment creation and economic improvement of households and nation.	✓	
	Selling of products and tax payments	Increased revenue collection by local and central Government	✓	
	Production of Movit Products such Plastic, Aerosol and Cosmetic	Abundant availability of the products to be produced	✓	
		Increased productivity and stimulation of economic	✓	

Affected Component	Activities	Effects/Impacts	Positive	Negative
		growth		
		Decreases importation of the products to be produced	✓	
		Reduces the local market price since Movit products will be produced within the country	✓	
Public Health, and Safety	Handling and operation of hazardous materials	Creation of occupational health and safety risks.		✓
	Operation of manufacturing equipment's			
Terrestrial Environment	Completion of the project	Increase scenic of the project area	✓	
		Increased land value in the project area		
Acoustic environment	Operation of manufacturing equipment's	Increase noise in the project area		✓
	Movement of trucks and equipment in the site			
Water Resources	Generation of waste water from the Production processes	Pollution of ground and surface water		✓

6.2 Assessment of Impacts

The identified impacts have been assessed by using Environmental Impact Assessment Matrix provided in **APPENDIX X**, based on the Rapid Impact Assessment Matrix (RIAM) Methods. The assessment of impacts helped to determine the significance of impacts based on the following criteria:

- Importance – whether important to national, regional or international interest or site specific.
- Magnitude of Change – whether Positive or Negative
- Permanence – whether condition is permanent or temporary.
- Reversibility- reversible or irreversible.
- Whether Cumulative / Synergistic for positive and negative impacts, respectively.

The significance of impacts is also in accordance to existing by-laws, national and international environmental standards, legislation, treaties, and conventions that may affect the significance of identified impacts. These techniques have been used in order to have a logical and systematic way of identifying, assessing and analyzing environmental impacts. The techniques also allowed subjective judgments to be quantitatively recorded and therefore make the assessment of impacts become more objective.

6.2.1 Mobilization Phase

6.2.1.1 Impacts on Labor and Economy

(a) Increased employment opportunities for local people

Generation of employment opportunity is among of the identified impacts in this phase. This phase will involve deployment of vehicles, equipment and plants that are to be used in construction phase. Some of the materials are also expected to be transported from its

sources to the site, the phase will also involve site clearance to allow sitting of the equipment and installation plants ready for construction works. On the other hand, design review is also expected to be executed in this phase.

All the said activities will trigger employment opportunity to people and some will engage the locals within the project area. Presence of the employees will also attract food venders at site, selling food will also increase income for the locals in the project area. food vendors will be buying raw materials from retailers and wholesalers within the proposed community. The construction materials such as blocks, sand, cements and aggregates are also expected to be purchased within the project area and this contribute to income of the individuals in the project area.

The impact has been assessed to be Direct and Positive with Medium Significance; and is expected to be Short-term and Temporary as it occurs during mobilization and progress to the construction phase. However, it can have Long-term effects on the socio-economic conditions of the local people.

6.2.1.2 Terrestrial Environment

(a) Loss/disturbance to species and biodiversity

Since the project site is a virgin area with various flora and fauna of non-endangered species. The vegetation clearance of the proposed site will result into Loss/disturbance to the existing biodiversity in the project site. However, so far, the site is being used as a farmland thus some natural vegetation's are not existing than the planted trees, grasses and bushes. During the site visit, the consultant identified the single baobab tree which can be maintained in the project area. Therefore, the clearing and grading of the site will therefore not have higher significant impact on biodiversity.

The impact has been assessed to be Direct and negative with small significance; and is expected to be Short-term and temporary as it occurs during mobilization.

6.2.1.3 Atmospheric Environment

(a) Creation of air pollution.

The activity is expected to create air pollution due to emission of exhaust fumes from the construction equipment and vehicles which are expected to be used during site clearance. Dust is also expected to be generated during the site clearance and movement of the vehicles and equipment's.

The impact has been assessed to be Direct and negative with small Significance; and is expected to be Short-term and Temporary as it occurs during mobilization.

6.2.2 Construction Phase

6.2.2.1 Impacts on Atmospheric Environment

The subsequent are the identified impacts on the Atmospheric Environment during Construction Phase:

- Increased air pollution due to dust emission from construction/earthworks activities.
- Increased air pollution due to dust emission from movement of heavy trucks from materials collection area such as borrow pits/quarry pits.

(a) Creation of air pollution due to dust emission from construction works

The project will involve excavation works, stockpiling and earth moving activities at the project site read for structural works. This is likely to result into dust emission, especially during dry seasons, hence affecting the adjacent community.

The impact has been assessed to be Indirect and Negative with Low Significance; and is expected to be Short-term and Temporary as it will occur only during construction phase. However, its effects on the human heath will be Irreversible if it occurs.

(b) Creation of air pollution due to dust emission from movement of heavy trucks from materials collection area such as borrow pits/quarry pits

The project will involve transportation of construction materials from identified construction material sources. The movement of trucks along access roads to towards and from material sources will result into dust emission, hence likely to affect the adjacent local residents, cultivated crops, and livestock.

The impact has been assessed to be Indirect and Negative with Medium Significance; and is expected to be Short-term and Temporary as it will occur only during construction phase. However, its effects on human heath, cultivated crops and natural vegetation will be irreversible if it occurs.

The subsequent are the identified impacts on the Acoustic Environment during Construction Phase:

- Noise nuisance and vibration effects on adjacent buildings within the project area.
- Noise nuisance and vibration effects on adjacent buildings along the access roads to borrow pits/quarry sites.

6.2.2.2 Impacts on Acoustic Environment

(a) Creation of noise nuisance and vibration effects at the project area.

The project will involve operation of mobile equipment/machinery/plant. This is likely to result into creation of noise nuisance and vibration effects on the existing adjacent buildings. The vibration effects on adjacent buildings will be more significant during compaction of soil/gravel materials by using roller, mixing of concrete by using concrete mixer or mixing trucks and the use vibrating porker.

However, the effect is not likely to be very significant to the adjacent buildings because the construction works will be within the proposed site compared to the workforce, which is a little bit far from the existing scattered adjacent buildings.

The impact has been assessed to be Direct and Negative with Medium Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, its effects on human health will be Irreversible if it occurs. But the effects of vibration on building structures can be Reversible through repair of damaged structures.

(b) Creation of noise nuisance and vibration effects along the access roads to borrow pits/quarry sites.

The project will involve transportation of construction materials from the material sources will create noise nuisance on the adjacent buildings. The effects will be more felt since the access road passes through human settlements or densely populated areas.

The impact has been assessed to Indirect and Negative with low Significance since most of the areas in the project area and the material sources movement of the trucks is not something new; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, its effects on human health will be irreversible if it occurs. But the effects of vibration on building structures can be Reversible through repair of damaged structures.

6.2.2.3 Water Resources

(a) Creation of ground and surface water pollution

During the construction works, it is expected that there will be generation of domestic waste such as sewage. Improper management of sewage waste end up in polluting the surface and ground water. The use of onsite sanitation such as septic tank and soak away pit it takes time to construct and, in the project, where workers are not residing at site it is advised to use mobile toilet.

The impact has been assessed to Direct and Negative with low Significance since the project site is not located close to source of water; and is expected to be Short-term and Temporary as it occurs only during construction phase.

6.2.2.4 Impacts on Terrestrial Environment

The subsequent are the identified impacts on Terrestrial Environment during Construction Phase:

- Loss of aesthetic value of the surrounding environment due to accumulation of construction and domestic solid wastes
- Loss of aesthetic value of the surrounding environment due to spillage of waste oils from storage containers.

(a) Loss of aesthetic value of the surrounding environment

The project will involve generation of construction and domestic solid and liquid wastes from vehicles, other mobile equipment, plants, office, kitchen, food eating area and washrooms areas. The accumulation of construction and domestic wastes including spillage of oils and grease from various storage areas is likely to result into loss of aesthetic value of the surrounding environment.

The impact has been assessed to be Indirect and Negative with Very Low Significance; and is expected to be Short-term and Temporary as it occurs only during the construction phase. Its effects on the surrounding environment are Reversible because the surrounding environment can be restored to its original condition after removal of the impact or completion of the project.

6.2.2.5 Impacts on Public Health, and Safety

The subsequent are the identified impacts on Public Health and Safety Component during Construction Phase:

- Increased prevalence of HIV/AIDS and STIs due to interaction between the construction workers and local community members.
- Creation of occupational health and safety risks to the construction workers due to handling /operation of hazardous construction materials/equipment.
- Creation of risk of construction related accidents due to trespass by unauthorized people into the construction sites.
- Creation of construction related risk of accidents due to trespassing of the construction site by unauthorized people.
- Increased risk of traffic accidents at the junction of access road due to frequent movement of construction vehicles to and from the construction site.
- Increased risk of fire outbreak at the construction camp site.

(a) Increased prevalence of HIV/AIDS, STIs and TB

The project is likely to result into increased prevalence of HIV/AIDS and STIs in the project environment due to social interaction between construction workers, and local community. This due to the fact that workers and the locals will initiate sexual relationship and end up with unsafe sex. Either of the local or workers will infect the others.

The impact has been assessed to be Indirect and Negative with High Significance; and it is expected to be Long-term and Permanent as it continues to occur even after construction phase.

Its effects on the human health are Irreversible because there is not yet any known treatment for HIV, apart from Ant-retrovirus (ARV) drugs, which helps to increase resistance against HIV.

While for the STIs and TB, its effects on the human health are reversible since the affected ones can be cured through visiting the nearby health centers.

(b) Creation of occupational health and safety (OHS) risks

The project will involve handling and operation of hazardous construction materials and equipment by construction workers. This is likely result into creation of OHS risks to the construction workers. These include physical injury by the equipment like jack hammers and Tamping-foot compactor; exposure to dusty construction materials like dry cement, sand, and aggregate and hand injury due to exposure to wet cement, etc.

The impact has been assessed to be Direct and Negative with Medium Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, its effects on the human health will be Irreversible because once a damage occurs it cannot be reversed. For example, hearing loss due to prolonged exposure to high pitch noise, occurrence of disease like Chronic Obstructive Pulmonary Disorder (COPD) due to prolonged exposure to dust emission, etc.

(c) Creation of construction related risk of accidents.

Trespassing by unauthorized people into the construction site is likely to result into risk of construction related accidents due to movement of mobile construction equipment like bulldozers, graders, and dumper trucks, around the construction site. For example, a person may be overrun by backward moving mobile construction equipment / machinery, especially if it is not fitted with sounding alarm device.

The impact has been assessed to be Indirect and Negative with Low Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, its effects on the human health may be Irreversible because the impact may result into fatal injury (death) or non-fatal injury which results into loss of an organ (E.g., legs, arms, etc.).

(d) Increased risk of traffic accidents

The project will involve movement of heavy trucks to and from the construction site during transportation of construction materials into the construction site and spoil materials from the construction site to the dumping site. The frequent movement of the trucks to and from the construction site is likely to result into risk of traffic accidents at the junction between the access roads to the construction site and the Mtaa roads or at the entrance and exit of the construction site.

The impact has been assessed to be Indirect and Negative with Low Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, its effects on the human health may be Irreversible because the impact may result into fatal injury (death) or non-fatal body injury and irreversible damage to a property.

(e) Increased risk of fire outbreak at the construction camp site.

The project is likely to involve storage of inflammable liquids like petroleum products, use of electricity and gas at the construction site. This is likely to result into increased risk of fire outbreak due to accidental ignition of spilled or leaking petroleum products or gas from storage containers or any defect on the electrical cables.

The impact has been assessed to be Indirect and Negative with Medium Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase and extend up to operation phase. However, its effects on the human health and property will be Irreversible because the impact may result into fatal injury (death) or non-fatal body injury and irreversible damage to a property.

6.2.2.6 Impacts on Labor and Economy

The subsequent are the identified impacts on Labor and Economy Component during Construction Phase:

- Recruitment of construction workers will result into creation of employment opportunity for local people.
- Increased demand for food and other items from construction workers will create opportunity for local food vendors to increase their income by selling food and other items to the construction workers.
- Increase capacity building for technical employees
- Emergence of Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH) due to influx of people into the project site.

(a) Creation of employment opportunities for local people

The project will involve engagement of construction workers, hence resulting into creation of employment opportunity for local people and Tanzanian in general.

The impact has been assessed to be Direct and Positive with Medium Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, it can have Long-term effects on the socio-economic conditions of the local people.

(b) Increased income generation opportunity for local people.

The presence of large number of construction workers will result into increased demand for food and other items, hence resulting into increased income generation opportunity for local people.

The impact has been assessed to be Indirect and Positive with Medium Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, it can have long-term effects on the socio-economic conditions of the local people.

(c) Increase Capacity Building for Technical Employees

It is possible that construction works may came up with new technologies that is not familiar to the local employees. This will advantage to them and they will use attained new skills to generate incomes for upcoming investments in the country. This will not only help the employees but also the nation as whole since this staffs will also participate in investments of the locals by using the experience they have instead of engaging foreigners.

The impact has been assessed to be Indirect and positive with High Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, it can have long-term and Irreversible effects on the socio-psychological conditions of the technical staffs.

(d) Emergence of Gender Based Violence, Sexual Exploitation and Sexual Harassment

The influx of people into the project site will result into increased number of people seeking for employment into the project and other economic activities. This will also result into emergence of Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH). The increased demand for employment will make some corrupt senior project staff to use this opportunity to demand sexual favors in exchange for employment. Also, senior staff may resort into sexual harassment of junior staff and workers.

The impact has been assessed to be Indirect and Negative with High Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. However, it can have long-term and Irreversible effects on the socio-psychological conditions of the affected people.

6.2.2.8 Impacts on Historical and Cultural Heritage Resources

The identified impacts on Historical and Cultural Heritage Resources during construction phase will be on the destruction of archaeological artefacts due to excavation works.

The project is likely to result into destruction of archaeological artefacts due to extraction of construction materials from borrow pits, excavation for foundation and for pavement bed during construction. If precautions are no taken these activities are likely to result into destruction of archaeological artefacts.

The impact has been assessed to be Indirect and Negative with Low Significance; and is expected to be Short-term and Temporary as it occurs only during construction phase. Its effects will be Irreversible because when destroyed the artefact will never be recovered or restored into its original condition.

6.2.3 Demobilization Phase

6.2.3.1 Impact on Retrenchment of Workers

The identified impact on Retrenchment of Workers is the loss of employment and capital, during this phase, all the installation and equipment arrangement will be done. The proponent will be removing both skilled and the non-skilled employees ready for the next stage of the project implementation due to the fact that the other stage need other qualifications.

The impact has been assessed to be Direct and negative with low Significance; and is expected to be Short-term and Temporary as it occurs during Demobilization phase.

6.2.4 Operation Phase

6.2.4.1 Impacts on Labor and Economy

The subsequent are the identified impacts on Labor and Economy Component during operation Phase:

- Employment creation and economic improvement of households and nation.
- Increases tissue paper products to the market
- Increase capacity building for technical employees
- Stimulation of economic growth
- Reduces the market price and pains to end users
- Increase capacity building for technical employees
- Increased revenue collection to local and central Government
- Emergence of Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH) due to influx of people into the project site.
- Decreases importation of the products to be produced
- Reduces the local market price since Movit products will be produced within the country
- Abundant availability of the products to be produced

(a) Creation of employment opportunities for local people

The project will involve engagement of workers, hence resulting into creation of employment opportunity for local people.

The impact has been assessed to be Direct and Positive with high Significance; and is expected to be Long-term and permanent as it occurs during operation phase and have Long-term effects on the socio-economic conditions of the local people.

(b) Increased income generation opportunity for local people.
The presence of workers will result into increased demand for food and other items, hence resulting into increased income generation opportunity for local people.

The impact has been assessed to be Indirect and Positive with high Significance; and is expected to be long-term and permanent as it occurs during operation phase.

(c) Increase capacity building for technical employees
It is possible that workers will adopt new technologies that is not familiar in the project area currently. This will advantage to them and they will use those new skills to generate incomes for upcoming- investments with the same nature in the country.

This will not only help the employees but also the nation as whole since the workers will also participate in investments expected to be done by the locals through using the experience they have instead of engaging foreigners.

The impact has been assessed to be Indirect and Positive with high Significance; and is expected to be long-term and permanent as it occurs during operation phase.

(d) Emergence of Gender Based Violence, Sexual Exploitation and Sexual Harassment
The presence of the project will result into increased number of people seeking for employment into the project and other economic activities. This will also result into emergence of Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH).

The increased demand for employment will make some corrupt senior staff to use this opportunity to demand sexual favors in exchange for employment. Also, senior staff may resort into sexual harassment of junior staff and workers.

The impact has been assessed to be Indirect and Negative with High Significance; and is expected to be long-term as it occurs during operation phase. On the other hand, it can have long-term and Irreversible effects on the socio-psychological conditions of the affected people.

The other positive impacts are the
- Decreases importation of the products to be produced
- Reduces the local market price since Movit products will be produced within the country
- Abundant availability of the products to be produced

6.2.4.2 Impacts on Public Health and Safety
The OHS risks will be caused by the daily operation of industrial activities that will involve handling and operation of hazardous materials, operation of processing plants. The mentioned daily activities will end up creating of occupational health and safety risks such as increased risk of fire outbreak, and etc.

The identified impacts have been assessed to be Indirect and Negative with Medium Significance; and are expected to be Long-term and Permanent as it will continue to occur throughout the operation phase.

6.2.4.3 Terrestrial Environment
The subsequent are the identified impacts on Terrestrial Environment due to Operation Phase:
- Increase scenic of the project area
- Increased of land value in the project area

(a) Increase scenic of the project area

Implementation of the project components will upgrade the environment in the project area and make it impressive, since construction and maintenance of the multistorey buildings provides a good looking.

The identified impacts have been assessed to be Indirect and Positive with Medium Significance; and are expected to be Long-term and Permanent as it will continue to occur throughout the operation phase.

(b) Increased of land value in the project area

Experience shows, initiation of development in undeveloped land brings attraction to other investors. When the project start being developed even the value of that area tends to increase compared with the areas that is not been developed. The locals will start selling their land with high price compared with before where there was no development. Implementation of buildings also tend to attract those who has undeveloped land to start developing their areas thus increase more land value of the project area.

The identified impacts have been assessed to be Indirect and Positive with High Significance; and are expected to be Long-term and Permanent as it will continue to occur throughout the operation phase.

6.2.4.4 Acoustic environment

The subsequent are the identified impacts on Terrestrial Environment due to Operation Phase:

- Creation of noise nuisance and vibration effects at the project area.
- Creation of noise nuisance to adjacent local residents.

(a) Creation of noise nuisance and vibration effects at the project area.

The project will involve operation of equipment/machinery/plant. This is likely to result into creation of noise nuisance and vibration effects to the workers and nearby community. However, the effect is not likely to be very significant because the operation works will be within the proposed building and the proponent is planning to have the more silent or advanced equipment for the work,

The impact has been assessed to be Direct and Negative with small Significance; and is expected to be short-term and Temporary as it occurs only when the equipment is running. However, its effects on human health will be Irreversible if it occurs.

(b) Creation of noise nuisance to adjacent local residents.

The project will involve transportation of raw materials from various sources by using heavy trucks. The trucks are expected to create noise nuisance on the adjacent residences. The effects will be more felt since the access road passes through human settlements or densely populated areas.

The impact has been assessed to Indirect and Negative with low Significance since within the project area, movement of the trucks is not something new; and is expected to be Short-term and Temporary as it occurs only when materials are needed not on daily basis. However, its effects on human health will be irreversible if it occurs.

6.2.4.5 Water Resources

(a) The industry is expecting to generate waste water

As discussed earlier, the operation works is expected to generate waste both from processing works and sanitary facilities. The waste water from the processing works is expected to contain some chemical and colors. If the said pollutants are not going to be treated to comply with TBS standard, are expected to pollute both ground and surface water.

The impact has been assessed to Direct and Negative with medium Significance and is expected to be long-term and permanent as it occurs during operation phase.

6.3 Overall Assessment of Impacts

The overall assessment of impacts in **Table 6.3-1** indicates most of the negative impacts will occur during construction phase and their significance ranges from Very Low, Low and Medium and most of the positive impacts will occur during operation phase and their significance ranges from Low, Medium to High. While table 6.3-2 also indicate there will be some impacts during operation phases.

Table 6.3-1: Overall Assessment of Impacts during construction phase

Affected Component	Environmental Effects/Impacts	Significance	Mobilization Phase	Construction Phase	Demobilization Phase	Operation Phase
1. Atmospheric Environment	Increased air pollution due to dust emission along the construction road.	**Low**	-	✓	-	-
	Increased air pollution due to dust emission along the access roads to borrow pits/quarry sites.	**Medium**	-	✓	-	-
2. Acoustic environment	Creation of noise nuisance and vibration effects the adjacent local residents due to road construction works.	**Low**	-	✓	-	-
	Creation of noise nuisance and vibration effects to adjacent local residents along the access roads to borrow pits.	**Medium**	-	✓	-	-
3. Terrestrial environment	Loss of aesthetic value of the surrounding environment due to accumulation of excavated soil materials and construction solid wastes.	**Low**	-	✓	-	-

Affected Component	Environmental Effects/Impacts	Significance	Mobilization Phase	Construction Phase	Demobilization Phase	Operation Phase
4. Public Health, Safety and Security	Increased transmission of HIV/AIDS and STIs due to social interaction between the construction workers and local community members.	**High**	-	✓	-	-
	Creation of occupational health and safety risks due to handling / operation of hazardous construction materials/equipment.	**Low**	-	✓	-	-
	Creation of construction related risk of accidents due to trespassing by unauthorized persons into the construction site.	**Low**	-	✓	-	-
	Increased risk of traffic accidents due to movement of heavy trucks to and from the construction site.	**Low**	-	✓	-	-
	Increased risk of fire outbreaks due to accidental contact between inflammable materials and ignition sources.	**Low**	-	✓	-	✓
5. Labor and Economy	Increased employment opportunities for local people due to recruitment of construction workers.	**High**	✓	✓	-	-
	Risk of emergence of GBV/SEA, SH and Child Labor due to	**Medium**	✓	✓	-	-

Affected Component	Environmental Effects/Impacts	Significance	Mobilization Phase	Construction Phase	Demobilization Phase	Operation Phase
	influx of people into the project site.					
	Increased income generation opportunities for local people due to increased demand for food by construction workers.	**High**	✓	✓	-	-
	Loss of temporary employment opportunities for local people due to closure or completion of construction works.	**High**	-	-	✓	-
6. Commodity and Public service infrastructure/ utilities.	Increased pressure on existing sanitary and solid wastes disposal facilities due to increased influx of people into the construction sites.	**low**	-	✓	-	✓
7. Cultural Heritage Resources	Destruction of archaeological artefacts due to land excavation.	**Very Low**	-	✓	-	✓

Table 6.3-2: Overall Assessment of Impacts during operation phase

Affected Component	Environmental Effects/Impacts	Significance	Mobilization Phase	Operation Phase
1. Atmospheric Environment	Increased air pollution due to dust emission to the transportation of equipment, raw materials and products	**Medium**	✓	✓

Affected Component	Environmental Effects/Impacts	Significance	Mobilization Phase	Operation Phase
2. Acoustic environment	Creation of noise nuisance and vibration effects the adjacent local resident's due transportation of installation equipment	**Low**	-	-
	Creation of noise nuisance to adjacent local residents during industrial operations.	**Low**	-	✓
3. Terrestrial environment	Improve scenic of the project area	**High**	-	✓
4. Public Health, Safety and Security	Increased transmission of HIV/AIDS and STIs due to social interaction between the operation workers and local community members.	**low**	-	✓
	Creation of occupational health and safety risks due to handling / operation of hazardous materials/equipment.	**Low**	-	✓
	Creation of operational related risk of accidents due to trespassing by unauthorized persons into the industry.	**Low**	-	✓
	Increased risk of traffic accidents due to movement of heavy trucks to and from the industry.	**Low**	-	✓
	Increased risk of fire outbreaks due to accidental contact between inflammable materials and ignition sources.	**Low**	-	✓
5. Water Resources	The industry is expecting to generate waste water and thus pollute the water sources	**Medium**	-	✓
6. Labor and Economy	Increased employment opportunities for local people due to recruitment of workers.	**High**	✓	✓
	Knowledge transfer of the new technology	**High**	✓	✓
	Risk of emergence of GBV/SEA, SH and Child Labor due to influx of people into the project site.	**Medium**	✓	✓
	Increased income generation opportunities for local people due to increased demand for food by	**High**	✓	✓

Affected Component	Environmental Effects/Impacts	Significance	Mobilization Phase	Operation Phase
	workers.			
	Loss of temporary employment opportunities for local people due to closure or completion of mobilization works	**High**	-	-

6.4 Analysis of Alternatives

6.4.1 No Project Alternative

In this study the Consultant has made some comparisons between the "No Project Alternative" and Project Alternative. The No Project Alternative means that the implementation of the proposed project should not be done. This mean that all the advantage that are expected to be brought by the project should be denied. The advantages of having the project are discussed in section 6.4.2.

6.4.2 Project Alternative

The choice of "Project Alternative" means the project should be implemented as planned. The implementation of this project will entail the following advantages; The investment of industry in the country will reduce the purchasing cost for the users, contribute to the national income through tax paying, generation of the employment opportunities throughout construction and operation phases of the project.

The project will easy transportation of the products to other nearby countries. The buildings will increase scenic of the project area. The construction works will enhance improvement of the infrastructures in the project area, the construction material dealers will benefit from selling of the materials.

6.4.3 Alternative Land

The proposed project site is owned by the Tanzania Investment Centre (TIC) hereinafter referred as the Lessor and MOVIT Products Tanzania Limited hereinafter referred as the lessee. The proposed land is planned for industrial activities within the village. The project site has the total area of 28.19 Acres.

The selected site is fit for the proposed project implementation and there is no any site close that is having the same area. nearby the project site proponent also own other two plots which will be used for future expansion, that is why there is no need of finding other land alternatives.

6.4.4 Bio-Digester Vs. Septic Tank Alternative

6.4.4.1 Cost

Implementation cost of the Bio-Digester is less than a septic tank in terms of construction. A septic tank has a larger volume and therefore requires more materials.

6.4.4.2 System Complexity

a) In terms of rules to be observed when implementing the two, a septic tank is easier to implement in terms of the channel from the fittings. It is only needing a single channel to the septic and no waste like grey and black is separation required.

Blackwater can contain feces, urine, water and toilet paper from flush toilets. Blackwater is distinguished from grey water, which comes from sinks, baths, washing machines, and other kitchen appliances apart from toilets. Grey water results from washing food, clothing, dishes, as well as from showering or bathing.

A septic tank will therefore require less expertise as compared to its counterpart that requires waste separation and installation of a grease trap to eliminate oil from reaching its chambers a thing that may affect its functionality.

6.4.4.3 Grease Trap

A grease trap is a plumbing device (a type of trap) designed to intercept most greases and solids before they enter a wastewater disposal system.

b) A Bio-Digester breaks down waste by anaerobic or aerobic bacteria fed into the chamber producing water and gas as by-products. This water can be used for gardening and other no-portable uses.

6.4.4 .4 Space

a) A septic tank is comparably larger in size than a biodigester and will require bigger space to construct. This may however be done along the drive way or under the parking due to its strong structural capability.

b) A Bio-Digester can fit well even in a landscaped garden. It is not advisable to construct on the drive way due to its delicate nature.

6.4.4.5 Hygiene

a) A Biodigester is (ideally) more hygienic. First, it is air-tight. Flies and rodents will not find their way in. Secondly, it (in ideal cases) does not produce bad smell. The waste is thoroughly broken down by bacteria producing methane and clean water. A septic tank may occasionally produce bad odor and may be prone to rodents, roaches or even flies.

6.4.4.6 Maintenance

a) A septic tank contains chambers. The first chamber allows solid waste to settle at the bottom and water to flow in to the next chamber and subsequently into the soak pit. With time the solid waste or the sludge slowly fills up the chamber and will need to be emptied or desludging. This may be required annually or twice a year or whenever the need arises.

b) A Bio-digester on the other hand will not need to be emptied because the solids are broken down by bacteria and thus, they do not accumulate.

The key factor to observe with the Bio-digester is to keep the bacteria healthy by not discharging oil or grease into it. With time the bacteria multiply in number and the Bio-Digester becomes more efficient.

Due to the fact that, bio-digester is less expressive to implement, it needs small space, its maintenance just needs to maintain the keep the bacteria.

6.5 Solar vs Use of Generator Alternative

The project requirement and situation provide guide on the choice between solar battery backup and a generator backup. For shorter power outages and lesser power needs, solar battery backup systems are typically a good fit. While the longer outages and greater power demands are best handled by generator backup systems.

The installation cost of a solar battery backup system is higher than that of a generator backup system. Their lack of a fuel requirement, however, results in reduced recurring expenditures. Even though generator backup systems are cheaper to set up, the gasoline they use can add up quickly, particularly during longer power outages.

Solar battery backup systems are preferable if the investment project value silence and cleanliness above all else because they do not release any pollutants into the atmosphere. A generator backup system, which can supply power continuously as long as fuel is available, may be a preferable option if the project is in a location with frequent power outages.

Because they depend on sunshine, solar battery backup solutions aren't always dependable. Solar panels are low-maintenance; all they need is an occasional wipe down. However, backup generator systems necessitate routine servicing, such as changing the oil and replacing the filters. Solar battery backup systems are less expensive and better for the environment in the long run, but they might not be able to keep up with demand during long power outages.

Generator backup systems are less expensive and more reliable, but they make noise, release pollutants, and need fuel and maintenance frequently. To ensure consistent power during blackouts, you might also think about installing a hybrid system that integrates solar panels with a generator backup.

Due to longer outage and the greater power demand, the generator is highly favorable for this project. The proponent is planning to use both alternatives.

CHAPTER 7: ENHANCEMENT AND MITIGATION MEASURES

Preamble

Generally, the project has been found to have both beneficial (positive) and adverse (negative) impacts. However, the positive has been found to outweigh the negative impacts. During the construction phase, most of the identified negative impacts have very low and medium significance, and short-term. However, during the operation phase, some of the identified negative impacts will be of medium significance and are expect to be long term.

There are several environmental, social, health and safety, and economic benefits to be obtained from the project. Socio-economic benefits include creation of temporary and permanent employment and self-income generation opportunity for local people during the construction and operation phase. Increased productivity and stimulation of economic growth in the local area, increased revenue collection by the central and local government authorities. Increase of product in the local market and thereafter reduce fluctuation of purchasing price and decreases importation of the products to be produced.

Despite the mentioned benefits the project is likely to create some negative impacts. These include increased transmission of communicable diseases such as HIV/AIDS and STIs between workers and the local individuals during both phases, increase in air pollution from dust and exhaust fumes, noise pollution and increase in vibration level from equipment's and vehicles. The project will be generating both wastewater and solid waste during construction and operation phases. The project is also likely to result into emergence of GBV/SEA and SH.

The purpose of this Chapter is to outline some proposed enhancement and mitigation measures for the identified positive and negative impacts, respectively. In order to have better understanding the information is presented in tabular form showing the affected valued environmental component, project related activities, which are likely to create effects/impacts and proposed enhancement or mitigation measures for the identified positive and negative effects/e effects/impacts, respectively.

7.1 Enhancement Measures for Positive Impacts

Most of the beneficial impacts are long-term and socio-economic in nature and will be obtained during operation of the industry and some of negative impacts during the operation phase are long-term but mitigation measures have been provided to protect the environment.

The subsequent are the planned enhancement measures for the identified significant positive impacts on Atmospheric Environment; Public Health, and Safety; and Labor and Economy.

Table 7.1-1: Enhancement Measures for positive Impacts

Affected Component	Effects/Impacts	Enhancement Measures
Labour and Economy	Increased employment opportunities for local people	The contractor will give employment priority to the residents. This will include consultation with local community leaders to identify appropriate skills among the local community members. The contractor will give equal employment opportunities to males and females and will avoid any kind of discrimination based on gender, race, religion, etc.

Affected Component	Effects/Impacts	Enhancement Measures
		The Contractor will ensure all workers are served with Employment Contracts which stipulates all workers' rights under the labour laws such as maternity leave, sick leave, etc. The Contractor will ensure workers are paid not less than minimum wage as stipulated by the government. The Contractor will ensure payment of monthly contributions to the National Social Security Fund (NSSF) and Workers Compensation Fund (WCF) as required by the national laws. Contractor will ensure all workers are made aware, understand and follow the Code of Ethical Conduct.
	Increased of production of plastic, aerosol, and cosmetic products	Encouraging people to use the local products
	Reduces the market price and pains to end users	Government should reduce the taxes for local producers
	Increased income generation opportunities for local people.	Provide enabling environment for food vendors to sell their food in a clean and hygienic environment by providing shelter and water supply.
	Increased of income for the and central government	Government should provide the conducive environment for the investor to project to be sustainable
Terrestrial Environment	Increase scenic of the project area	Ensure the project implementation area is as planned
	Increased land value in the project area	Locals should be encouraged to sell the land as per the cost or market value provided by the local authorities.

7.2 Mitigation Measures for Negative Impacts

Majority of the identified adverse impacts during construction are short-term, and could be mitigated through engineering design and good construction practice. While the negative impacts during operation like generation of wastewater and solid wastes are long-term and will be mitigated through provision treatment facilities, engagement of authorized firm for collection and disposal of hazardous waste and practicing the recycling and reuse of the wastes. Implementation of mitigation measures will be the responsibility of the Contractor under the supervision of the Engineer during construction phase and the proponent during operation phase.

However, successful implementation of some of the mitigation measures will require participation of other stakeholders. For example, mitigation measures against HIV/AIDS prevalence during construction will require collaboration from local NGOs/CBOs and LGAs and the engagement of authorized waste collector as described earlier.

7.3 Mitigation Measures for Negative Impacts-during construction

7.3.1 Mitigation of Impacts on Atmospheric Environment

The subsequent are the planned mitigation measures for the identified impacts due to interaction between Project Related Activities and Atmospheric Environment:

Table 7.3-1: Mitigation Impacts on Atmospheric Environment

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
Atmospheric Environment	Operation of heavy trucks mobile construction equipment/machinery.	Creation of air pollution due to emission of exhaust fumes.	▪ Avoid the use of old vehicles and construction equipment /machinery that emit visible smoke. ▪ Ensure regular maintenance of vehicles and construction equipment / machinery. ▪ Always switch off the engines when the vehicles and equipment are not in use.
	Soil excavations, earthworks and earth moving activities	Creation of air pollution due to dust emission from soil excavations, earthworks and earth moving activities	▪ Application of water on dusty areas. ▪ Minimize stockpiling of excavated soils within the construction site by immediate removal and transportation to dumping site.
	Operation of concrete batching/asphalt plant or mixers	Creation of air pollution due to dust emission.	▪ Ensure the concrete batching plant is not located within or close to residential areas. ▪ Always prefer to use premixed concrete materials brought to the site by special trucks.
	Transportation of construction materials from borrow pits/quarry pits.	Creation air pollution due to dust emission along the access roads.	▪ Application of water within cultivated farms and human settlement areas. ▪ Whenever, possible select transportation route to avoid densely populated and cultivated areas.

7.3.2 Mitigation of Impacts on Acoustic Environment

The following are the planned mitigation measures for the identified effects/impacts due to interaction between Project Related Activities and Acoustic Environment:

Table 7.3-2: Mitigation Impacts on Acoustic Environment

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
Acoustic environment	Operation of construction equipment / machinery	Creation of noise nuisance to the adjacent local residents.	▪ Limiting noisy construction activities only to day time hours. ▪ Prohibit the use of old equipment / machinery which produce high noise levels and ensure noise emission from heavy trucks and mobile construction equipment do not exceed 75 dB, in accordance with Tanzania Noise Emission Standards. ▪ Ensure exhausts of heavy trucks and mobile equipment /machinery are fitted with noise reducing mufflers. ▪ Carry out regular maintenance of vehicles and mobile equipment / machinery.
	Movement of heavy trucks along the access roads to the borrow pits / quarry pits.	Creation of noise nuisance to adjacent local residents.	▪ Limiting transportation of construction materials only to daytime hours. ▪ Whenever, possible avoid passing through human settlement areas.

7.3.3 Mitigation of Impacts on Water Resources

The subsequent are the planned mitigation measures for the identified impacts due to interaction between Project Related Activities and Water Resources Component:

Table 7.3-3: Mitigation Impacts on Water Resources

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
Water Resources	Uncontrolled overflow of raw sewage waste water into the surrounding environment	Creation of ground and surface water pollution	▪ Avoid discharge of raw sewage waste water into natural streams/river or natural water courses. ▪ Use of the mobile toilets

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
			▪ Carry out regular emptying of the mobile toilets. ▪ Water from the mobile toilets should be discharged to the authorised WSPs

7.3.4 Mitigation of Impacts on Terrestrial Environment

The subsequent are the planned mitigation measures for the identified impacts due to interaction between Project Related Activities and Terrestrial Environment.

Table 7.3-4: Mitigation Impacts on Terrestrial Environment

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
Terrestrial environment	Accumulation of excavated soil materials and construction solid wastes.	Loss of aesthetic value of the surrounding environment.	▪ All stockpiled soil materials and construction related solid wastes must be immediately removed and transported to the permitted dumping site. ▪ Useful soil materials can be retained, but properly stockpiled for landscaping purpose.
	Accidental spillage of waste oils from storage containers.	Loss of aesthetic value of the surrounding environment.	▪ Ensure all waste oil containers are stored in concrete paved area with bund wall to prevent spilled oil from escaping into the surrounding environment. ▪ Always take precautions to prevent spillage of waste oil into the surrounding environment.

7.3.5 Mitigation of Impacts on Public Health and Safety

The subsequent are the planned mitigation measures for the identified negative impacts due to interaction between Project Related Activities and Health and Safety Component.

Table 7.3-5: Mitigation of Impacts on Public Health and Safety

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
Public Health and Safety	Social interaction between construction workers and local community	Increased transmission of HIV/AIDS and STIs	▪ Formulation and implementation of HIV/AIDS prevention and control programme.

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
			▪ Giving employment priority to local people to minimize the number of new comers, hence itminimizes the likelihood of new HIV transmission. ▪ Collaboration with local NGOs/CBOs dealing with HIV/AIDS to promote awareness and education campaigns.
	Operation of mobile construction equipment / machinery	Creation of construction related risk of accidents	▪ Fitting all mobile construction equipment / machinery and trucks with alarm and signal device to warn people, especially during backward movement. ▪ Placing written warning signs at strategic locations to prohibit or prevent entrance of unauthorized persons into the construction site. ▪ Restrict operation of mobile construction machinery / equipment to trained personnel only. ▪ Fencing the construction site to prevent people from entering the construction site. This will include putting a written warning in both English and Kiswahili at a strategic location to prevent unauthorized people from entering the construction site.
	Handling/operation of dusty construction materials/equipment	Creation of occupational health and safety risks.	▪ Provision of appropriate Personal Protection Equipment (PPE) to construction workers dust protection masks to construction workers. ▪ Preparation and implementation of

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
			Environmental Health and Safety Management Plans (EHSMP). This includes conducting toolbox meetings; health and safety training; daily health and safety inspection at the construction sites.
	Movement of heavy trucks to and from construction site	Increased risk of traffic accidents.	▪ Develop and implement traffic management plan. This includes deploying flag persons to guide traffic movement along the access road. The involvement of traffic police may be useful, whenever possible.

7.3.6 Mitigation of Impacts Labour and Economic

The following are the planned mitigation measures for the identified negative effects/impacts due to interaction between Project Related Activities and Labor and Economy Component:

Table 7.3-6: Mitigation of Impacts on Labor and Economic

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
labor and Economy	Influx of people into the project sites.	Risk of emergence of Gender-Based Violence and Sexual Exploitation and Abuse due to influx of people into the project sites.	▪ Ensuring there are codes of conduct in place that forbid and place penalties for Gender-Based Violence and Sexual Exploitation and Abuse. ▪ Ensure a Code of Conduct (CoC) is signed and understood by all project workers. This will include the provision of training and information regarding Worker Code of Conduct in Kiswahili. ▪ Disseminating information that raises awareness on the prohibition of GBV and SEA among the workers, local community members and general public and disseminate information that promotes good and respectful relationships between workers and the fish market community members.

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
			▪ As a prevention measure, the contractor will be required to develop a code of conduct of GBV that will be attached to the ESMP and signed by all workers. An example of Code of Conduct for EH&S and GBV. ▪ Contractor will engage a qualified NGO to carry out awareness raising campaign against GBV and SEA on monthly basis during the construction phase. ▪ Provision of cultural sensitization training to workers regarding engagement with local community. ▪ Grievances Redress Mechanism will be in place to deal with any conflicts between the construction workers and the local residents.
	Demobilization or closure of the project	Loss of temporary employment opportunities for local people.	▪ Give employment priority to local people, because after project closure they will easily revert back to their normal economic activities. ▪ Ensure that all construction workers are registered with social security funds and are paid their terminal benefits immediately before retrenchment from jobs.

7.3.7 Mitigation of Impacts on Cultural Heritage Resources

The subsequent is the planned mitigation measures for the identified negative impacts due to interaction between Project Related Activities and Cultural Heritage Resources Component

Table 7.3-7: Mitigation of Impacts on Cultural Heritage Resources

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
Cultural Heritage Resources	Preparation of project construction sites.	Destruction of archaeological artefacts.	▪ Formulation and implementation of chance find procedures for any archaeological

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
			findings. ▪ Any identified archaeological findings will be rescued and reported to the Antiquities Department.

7.4 Mitigation Measures for Negative Impacts-during Operation

7.4.1 Mitigation of Impacts on Labor and Economy

The subsequent are the planned mitigation measures for the identified impacts due to interaction between Project Related Activities and Atmospheric Environment:

Table 7.4-1: Mitigation Impacts on Labor and Economy

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
labor and Economy	Recruitment of workers	Increased employment opportunities for local people.	▪ Give employment priority to local people and provide equal employment opportunity for both males and females. ▪ Ensure there is not any kind of discrimination at work place. ▪ Ensure there is no any kind of Sexual Harassment and Gender Based Violence at work place.
	Influx of people into the project site.	Risk of emergence of Gender-Based Violence and Sexual Exploitation and Abuse due to influx of people into the project site.	▪ Ensuring there are codes of conduct in place that forbid and place penalties for Gender-Based Violence and Sexual Exploitation and Abuse. ▪ Ensure a Code of Conduct (CoC) is signed and understood by all project workers. This will include the provision of training and information regarding Worker Code of Conduct in Kiswahili. ▪ As a prevention measure, the proponent will be required to develop a code of conduct of GBV that will be attached to the ESMP and signed by all workers. ▪ Proponent will engage a qualified NGO to carry out

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
			awareness raising campaign against GBV and SEA on monthly basis during the project phase. ▪ Provision of cultural sensitization training to workers regarding engagement with local community. ▪ Stakeholder consultation on GBV/SEA and SH and EH&S issues will be carried out with fish market community members before commencement of works. ▪ Grievances Redress Mechanism will be in place to deal with any conflicts between the workers and local people

7.4.2 Mitigation of Impacts on Acoustic Environment

The following are the planned mitigation measures for the identified effects/impacts due to interaction between Project Related Activities and Acoustic Environment:

Table 7.4-2: Mitigation Impacts on Acoustic Environment

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
Acoustic environment	Production	Creation of noise nuisance to the adjacent plots and local residents.	▪ Limiting noisy operation activities only to day time hours. ▪ Prohibit the use of old equipment / machinery which produce high noise levels and ensure noise emission equipment do not exceed 75 dB, in accordance with Tanzania Noise Emission Standards[6]. ▪ Ensure exhausts of heavy trucks and mobile equipment /machinery are fitted with noise reducing mufflers. ▪ Provide ear protection muffs to workers operating high pitch noise creating equipment /machinery.

[6] Harmonization of Environmental Regulations and Standards. Thematic Area 2. Working Paper 2.2 Bureau of Industrial Cooperation.

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
			▪ Carry out regular maintenance of equipment / machinery.
	Transportation of products and raw materials in and outside the industry	Creation of noise nuisance to adjacent local residents.	▪ Limiting transportation of trucks only to daytime hours.

7.4.3 Mitigation of Impacts on Water Resources

The subsequent are the planned mitigation measures for the identified impacts due to interaction between Project Related Activities and Water Resources Component:

Table 7.4-3: Mitigation Impacts on Water Resources

Affected Component	Project Related Activities	Effects/Impacts	Mitigation measures
Water Resources	Industrial Operation	Creation of ground and surface water pollution	▪ Ensure that sewage treatment system is provided at the industry and carry out periodic maintenance of sewer pipeline and sewer chambers. ▪ Carry out regular emptying of soak pits and maintenance of sewage chambers to prevent overflow of raw sewage into the environment. ▪ Sewage discharge must not exceed Tanzania Effluent Discharge Standards[7].
	Industrial processing	Creation of ground and surface water pollution.	▪ Provision of waste water treatment plant

7.4.4 Mitigation of Impacts on Public Health and Safety

The subsequent are the planned mitigation measures for the identified negative impacts due to interaction between Project Related Activities and Health and Safety Component.

Table 7.4-4: Mitigation of Impacts on Public Health and Safety

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
Public Health and Safety	Industrial Processing	Environmental pollution due to chemicals used in the processing	▪ Discharging effluent from the treatment plant after reaching the TBS standards for the BOD (30mg/l) and COD (60mg/l)
	Operation of	Creation of	▪ Placing written warning

[7] United Republic of Tanzania. Environmental Management (Water Quality Standards) Regulations (2007). FIRST SCHEDULE (Made Under Regulation 8).

Affected Component	Project Related Activities	Effects/Impacts	Mitigation Measures
	equipment/machinery	operation related risk of accidents	signs at strategic locations to prohibit or prevent entrance of unauthorized persons into the operation area. ▪ Restrict operation of machinery / equipment to trained personnel only. ▪ Putting a written warning in both English and Kiswahili at a strategic location to prevent unauthorized people from entering the industrial area
	Handling/operation of dusty raw materials	Creation of occupational health and safety risks.	▪ Provision of appropriate Personal Protection Equipment (PPE) to workers dust protection masks to workers. ▪ Preparation and implementation of Environmental Health and Safety Management Plans (EHSMP). This includes conducting toolbox meetings; health and safety training; daily health and safety inspection at the industrial area.
	Movement of heavy trucks to and from industrial area	Increased risk of traffic accidents.	▪ Develop and implement traffic management plan. This includes deploying flag persons to guide traffic movement along the access road. The involvement of traffic police may be useful, whenever possible.

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 Implementation of ESMP

The purpose of this Environmental and Social Management Plan (ESMP) is to ensure that the project is being implemented with minimum adverse environmental and social impacts. The ESMP focuses on avoidance or mitigation of potential impacts associated with the Project Related Activities and enhancement of project benefits.

The role of ESMP is to outline environmental requirements for the project and provide guidance for the Contractor to follow and properly manage environmental impacts during construction. It specifies mitigation, monitoring and institutional measures to be taken during construction and operation phases to eliminate any adverse environmental and social impacts, offset them or reduce them to acceptable levels.

Specifically, ESMP schedule as shown in **Table 8.4-1**, summarizes all anticipated significant adverse environmental impacts and provides specific description of institutional arrangement for carrying out mitigation measures.

In order to have effective ESMP there will be an integration of efforts among various stakeholders. This ESMP therefore specifies roles and responsibilities of various stakeholders during implementation. However, it is important that all responsible agencies/stakeholders should appreciate that they are united and should interact and work towards a common purpose.

The important stakeholders/agencies identified in this ESMP include the Developer, Tanzania Fire and Rescue Force, Tanzania Bureau of Standards (TBS), Government Chemistry Laboratory Authority (GCLA) Occupation Safety and Health Authority (OSHA), Kibaha District Council (KDC); Ward and Village Development Committees, and Non-Governmental Organizations (NGOs) / Community Based Organizations (CBOs) dealing with project related environmental and social aspects in the project area.

The effective implementation of ESMP also requires that all persons working for the project are aware of the importance of environmental requirements of the project; their roles and responsibilities in the implementation of the ESMP. They should also be aware of the significant actual or potential environmental impacts of their work activities; the benefits of improved performance and the consequence of not complying with environmental requirements.

8.2 Institutional Roles and Responsibilities

8.2.1 Financing Agency

The project is being financed by **MOVIT PRODUCTS (TANZANIA) LIMITED** as the project Developer. Developer shall be responsible for review and approval of Contractor's ESMP (C-ESMP), subsequent Monthly Progress Reports and Monthly Environmental, Social, Health, and Safety (ESH&S) Compliance Reports submitted Contractor through his Consultant.

8.2.2 Implementing Agency

The project is being implemented by **MOVIT PRODUCTS (TANZANIA) LIMITED**; Developer also holds final responsibility for environmental performance of the project through his consultant.

8.2.4 Supervision Consultant

The Supervision Consultant will be appointed by the proponent and he will be responsible for monitoring and supervision of the construction works including implementation of ESMP. The Supervision Consultant will be responsible to oversee the construction works and monitor the works undertaken by the Contractor and implementation of ESMP to ensure compliance with contract specification and contractual requirements.

The Supervision Consultant will appoint Environmental Specialist and Social/Gender Specialist to assist the Engineer. The Environmental Specialist shall be responsible for Environmental, Health, Safety and Security (EHSS) Issues and Social/Gender Specialist issues related to the project.

8.2.5 Contractor

The Contractor shall be responsible for the implementation of construction works and ensure compliance with environmental and social requirements, including implementation of outlined mitigation measures in the ESMP. Therefore, the Contractor will be responsible for preparation and implementation of Contractor's ESMP (C-ESMP) based on this ESMP or Project ESMP (P-ESMP). The Contractor will ensure that the implementation of C-ESMP conforms to the requirements of all local laws, regulations, and contract clauses.

The Contractor shall appoint the Project Manager who will be assisted by ESH&S Team. ESH&S team will be comprised of Environmental Health and Safety Officer (EHSO) and Social/Gender Specialist. The Environmental Health and Safety Officer (EHSO) shall be an overall in-charge responsible for overseeing implementation of Environmental, Social, Health, Safety and Security (ESHSS) Issues.

The responsibilities of other experts shall be as follows:

S/n	Title/Position	Responsibility
1.	Environmental Health and Safety Officer (EHSO)	Environmental, Health, Safety and Security Issues
2.	Social/Gender Specialist	Social, Gender and Resettlement Issues, including GRM, GBV/SEA and SH.

In order to ensure enforcement of ESHSS issues, the Site Inspectors and Site Foremen, apart from undertaking supervision of construction works, shall also be responsible for overseeing the implementation of outlined mitigation measures in the ESMP, including ESHSS issues.

8.2.6 Health, Safety and Environment Expert

During operation, the proponent will engage HSE to ensure compliance of environment, health and safety issues throughout the project duration. The HSE will be providing the awareness to workers and flanking neighbors regarding the HSE issues.

8.2.7 Local Government Authorities (LGAs)

The project is located within the jurisdictional boundaries of KDC and Soga Ward Governments. KDC and the respective Ward and Street Governments are considered as the Local Government Authorities (LGAs).

The involvement of the Local Government Authorities (LGAs) is crucial for successful implementation of ESMP because some of the mitigation measures are better undertaken by local communities with the support of the LGAs. It is therefore important that KDC as should be involved in the implementation of this ESMP.

In order to make the LGAs to be well informed on the contents of the ESIA, one copy of this report will be submitted to KDC. This is to ensure that the LGAs through their Environmental Management Officers are aware of the environmental and social issues regarding this project and therefore shall be able to monitor the Contractor's compliance with mitigation measures.

8.3 Contractor's Environmental Specification

The Contractor's Environmental Specification will be incorporated into the Contract Document to provide to ensure the environment is free from the impacts of the Contractor's

activities. The Contractor shall follow the guidelines determined in the Contract Document. General environmental problems related to the Contractor's activities include:

- Site management;
- Storage and treatment of fuel and material;
- Dust and noise hazard control;
- Solid Waste Management; and
- Wastewater Management.

8.3.1 Contractor's Environmental Protection Plan

The Contractor shall hold the copy of *Environmental and Social Management Plan (ESMP*, which shall be included in the bidding documents. Before rehabilitation / construction, the Contactor shall submit an *Environmental Protection Plan* for the construction site to the Supervision Consultant's Resident for review and approval.

The Plan shall include the general mitigation measures for environmental impacts and the specific mitigation measures for response to emergency accidents, and the general measures shall include the followings, but not be limited to the followings:

- General Rehabilitation Plan, indicating operation area, fuel storage area, fuel supply area, parking area, equipment maintenance area, material storage area and campsite;
- Waste Management Plan;
- Dust Control Plan; and
- Noise Control Plan.

8.3.3 Recruitment of Construction Workers

The Contractor is required to give employment priority to the local people. The Contractor shall publish the required positions for employment in the local media and all signboards. The construction workers and other personnel shall be employed in accordance with the Employment and Labor Relations Act No.6 of 2004. The Contractor shall provide training for the construction workers on environmental protection, GBV / SEA, and occupational health and safety issues.

During the operation phase, the proponent is advised to engage some percent of local people for skilled and unskilled staffs.

8.4 Cost Estimates for Mitigation Measures

The cost estimate for mitigation measures takes into consideration those costs to be incurred due to affected resources as a result of rehabilitation works/ activities and costs to be incurred as a result of the Contractor's adherence to good engineering practice.

Those costs resulting from implementation of mitigation measures for negative environmental and social impacts are considered as extra costs outside the Project Budget. However, the project will not be responsible for costs that arise out of normal responsibility of the project proponent or implementing agency. Therefore, for that reason, recurrent costs during operation and maintenance are excluded.

The cost estimates for the implementation of ESMP mitigation measures are cost due to the implementation of specific mitigation measures. These include Implementation of GBV/SEA Awareness Programme Prevention and Control of COVID-19; HIV/AIDS Prevention and Control Programme; and Health and Safety Management Plan.

In this regard, the cost estimates for mitigation measures have been considered for protection of environmental and social resources; and as such for implementation of ESMP as shown in **Table 8.4-1**:

This makes the total cost for implementation of mitigation measures has been estimated to be about **Tanzania Shillings (TZS) 291,000,000.00***.* These costs will be included in the Bill of Quantities during the preparation of the Bidding Document. The cost estimates have been based on the Consultant's experience on the projects of similar nature.

Table 8.4-1: ESMP Implementation Schedule

Effects/Impacts	Mitigation/Enhancement Measures	Responsibility	Cost Estimates
A. Pre-Construction Phase			
A1. Increased employment opportunities for local people due to recruitment of construction workers.	▪ Give employment priority to local people and provide equal employment opportunity for both males and females. ▪ Ensure there is not any kind of discrimination at work place discrimination. ▪ Ensure there is not any kind of Sexual Harassment and Gender Based Violence at work place.	Proponent	3,000,000.00
A2. Vegetation Clearance	▪ Clearance should be done in the area to be covered by the buildings	Proponent	3,000,000.00
A3. Destruction of archaeological artefacts due to land excavation during preparation of project site.	▪ Formulation and implementation of chance find procedures for any archaeological findings. ▪ Any identified archaeological findings will be rescued and reported to the Antiquities Department.	Proponent	10,000,000.00
B. Construction Phase			
B1. Creation of air pollution due to dust emission from soil excavations, earthworks and earth moving activities	▪ Application of water on dusty areas. ▪ Minimize stockpiling of excavated soils within the construction site by immediate removal and transportation to dumping site.	Proponent	4,000,000.00
B2. Creation air pollution due to dust emission along access roads during transportation of construction materials from borrow pits /quarry sites.	▪ Application of water along cultivated farms and human settlement areas. ▪ Whenever, possible select transportation route to avoid densely populated and cultivated areas.	Proponent	7,000,000.00

Effects/Impacts	Mitigation/Enhancement Measures	Responsibility	Cost Estimates
B3. Creation of noise nuisance to the adjacent local residents due to operation of mobile construction equipment /machinery.	▪ Limiting noisy construction activities only to day time hours. ▪ Prohibit the use of old equipment / machinery which produce high noise levels and ensure noise emission from heavy trucks and mobile construction equipment do not exceed 75 dB, in accordance with Tanzania Noise Emission Standards[8]. ▪ Ensure exhausts of heavy trucks and mobile equipment /machinery are fitted with noise reducing mufflers. ▪ Provide ear protection muffs to construction workers operating high pitch noise creating equipment /machinery. ▪ Carry out regular maintenance of vehicles and mobile equipment / machinery.	Proponent	3,000,000.00
B4. Creation of vibration effects on adjacent building structures due to soil compaction in project area.	▪ Inform adjacent residents that they should expect ground vibrations. ▪ Conduct inventory of existing crack on adjacent buildings before commencement of compaction works.	Proponent	1,500,000.00
B5. Creation of noise nuisance to adjacent local residents due to movement of heavy trucks along access roads to borrow pits/quarry sites.	▪ Limiting transportation of construction materials only to daytime hours. ▪ Whenever, possible avoid passing through human settlement areas.	Proponent	3,000,000.00

[8] The Environmental Management (Standards for the Control of Noise and Vibrations Pollution) Regulations (2010). The Government Notice No. 32. Published on 30/01/2015.

Effects/Impacts	Mitigation/Enhancement Measures	Responsibility	Cost Estimates
B6. Creation of ground and surface water pollution due to uncontrolled overflow of raw sewage and oil spill into the surrounding environment.	▪ Provision of mobile toilets ▪ Waste from the mobile toilets should be discharged to the WSPs ▪ Contractor has to deploy the equipment with good condition and the Maintenance of the vehicles should be done often	Proponent	8,000,000.00
B7. Loss of aesthetic value of the surrounding environment due to accumulation of excavated soil materials and construction solid wastes.	▪ All stockpiled soil materials and construction related solid wastes must be immediately removed and transported to the permitted dumping site. ▪ Useful soil materials can be retained, but properly stockpiled for landscaping purpose.	Proponent	2,500,000.00
B8. Loss of aesthetic value of the surrounding environment due to accidental spillage of waste oils from storage containers.	▪ Ensure all waste oil containers are stored in concrete paved area with bund wall to prevent spilled oil from escaping into the surrounding environment. ▪ Always take precautions to prevent spillage of waste oil into the surrounding environment.	Proponent	4,000,000.00
B9. Increased transmission of HIV/AIDS and STIs due to social interaction between construction workers and local residents.	▪ Formulation and implementation of HIV/AIDS prevention and control programme. ▪ Giving employment priority to local people to minimize the number of new comers, hence minimizing the likelihood of new HIV transmission. ▪ Collaboration with local NGOs/CBOs dealing with HIV/AIDS to promote awareness and education campaigns.	Proponent	10,000,000.00

Effects/Impacts	Mitigation/Enhancement Measures	Responsibility	Cost Estimates
B10. Increased risk of Covid-19 transmission due to induced influx of people into the project site.	▪ The Contractor will take necessary precautions as stipulated in the ESF/Safeguards Interim Note: Covid-19 Consideration in Construction/Civil Works Projects. These include: - Checking and recording temperatures of workers and other people entering the site or requiring self-reporting prior to or on entering the site. - Providing daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures, using demonstrations and participatory methods. - Preventing a worker from an affected area or who has been in contact with an infected person from returning to the site for 14 days or (if that is not possible) isolating such worker for 14 days. - Preventing a sick worker from entering the site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days. - Provision of hand sanitizers, hand washing basins and soap at the entry gate. ▪ Stakeholder consultations will be carried out before commencement of construction works to	Proponent	10,000,000.00

Effects/Impacts	Mitigation/Enhancement Measures	Responsibility	Cost Estimates
	create awareness among the local residents on prevention and control of Covid-19.		
B11. Creation of occupational health and safety risk due to handling of hazardous construction materials.	▪ Provision of Personal Protection Equipment (PPE) to construction workers such as dust masks, ear plugs, safety boots, etc. ▪ Formulation and implementation of Health and Safety Management Plan (HSMP).	Proponent	10,000,000.00
B12. Creation of risk of exposure to hand-arm injury due to operation of handheld vibrating construction equipment.	▪ Provision of appropriate gloves to the construction workers. ▪ Avoid prolonged use of hand-held equipment by workers beyond the prescribed 8 hours in accordance with Tanzania Standards[9].	Proponent	Covered under Item B 13.
B13. Creation of construction related risk of accidents due to operation of mobile construction equipment/machinery.	▪ Fitting all mobile construction equipment / machinery and trucks with alarm and signal device to warn people, especially during backward movement. ▪ Placing written warning signs at strategic locations to prohibit or prevent entrance of unauthorized persons into the construction site. ▪ Restrict operation of mobile construction machinery / equipment to trained personnel only. ▪ Fencing the construction site to prevent people from entering the construction site. This will include putting a written warning in both English and Kiswahili at a strategic location to prevent unauthorized people from entering the	Proponent	5,000,000.00

[9]United Republic of Tanzania. Environmental Management (Standards for Control of Noise and Vibration Pollution) Regulations (2008). THIRD SCHEDULE (Made Under Regulation 15(1)).

Effects/Impacts	Mitigation/Enhancement Measures	Responsibility	Cost Estimates
	construction site.		
B14. Increased risk of traffic accidents due to movement of heavy trucks to and from the construction site.	▪ Develop and implement traffic management plan. This includes deploying flag persons to guide traffic movement along the access road.	Proponent	12,000,000.00
B15. Increased income generation opportunities for local people due to increased demand for food and other items from construction workers.	▪ Provide enabling environment for food vendors to sell their food in a clean and hygienic environment by providing shelter and water supply.	Proponent	3,000,000.00
B16. Creation of damage on existing access roads due to overloading by heavy trucks.	▪ Ensure that any damaged local roads are immediately repaired to make them passable throughout the construction period.	Proponent	5,000,000.00
C. Demobilization Phase			
C1. Loss of temporary employment due to retrenchment of construction workers after project completion.	▪ Give employment priority to local people, because after project closure they will easily revert back to their normal economic activities. ▪ Ensure that all construction workers are registered with social security funds and are paid their terminal benefits immediately before retrenchment from jobs.	Proponent	1,000,000.00
D. Operation Phase			
D1. Creation of noise nuisance to the adjacent plots and local residents.	▪ Limiting noisy operation activities only to day time hours. ▪ Prohibit the use of old equipment / machinery which produce high noise levels and ensure noise emission equipment do not exceed 75 dB,	Proponent	8,000,000.00

	in accordance with Tanzania Noise Emission Standards[10]. ▪ Ensure exhausts of heavy trucks and equipment /machinery are fitted with noise reducing mufflers. ▪ Provide ear protection muffs to workers operating high pitch noise creating equipment /machinery. ▪ Carry out regular maintenance of equipment / machinery.		
D2. Creation of noise nuisance to adjacent local residents due to movement of heavy trucks along access roads towards the industrial area	▪ Limiting transportation of materials and products only to daytime hours.	Proponent	N/A
D3. Creation of ground and surface water pollution due to uncontrolled overflow of raw sewage and oil spill into the surrounding environment	▪ Ensure that sewage treatment system is provided at the industry and carry out periodic maintenance of sewer pipeline and sewer chambers. ▪ Carry out regular emptying of soak pits and maintenance of sewage chambers to prevent overflow of raw sewage into the environment. ▪ Sewage discharge must not exceed Tanzania Effluent Discharge Standards[11].	Proponent	15,000,000.00
D4. Creation of ground and surface water pollution due to untreated waste water from the industrial	▪ Provision of waste water treatment plant/facility	Proponent	45,000,000.00

[10] Harmonization of Environmental Regulations and Standards. Thematic Area 2. Working Paper 2.2 Bureau of Industrial Cooperation.

[11] United Republic of Tanzania. Environmental Management (Water Quality Standards) Regulations (2007). FIRST SCHEDULE (Made Under Regulation 8).

operation			
D5. Increased risk of Covid-19 transmission due to induced influx of people into the project site.	▪ The proponent will take necessary precautions as stipulated in the ESF/Safeguards Interim Note: Covid-19 Consideration in operation area. These include: - Checking and recording temperatures of workers and other people entering the site or requiring self-reporting prior to or on entering the site. - Providing daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures, using demonstrations and participatory methods. - Preventing a worker from an affected area or who has been in contact with an infected person from returning to the site for 14 days or (if that is not possible) isolating such worker for 14 days. - Preventing a sick worker from entering the site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days. - Provision of hand sanitizers, hand washing basins and soap at the entry gate. ▪ Stakeholder consultations will be carried out before commencement of construction works to create awareness among the local residents on prevention and control of Covid-19.	Proponent	5,000,000.00
D6. Creation of occupational health	▪ Provision of Personal Protection Equipment	Proponent	15,000,000.00

and safety risk due to handling of hazardous construction materials.	(PPE) to construction workers such as dust masks, ear plugs, safety boots, etc. ▪ Formulation and implementation of Health and Safety Management Plan (HSMP).		
D7. Creation of risk of exposure to hand-arm injury due to operation of handheld vibrating equipment.	▪ Provision of appropriate gloves to the construction workers. ▪ Avoid prolonged use of hand-held equipment by workers beyond the prescribed 8 hours in accordance with Tanzania Standards[12].	Proponent	Covered under Item D 6.
D8. Creation of risk of accidents due to operation of mobile equipment/machinery.	▪ Fitting all equipment / machinery with alarm and signal device to warn people, especially during backward movement. ▪ Placing written warning signs at strategic locations to prohibit or prevent entrance of unauthorized persons into the industrial processing ▪ Restrict operation of machinery / equipment to trained personnel only. ▪ Barricading the equipment location to prevent people from entering the operation area. This will include putting a written warning in both English and Kiswahili at a strategic location to prevent unauthorized people from entering the construction site.	Proponent	Covered under Item D 6.
D9. Increased risk of traffic accidents due to movement of heavy trucks to and from the industrial area.	▪ Develop and implement traffic management plan. This includes deploying flag persons to guide traffic movement along the access road.	Proponent	5,000,000.00

[12]United Republic of Tanzania. Environmental Management (Standards for Control of Noise and Vibration Pollution) Regulations (2008). THIRD SCHEDULE (Made Under Regulation 15(1)).

D10. Increased employment opportunities	▪ The proponent will give employment priority to the residents. ▪ The proponent will give equal employment opportunities to males and females and will avoid any kind of discrimination based on gender, race, religion, etc. ▪ The proponent will ensure all workers are served with Employment Contracts which stipulates all workers' rights under the labor laws such as maternity leave, sick leave, etc. ▪ The proponent will ensure workers are paid not less than minimum wage as stipulated under the labor laws. ▪ The proponent will ensure payment of monthly contributions to the National Social Security Fund (NSSF) and Workers Compensation Fund (WCF) as required by the national laws. ▪ Proponent will ensure all workers are made aware, understand and follow the Code of Ethical Conduct.	Proponent	N/A
D11. Increased income generation opportunities for local people due to increased demand for food and other items from operation works.	▪ Provide enabling environment for food vendors to sell their food in a clean and hygienic environment by providing shelter and water supply. ▪ If the proponent will be supplying food to the workers, the vendor should part of the local in the project area	Proponent	10,000,000.00
D12. Risk of emergence of Gender-Based Violence and Sexual Exploitation and Abuse due to influx of people into the	▪ Ensuring there are codes of conduct in place that forbid and place penalties for Gender-Based Violence and Sexual Exploitation and Abuse.	Proponent	15,000,000.00

project site.	▪ Ensure a Code of Conduct (CoC) is signed and understood by all project workers. This will include the provision of training and information regarding Worker Code of Conduct in Kiswahili. ▪ As a prevention measure, the proponent will be required to develop a code of conduct of GBV and signed by all workers. ▪ Proponent will engage a qualified NGO to carry out awareness raising campaign against GBV and SEA on monthly basis during the project phase. ▪ Provision of cultural sensitization training for workers regarding engagement with local community. ▪ Grievances Redress Mechanism will be in place to deal with any conflicts between the workers and local people		
D13. Increase scenic of the project area	▪ The project should be implemented as designed ▪ Government should encourage projects which enhance environment. ▪ The waste paper producers should ensure waste papers are collected and stored to the area ready for being transported to the industry instead of disposing it to the dumpsites	LGAs/ Proponent	N/A
D14. Increase of income for the local and central government	▪ Government should provide the conducive environment for the investor for the project to be sustainable	LGAs	N/A

D15. Increased of plastic and cosmetic products	▪ Locals should be encouraged to buy and use local products	Central and LGAs	N/A
D16. Increased of the solid waste	▪ Encourage recycling and reuse of the plastic materials, products including other waste ▪ Provision of the dust bins around the industrial area ▪ Regular transportation and disposal of the solid waste to approved dumpsite		N/A
D17. Increased generation of stormwater	▪ Rainwater harvesting infrastructures should be implemented ▪ Provision of drainage system for collection of stormwaters that is not collected through gutters ▪ MPL shall install provide oil separators at key drainage outlet points to remove oils, greases and other hydro carbons from storm water before discharging into the drainage system. ▪ Provision of sustainable drainage systems (SuDs)	Proponent	35,000,000.00
D18. Risk of fire explosion within the industrial area	▪ Proper management of gas utilities ▪ Provision of fire-extinguishers ▪ Proper installation and maintenance of electrical appliances ▪ Engagement of the qualified personnel to deal with the equipment that a prone to explosion	Proponent	15,000,000
D19. Increased generation of E-waste	▪ All e-waste materials will be stored in covered areas on impermeable surfaces ▪ MPL shall encourage separate, sort and recycle of e-waste before disposal. ▪ All personnel will be trained in responsible e-waste management and necessary color-coded bins provided for separation at source, training will be provided during induction, meetings and toolbox talks. ▪ All e-waste produced shall be monitored and records tracked to ensure compliance.	Proponent	20,000,000

	▪ MPL shall engage in donation programs and donate functional electronics to schools, charities in communities. ▪ MPL shall utilize certified e-waste handlers to ensure waste is disposed of appropriately. ▪ MPL shall work with other key government and non-governmental entities to create awareness and address concerns of e-waste management.		
Total Amount			**291,000,000.00**

CHAPTER 9: ENVIRONMENTAL AND SOCIAL MONITORING PLAN

9.1 Implementation of Monitoring Plan

The information collected during monitoring exercise helps to improve ESMP by adapting measures to ensure that the anticipated impacts are mitigated. For example, in case environmental monitoring identifies some environmental concerns during construction or operation phase then construction or operation works has to be modified or stopped, whenever necessary.

Thus, the objectives of environmental monitoring programme are:

- To ensure that mitigation and benefit enhancement measures have been adopted and are effective.
- To identify any unforeseen negative impacts during ESIA stage and propose appropriate mitigation measures.
- To provide information on the actual nature and extent of key impacts and effectiveness of mitigation and benefit enhancement measures, which through feedback mechanism can improve the planning and execution of future, similar projects.

The monitoring schedule as summarized in **Table 9.3-1** addresses the following questions:

- WHAT parameter to be monitored? (Monitoring Parameters)
- WHY is the parameter being monitored? (Monitoring Objective)
- WHAT indicator to be used in monitoring? (Monitoring Indicators)
- WHERE to be monitored? (Monitoring Location).
- HOW is to be monitored? (Monitoring Methods).
- HOW frequent is to be monitored? (Monitoring Frequency)
- WHAT are the monitoring targets or standards? (Performance Standards)
- WHO is responsible for monitoring? (Monitoring Responsibility)

The ESMP monitoring during construction phase will be comprised of two activities:

- Review of Contractor's plans, methods statement, and temporary works design and arrangements to ensure that environmental protection measures specified in the contract documents are adopted and Contractor's proposals provide acceptable levels of impact control.
- Systematic observation of all site activities and the Contractor's offsite facilities, including borrow pits and quarry sites areas. To ensure that the contract requirements relating to environmental matters are being complied with and that mitigation measures for those unforeseen impacts are formulated and implemented by the contractor.

The monitoring activities will be comprised of visual observation during site inspection and will be carried out at the same time as the engineering supervision activities. Site inspections will take place with emphasis on early identification of any environmental problems and the initiation of suitable remedial action. Where remedial actions have been required on the part of the Contractor, further checks will need to be made to ensure that these are actually being implemented to the agreed schedule and in the required form.

All sites where construction is taking place will be formally inspected from an environmental view point on a regular basis. However, in addition to visual observation there shall be informal questioning of members of the local communities and their leaders who live near the project. This is because they may be aware of matters which are unsatisfactory but may not be readily apparent or recognized during normal site inspection visits.

The monitoring plan will also be integrated with other construction supervision and carried out by the Supervising Engineer. The Supervising Engineer will decide on the appropriate course of action to be taken in cases where unsatisfactory reports are received from the field staff regarding environmental matters. In case of relatively minor matters, advice to the Contractor on the need for remedial action may suffice, but in all serious cases, the Supervising Engineer will issue a formal instruction to the Contractor to take remedial action, depending on the extent of delegated powers.

9.1.1 Monitoring and Reporting Responsibilities

9.1.1.1 Supervision Consultant

The Supervision Consultant will appoint an Environmental Specialist and Social /Gender Specialist who shall be responsible for Environmental and Social Compliance Monitoring. The Supervision Consultant's Environmental Specialist and Social / Gender Specialist shall be making a daily site inspection and shall be attending Engineer's Site Meetings.

The participation of Environmental Specialist and Social /Gender Specialist in the Engineer's Site Meetings shall enable the Environmental Specialist and Social /Gender Specialist to:

- Review the status of any problem addressed in the previous meeting; propose additional mitigation measures, if the problem has not been resolved.

- Review the main construction activities and any environmental problem that occurred since the last meeting.

- Review the construction activities and general environmental performance as listed in the ESMP.

The Environmental Specialist and Social/Gender Specialist shall be preparing Monthly Environmental and Social Monitoring Reports which will highlight:

- The extent to which the Contractor is complying with the environmental and social specifications and contract conditions (compliance monitoring).

- Any unforeseen environmental and social impacts (i.e., the failure or inadequacy of the mitigation measures) and recommendations on how to manage unforeseen impacts.

9.1.1.2 Contractor

The Contractor will be responsible for implementation of environmental and social mitigation measures under the Supervision Engineer. This is to ensure that technical and environmental clauses are followed and well implemented by the Contractor.

The Contractor shall assign an Environmental Manager who shall be responsible for carrying out monitoring on daily basis and overseeing compliance with environmental and social mitigation measures. The Contractor's Environmental Manager will be assisted by EHSO and Social/Gender Specialist.

The Contractor's Environmental Manager shall submit a Monthly Environmental, Social, Health, and Safety (ESH&S) Compliance report to the Supervision Engineer specifying that:

- All previously notified failures to comply with the mitigation measures have been rectified.
- All newly notified requirements have been fulfilled and all standard requirements (as specified in this report) have been put into effect.

The Supervising Engineer shall countersign the report and make it available to the Developer. Developer in turn should pass a copy to KDC within a reasonable period not exceeding 30 days from receipt.

9.2 Monitoring Methods

The purpose of monitoring is to ensure that the Contractor implements the outlined mitigation measures in the ESMP. Therefore, monitoring methods will be based mainly on visual inspection and will be carried out by the Supervision Consultant's Environmental Specialist and Social/Gender Specialists in collaboration with Contractor's Environmental Manager assisted by Environmental, Health and Safety Officer (EHSO) and Social/Gender Specialist on daily basis.

To verify environmental effects predictions, and to evaluate the effectiveness of mitigation measures committed during the ESMP preparation, it is necessary to collect baseline data before the commencement of the construction works that may result in changes to the environment. The purpose of baseline data collection is to update the baseline information and establish the existing conditions at the construction site.

Establishing baseline conditions allows for a comparison with conditions before and after construction works to determine the extent of any project-related environmental effects, the need for additional mitigation measures, and/or to confirm the effectiveness of mitigation measures that have been or are being implemented.

In case any environmentally and socially sensitive issues have been identified during baseline monitoring and not covered during the ESMP preparation, adaptive measures and additional monitoring or mitigation will be developed and implemented as may be necessary.

9.3 Environmental and Social Monitoring Costs

The cost of environmental and social monitoring will be included in the cost of Construction Supervision. The Supervision Consultant will be responsible for the cost of environmental and social monitoring. These costs include payment of professional fees for Environmental Specialist and Social/Gender Specialist. However, these costs will be included in the overall costs of commissioning the Supervision Consultant.

Table 9.3-1: Monitoring Schedule

Impacts/Parameters		Monitoring Frequency	Sampling Areas	Measurement Unit	Methods	Targeted Level/Standard[13]	Responsible for Monitoring	Annual Costs Estimates
Pre-Construction Phase								
Employment opportunity	Percent of local construction labor	Once in a project period	Construction Site	Number of local people employed in the project area	Record inquiries and observations	-	Proponent	3,000,000.00
Air quality	SO_2	Once in a project period	Construction Site	mg/kg (hourly)	Detector tubes	0.1	Proponent	500,000.00
	NO_X		Construction Site	µg/nm3 (24 hrs)	Detector tubes	150		
	TSP and PM_{10}		Construction Site	µg/nm3 hourly)	Mini-Vol Sampler	0.10		
	CO		Construction Site	ppm (1hr)	Detector tubes	250		
Noise Baseline	Noise level	Once in a project period	Construction Site	dBA	Measurements	45	Proponent	500,000.00
Water pollution	Nitrate	Once in a project period	Construction Site	mg/L	Sampling and Analysis (Spectrophotometer)	30	Proponent	600,000.00
	Lead			Mg/L	Sampling and Analysis (AAS)	0.05		
	Sulphate			mg/L	Sampling and Analysis (Spectrophotometer)	600*		
	Turbidity			NTU	Sampling and Analysis (Spectrophotometer)	35		
	Hydrocarbons			Mg/L	Sampling and Analysis (HPLC)	20		
	pH			-	pH meter	6.5-9.2		
Construction Phase								
Air	SO_2	Once in every	Construction	mg/kg (hourly)	Detector tubes	0.1	Proponent	1,500,000.00

[13] The provided standard is all the Tanzania Standard

Impacts/Parameters		Monitoring Frequency	Sampling Areas	Measurement Unit	Methods	Targeted Level/Standard[13]	Responsible for Monitoring	Annual Costs Estimates
quality		three months	Site					
	NO_X		Construction Site	µg/nm3 (24 hrs)	Detector tubes	150		
	TSP and PM_{10}		Construction Site	µg/nm3 hourly)	Mini-Vol Sampler	0.10		
	CO_2		Construction Site	ppm (1hr)	Detector tubes	250		
Noise pollution	Noise level	Once in every three months	Construction Site	dBA	Measurements	45	Proponent	1,500,000.00
Water pollution	Nitrate	Once in every three months	Construction Site	mg/l	Sampling and Analysis (Spectrophotometer)	30	Proponent	1,800,000.00
	Trace metals			mg/l	Sampling and Analysis (AAS)	0.05		
	Sulphate			mg/l	Sampling and Analysis (Spectrophotometer)	600*		
	Turbidity			NTU	Sampling and Analysis (Spectrophotometer)	35		
	Hydrocarbons			Mg/l	Sampling and Analysis (HPLC)	20		
	pH			-	pH meter	6.5-9.2		
Vibration	Vibration levels	Once in every three months	Along the Mtaa roads	Number	Vibration meter	-	Proponent	1,500,000.00
Waste Management	Solid and Liquid waste	Once a week	Construction Site	Kg for Solid waste, Litres for Liquid waste	Observations and Measurements	-	Proponent	9,000,000.00
Employment opportunity	Percent of local construction labor	Once in every three months	Construction Site	Number of local people employed in the project area	Record inquiries and observations	-	Proponent	6,000,000.00
Occupation health and	Number and	Daily	Construction Site	Number of Safety	Records, injuries And inspection	Zero tolerance	Proponent	12,000,000.00

Impacts/Parameters		Monitoring Frequency	Sampling Areas	Measurement Unit	Methods	Targeted Level/Standard[13]	Responsible for Monitoring	Annual Costs Estimates
safety risk	type of safety Gears			measures provided		and Sufficient No. of signages		
Dust	Water sprinkling	Every working Day	Along the Mtaa roads and Construction Site	Frequency of water sprinkling	Inquiries and Observations	Minimum Dust	Proponent	1,200,000.00
Soil erosion	Unattached soil or soil exposed to moving water	Daily	Along the Mtaa roads	Level of erosions	-	No cases resulting soil erosion during construction	Proponent	1,200,000.00
Construction Accidents	Victims	Daily	Construction Site	Counting	-	workers and public	Proponent	5,000,000.00
Operation Phase								
Air quality	SO_2	Once in every three months	Industrial area	mg/kg (hourly)	Detector tubes	0.1	Proponent	1,200,000.00
	NO_X		Industrial area	µg/nm3 (24 hrs)	Detector tubes	150		
	TSP and PM_{10}		Industrial area	µg/nm3 hourly)	Mini-Vol Sampler	0.10		
	CO_2		Industrial area	ppm (1hr)	Detector tubes	250		
Noise pollution	Noise level	Once in every three months	Industrial area	dBA	Measurements	45	Proponent	1,200,000.00
Water pollution	Nitrate	Once in every three months	Industrial area	mg/l	Sampling and Analysis (Spectrophotometer)	30	Proponent	1,800,000.00
	Trace metals			mg/l	Sampling and Analysis (AAS)	0.05		
	Sulphate			mg/l	Sampling and Analysis	600*		
	Turbidity			NTU		35		

Impacts/Parameters		Monitoring Frequency	Sampling Areas	Measurement Unit	Methods	Targeted Level/Standard[13]	Responsible for Monitoring	Annual Costs Estimates
					(Spectrophotometer) Sampling and Analysis (Spectrophotometer)			
	Hydrocarbons			Mg/l	Sampling and Analysis (HPLC)	20		
	pH			-	pH meter	6.5-9.2		
Waste Management	Solid and Liquid waste	Once a week	Industrial area	Kg for Solid waste, Litres for Liquid waste	Observations and Measurements	-	Proponent	6,000,000.00
Employment opportunity	Percent of local labor	Once in every three months	Industrial area	Number of local people employed in the project area	Record inquiries and observations	-	Proponent	12,000,000.00
Occupation health and safety risk	Number PPEs	Daily	Industrial area	Number of Safety measures provided	Records, injuries And inspection	Zero tolerance and Sufficient No. of signages	Proponent	15,000,000.00
Dust	Water sprinkling	Every working Day	Along the Mtaa road	Frequency of water sprinkling	Inquiries and Observations	Minimum Dust	Proponent	1,200,000.00
Total Cost								**82,010,000**

CHAPTER 10: RESOURCE EVALUATION OR COST BENEFIT ANALYSIS

10.1 Project Costs and Benefits

10.1.1 Project Costs

The project cost has been estimated to be TZS 10,000,000,000.00. This cost excludes the costs of operation and maintenance.

10.1.2 Project Benefits

The project is expected to have both short-term and long-term environmental and socio-economic benefits to the local community, KDC, Pwani Region and the nation as whole.

10.1.2.1 Short-term Benefits

The short-term socio-economic benefits include creation of temporary employment and increased income generation opportunities to the local people and local industries through selling building materials, provision of capacity building for local staffs during the works. It is expected that during construction employment priority will be given to the local people.

However, during construction some local people, especially women will get opportunity to increase their income by selling food items to the workers. This benefit will be enhanced by providing access to water supply and sanitary facilities to enable them sell their food in clean and hygienic environment, hence preventing transmission of hygiene related diseases like cholera and diarrhea to the construction workers.

10.1.2.2 Long-term Benefits

The long-term environmental and socio-economic benefits will be realized from construction and operation of the proposed Industry. The long-term environmental and socio-economic benefits include:

- Increased productivity and stimulation of economic growth.
- Employment creation and economic improvement of households.
- Increased Revenue Collection by Local and Central Government.
- Increase of MPL products and hence reduce importation.
- Reduction the price of MPL in local market since travelling time will be reduced.
- Capacity building for local staffs during operation.
- Increase scenic of the project area.
- Increase competition of the related product to the market.

The environmental and socio-economic benefits accrued form the project is very significant although some of them cannot be easily quantified in financial terms.

10.2 Environmental Costs

10.2.1 Direct Environmental Costs

The cost of environmental mitigation measures as shown in **Table 8.4-1** is considered to be the direct environmental cost to be incurred by the project. The cost of environmental mitigation measures is considered to be the environmental cost to be incurred due to implementation of mitigation measures for this project which is estimated to be **TZS 291,000,000.00**.

10.2.2 Indirect Environmental Cost

The indirect environmental cost as shown in **Table 10.2-2** includes the cost of Cost of Project Registration to NEMC; Cost of undertaking ESIA Study; Review of ESIA Report by NEMC; Engagement of Environmental Monitoring Consultant. This makes the estimated indirect environmental cost to be **TZS 92,210,000.00**.

Table 10.2-2: Indirect Environmental Cost Estimates

Costed Items	Cost Estimates (in TZS)
(a) Cost of Project Registration to NEMC	200,000.00
(b) Review of ESIA Report by NEMC	10,000,000.00
(c) Cost of conducting Environmental Monitoring	82,010,000.00
Total Amount	**92,210,000.00**

10.3 Determination of Benefit/Cost Ratio

The resource evaluation or cost benefits analysis focuses on comparing the project costs and environmental costs. The environmental costs include direct and indirect environmental costs, which makes the total environmental cost for this project to be TZS 383,210,000.00 (sum of 291,000,000.00 + 92,210,000.00) and the total project costs to be TZS 10,383,210,000.00, after including the direct and indirect environmental costs.

When environmental cost compared with total project costs (TZS 10,383,210,000.00), the overall environmental cost is about 3.4 % of the total project costs. It can be concluded that the environmental costs are significantly small and can be tolerated for this project.

Although the benefits accrued from the project cannot be easily quantified in financial terms it can be concluded that the benefits will be high than the implementation costs and operation costs. For example, the cost incurred will be short-term during construction and some cost during operation but existence of the buildings and production works will last about 20 years before major rehabilitations.

CHAPTER 11: DECOMMISSIONING PLAN

11.1 Implementation of Demobilization Plan

The demobilization and site reclamation process are one of the required project management activities during the project completion or closure of the projects. The demobilization activities will involve removal of all mobilized items and cleaning up of the construction sites. It will include the removal of all temporary ramps, access ways, project signs, temporary fencing, construction debris including crushed stone aggregates, pieces of wood, construction stakes, and other construction-related refuse, and temporary facilities or works. The restoration of surfaces to an equal or better than existing condition shall also be included as part of demobilization. Site reclamation includes reclamation of areas disturbed during construction, other than access and staging areas, to pre-project conditions or better.

In order to ensure that all demobilization and site reclamation works are done in a comprehensive way right from the beginning, it is important to have a demobilization checklist which shows all items that need to be completed during implementation of demobilization plan. The checklist covers the following issues and areas to be considered during implementation demobilization plan:

- Workers Welfare Management
- Camp Sites and Office Facilities; Solid Waste Management; Soil Erosion and
- Sedimentation Control; Groundwater and Dewatering Control.
- Workshops/Garages, Vehicle Washing and Refueling Areas.
- Fuel and Chemical Storage Area
- Sanitary and Wastewater Disposal Facilities.
- Landscape Management and Run-off Control
- Borrow pits/Quarry Sites Rehabilitation.

The demobilization g checklist will be used by Environmental Specialist. For each inspection item, the form has a column for the work completion status (Yes, No or Not Applicable), observation comments made by the inspector for non-compliance works that need to be rectified by the Contractor and the target completion date for completing the non-conformant works. The Environmental Inspector will be taking some photographs during the site inspection for recording purpose. The photographs will be attached to the Environmental Demobilization Checklist and submitted to the Engineer for action.

11.2 Retrenchment of Employees

Three months before completion of the project, the Contractor through Human Resource Officer (HRO) will make sure NSSF contributions for all construction workers have been paid to the NSSF. This will involve posting of the names of all employees on the notice board indicating their Names, NSSF numbers and Monthly NSSF contributions. This is to ensure that that the monthly NSSF deductions have been paid by the Contractor and allow rectification for any identified shortcomings before retrenchment of employees.

11.3 Exit Medical Examination for Employees

The Contractor will carry out an exit medical examination for all employees before retrenchment. This is the requirements of Sub-section 24(2) of the Occupational Health and Safety Act No. 5 of 2003. The legislation requires the Contractor shall carry out an exit medical examination through a qualified occupational health physician. According to Sub-section 24(3), the Contractor shall be responsible for the prescribed fee and all other medical expenses.

11.4 Restoration of Utilities, Drainage Systems and Landscape

During demobilization phase all working areas, offices, workshops/garages and other temporary installations will be cleaned up and the site will be restored. These includes

removal of temporary buildings, surplus materials, pieces of wood, pieces of bricks or any other material that is not in the area before constriction works.

All drainage systems located nearby the project if any, will be desilted to allow storm water flow and damaged areas will be repaired to make them compatible with urban land use and maintain the aesthetic value of the project environment.

The compacted soils in area where the pavement will not be provided will be scarified to at least 15 cm deep to loosen it and facilitate vegetation growth. Damaged trees will be chopped / lopped and crosscut and removed from the construction site. The site will be cleared of equipment, solid wastes, debris and overburden resulting from construction works.

11.5 Restoration of Workshops / Garages and Materials Storage Areas

The workshop and other materials storage areas will be cleaned to remove petroleum products like oils and grease. The petroleum products should be handled in accordance with the provisions given in the Standard Specification for Road Works (2000).

All cements, stockpiled gravels and any other surplus materials will be removed from the Materials storage yard. The useable materials should be taken away and stored in a safe place far from the abandoned site. The spilled materials must be removed and the site must be properly cleaned and restored to its original state.

CHAPTER 12: SUMMARY, CONCLUSION AND RECOMMENDATIONS

12.1 Summary

MOVIT PRODUCTS (TANZANIA) LIMITED aims to establish a business that focusses on Manufacturing of Movit Products. The products to be produced during the operation of the project are the Cosmetics/skin care, SIM Plastic and Aerosol Products. To implement the project MPL will construct the factories for the proposed products within the proposed plot of about 28 acres or 11 HA which leased from Tanzania Investment Centre (TIC). Within the proposed plot the MPL will also construct accommodation buildings, administration block, parking areas, access roads, waste management facilities and other utilities.

The raw material for the proposed three factory will from the project area (water from boreholes), across Africa, Asian, America, and Europe countries as described in the report. The MPL footprint across Africa is in Zambia, Burundi, Rwanda, Kenya, Tanzania, South Sudan, DR Congo, Malawi, Zimbabwe & Uganda. The proposed project site is the Central to the MPL Foot print across Central & Southern Africa and shall serve this market well. The aim of implementing the project in Tanzania is; the location of the site at the coastal City of Dar-es-Salaam is central for serving the Central & southern Africa Market of COMESA; it also eliminates the costly transport of RM from the coast to the existing plant in Uganda and it will also reduce the distance & cost of transporting FG from Uganda to southern Africa.

The project area is accessible via earth road about 12 km from Morogoro road and both MGR and SGR from Dar es salaam station. Currently, the project area is covered with vegetations with no any development within.

Movit Products (Tanzania) Limited is registered under the TIC with certificate of Incentives No. 20222667 in September, 2022. The company has also been registered with Tanzania Revenue Authority (TRA) and issued 153-268-770 as the Taxpayer Identification Number (TIN) in 2021.

The review of relevant policies, legislation and institutional framework indicate the project is compatible and complies with the national development policies, legal requirements and the institutional framework for environmental management is well established at all levels (i.e., national, regional, district, ward, village levels).

The baseline data collection was carried to establish the biophysical and socio-economic characteristics of the project area. The findings indicate that the proposed project is to be built in area that is less polluted because most of the recorded data has not exceeded the national (TBS) and international standards (WHO) as described in tabular forms earlier.

The potential environmental effects of the project have been assessed to meet the requirements of the Environmental Impact Assessment and Audit Regulations and the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations (2018). The assessment of environmental effects/impacts was based on the interaction between the Project Related Activities and Valued Environmental Components (VECs) of relevance and importance to this ESIA study.

The results from the assessment indicate most of the adverse (negative) are of Low Significance and will occur during construction phase and most beneficial (positive) impacts are of High Significance and will occur during operation phase.

Furthermore, the Environmental and Social Management (ESMP) and Environmental Monitoring Plan have been prepared to ensure the implementation of the proposed mitigation measures during construction and operation of the MPL industry. In order to be effective, the ESMP and Monitoring Plan have specified the institutional roles and responsibilities, with cost estimates.

12.2 Conclusion

General, the project has been found to have both short-term and long-term environmental and socio-economic benefits to the local community, proponent, KDC and the Nation. The short-term socio-economic benefits include creation of temporary employment and increased income generation opportunities to the local people. It is expected that during construction some local people, especially women will get an opportunity to increase their income by selling food items to the construction workers. However, the local people and industries will benefit from selling building materials to the project area.

These benefits will be enhanced by providing clean and safe water supply and sanitary facilities to enable the food vendors sell their food in hygienic environment, hence preventing transmission of hygiene related diseases like cholera to the construction workers. The supplier of building materials should be engaged and their capacity should enhance to supply the required materials for the work.

The long-term socio-economic benefits include increase tax collection from the importation of raw materials worldwide, permanent employment opportunities, house renting for the workers that will not be residing within the industrial area, reduction of market price and provide relief to the end users for products to be generated, easily availability of Movit products in the country for the wholesalers, reduced travelling distance for the SADC countries, and increase scenic of the flanking environment. Reduced travelling distance for the raw materials, instead of the travelling from Dar es salaam port to Uganda now will be from the port to Soga via railway line.

Most of the identified negative impacts are short-term with low significance and mainly occur during construction phase, while the study has also identified the long-term impacts that will occurs during operation phase. Moreover, the mitigation measures have been proposed for the identified negative impacts in various phases. The cost estimates for the planned mitigation measures will be incorporated into the Bill of Quantities (BOQ) during preparation of Tender/Bidding Document.

12.3 Recommendations

To ensure the successful implementation and sustainability of the project, the Consultant provides the following recommendations:

- The project should be implemented as plan since the identified impacts are manageable through compliance with developed ESMP & HSMP
- Proponent should ensure engagement of the Health, Safety and Environment (HSE) during construction phase and operation phase,
- Proponent should promote awareness and education campaign to workforces and local people on the issue of safety to minimize the risk of accidents throughout the project duration,
- Proponent should ensure the solid and liquid waste management facilities are provided throughout the project phases,
- Proponent is advised to ensure all the necessary permits related to the project executions are in place before project implementation,
- Proponent should ensure the products has been approved by TBS and other related authorities/agents before start being supplied to the market or consumed,
- Proponent should ensure he encourages the recycling and reuse of the plastics that will be manufactured are utilized for the Movit products whenever necessary,

- Proponent should ensure monitoring of the ESMP implementation is executed quarterly during both construction and operation phase as indicated in this report,
- The proponent should comply with the TZS 860 standard for the wastewater treatment and effluent from the industry, however, the proponent is advised to reuse the treated wastewater since there is no any discharge area nearby the project area.
- Emission of Noxious and fumes must be controlled so as to conform TZS 845 Air quality standards.
- Plant drawings i.e., Architectural and fire protection should be submitted to the Fire and Rescue Force prior the project execution,
- Design and provision of the fire protection systems should be done by the register and licensed fire expert,
- Private water hydrant should be incorporated into the design the design of water mains (water supply and reserve tanks),
- Installation and testing of the fire protection system should be done by the registered and licensed fire expert in consultation with Fire and Rescue Force,
- A detailed plant fire safety inspection shall be performed in annual basis,
- Proponent should ensure that all the proposed mitigation measures are well implemented during various phases of the project.

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APPENDICES

APPENDIX I: EVIDENCE FOR THE APPROVED TOR FROM NEMC

THE UNITED REPUBLIC OF TANZANIA

VICE PRESIDENT'S OFFICE

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL
(NEMC)

In reply please quote:
Ref: HA.145/205/144/02

Date: 12/08/2024

Movit Product Tanzania Limited
P.O Box 11858
Dar es Salaam

RE: APPROVAL OF SCOPING REPORT AND TERMS OF REFERENCES (TORs) FOR THE PROPOSED ESTABLISHMENT OF COSMETICS MANUFACTURING PLANT AND DISTRIBUTION HUB AT BLOCK J, PLOT NO. 9, 10, AND 11, SOGA VILLAGE, SOGA WARD IN KIBAHA DISTRICT, PWANI REGION

Reference is made to the above heading.

2. The National Enviroment Management Council (NEMC) acknowledges receipt of submitted Scoping report and ToRs for undertaking Environmental and Social Impact Assessment (ESIA) of the above-stated project.

3. After a thorough review of the submitted documents, the Council determine that the ToRs are generally adequate and thus can guide the ESIA study for the proposed project, thus they are approved. Therefore, you are required to proceed with EIA study, prepare the ESIA report as required by Environment Impact Assessment and Audit Regulations, 2005 as amended in 2018 and submit the report to the Council.

4. Please, take a note that ESIA study should be carried out by team of Experts whose professions are directly related to the nature of the project.

5. The EIS should encompass the following informations among others:-

i) Content and structure of EIA report should adhere with Regulation 18 (1) and (2) of Environment Impact Assessment and Audit Regulations, 2005 as amended in 2018;

ii) The report should have the following attachments:
   a) Legal Land ownership document with compatible land use;
   b) Detailed, approved engineering designs and architectural drawings;
   c) Site layout plan that clearly identifies arrangement of all project components;
   d) Other legal, permits and certificate regarding the project;

iii) Provide description pertaining to Site location, accessibility and adjacent development (existing and proposed) project area, along with an assessment of the physical area that may be impacted by the project activities.

Eastern Zone North, 35 Regent Street, P.O Box 63154, 11404 Dar es Salaam, Phone: +255 22 2774852;
+255 22 2774889: +255 0713 608930/0735 608930 Fax: +255 22 2774901
Email Address: dg@nemc.or.tz Website: www.nemc.or.tz

iv) A comprehensive account of all activities to be undertaken in all project phases such as pre-mobilization, mobilization, construction, operation and decommissioning phases.

v) A quantified estimate of material and sources that will be used to the proposed project during construction phase and their source.

vi) Detailed information of all types of wastes and their estimated quantities (solid, liquid, hazardous and e-waste) that will be generated in all project phases and its detailed comprehensive waste management plan;

vii) Information on storm water management at the proposed project site during all project phases;

viii) Provide the specific and most current baseline data on the physical, biological, socio-economic and cultural environment. Also provide data of various parameters such as ambient Air quality, Noise level, water quality and Geotechnical survey data at the project site;

ix) All applicable legal and Policy Framework and their respective requirements relating to the project are addressed in the ESIA report;

x) All Safety Management aspects (Fire Safety and Occupational Health and Safety) encompassing various practices, procedures and protocols aimed at ensuring the safety and well-being of individuals in workplace or other settings;

xi) The potential environmental impacts of the project and the mitigation measures to be taken during and after implementation of the project;

xii) A Comprehensive consultation with all stakeholders, including but not limited Soga Mtaa, Soga Ward, Kibaha District in Pwani region, OSHA, TBS, GCLA, and other institutions;

xiii) Subsequently, the views and concerns of the consulted stakeholders should be well addressed and incorporated into the final report. The names and signatures of all consulted stakeholders should be appended to the ESIA report. Submission that does not observe this note will be subjected for rework;

xiv) Specific and Most Current Baseline data regarding the physical, biological, socio-economic, and cultural environment as well as on various parameters such as air quality, soil quality, and surface and groundwater quality within the project area;

xv) A list of experts who conducted the ESIA study, with their original signatures (not scanned or forged), and clear indication of wheatear they are registered or non-registered environmental experts. Failure to observe this will constitute to an offence as per EMA Cap 191 of 2004.

4. Upon the completion of EIA study, you will be required to submit to the Council eight (8) hard copies of the EIA reports for the review. Prior to review, the representative of the Council will visit a project site and surrounding environment to verify adequacy of the EIA report as per EMA Cap 191 of 2004 on section 87. (2). Thereafter, Council will arrange for a technical review of the document by the Technical Advisory Committee (TAC).

5. During Technical Advisory Committee (TAC) meeting, the leading environmental experts and proponent should attend the meeting, in case of emergency the representatives of the two parties must have a clear understanding of the project and have a recommendation letter from their representative.

Eastern Zone North, 35 Regent Street, P.O Box 63154, 11404 Dar es Salaam, Phone: +255 22 2774852;
+255 22 2774889; +255 0713 608930/0735 608930 Fax: +255 22 2774901
Email Address: dg@nemc.or.tz Website: www.nemc.or.tz

6. Alongside with the submission of the ESIA reports, you are required to remit the review costs generated by the system. Please, note that the review costs do not cover transportation expenses for Council Officers during the site verification visit, therefore with that regard it should be organized by the developer as per EMA Cap 191 of 2004 on section 88 (1)

7. Should you require any clarifications, please do not hesitate to contact us at Telephone No. **+225710285832.**

8. We are looking forward for your continued cooperation.

Glory J. Kombe
For: DIRECTOR GENERAL

Eastern Zone North, 35 Regent Street, P.O Box 63154, 11404 Dar es Salaam, Phone: +255 22 2774852;
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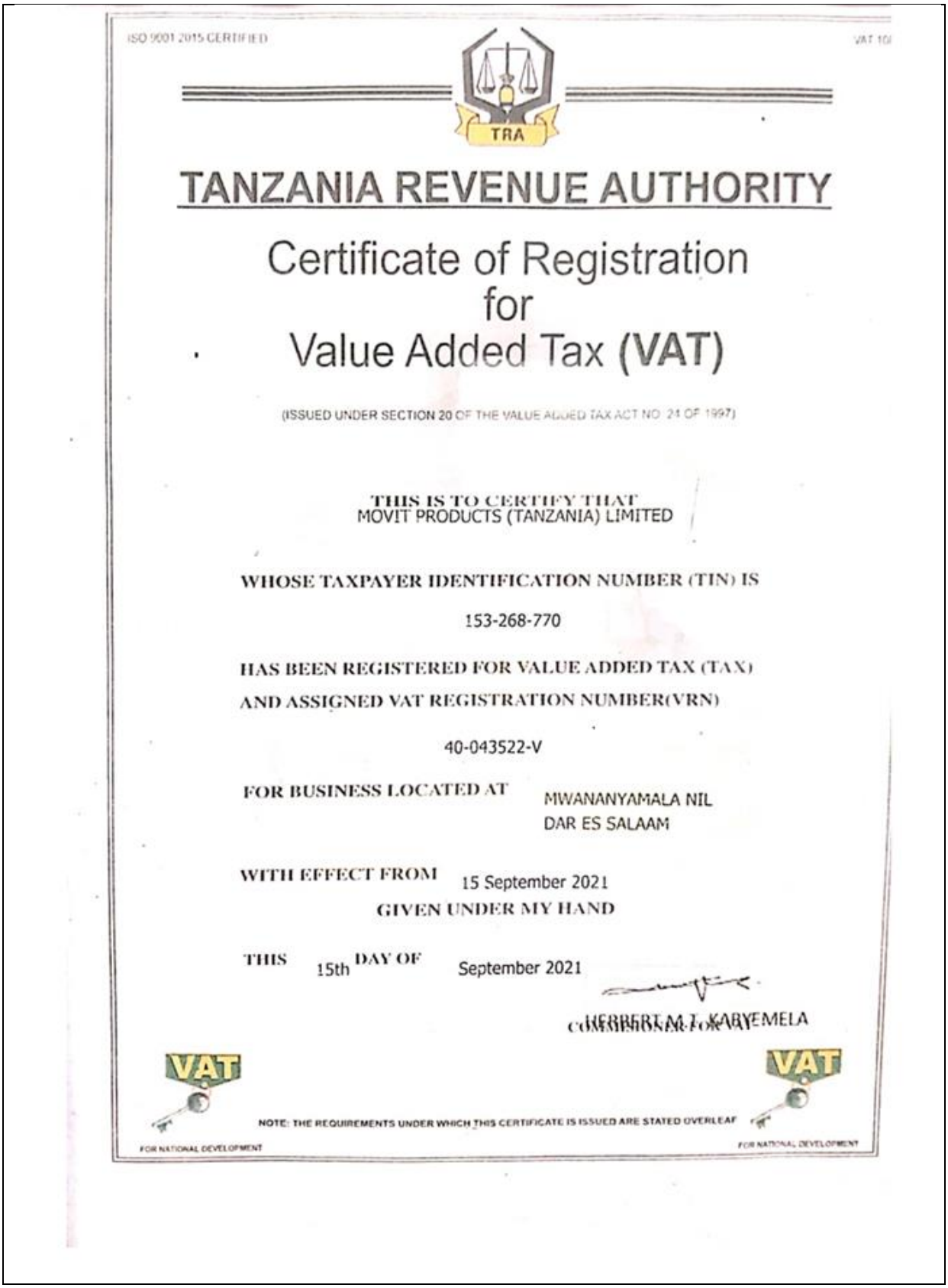
Email Address: dg@nemc.or.tz Website: www.nemc.or.tz

APPENDIX II: TIN CERTIFICATE



ISO 9001:2015 CERTIFIED

VAT 10

TRA

TANZANIA REVENUE AUTHORITY

Certificate of Registration for Value Added Tax (VAT)

(ISSUED UNDER SECTION 20 OF THE VALUE ADDED TAX ACT NO. 24 OF 1997)

THIS IS TO CERTIFY THAT
MOVIT PRODUCTS (TANZANIA) LIMITED

WHOSE TAXPAYER IDENTIFICATION NUMBER (TIN) IS

153-268-770

HAS BEEN REGISTERED FOR VALUE ADDED TAX (TAX)

AND ASSIGNED VAT REGISTRATION NUMBER(VRN)

40-043522-V

FOR BUSINESS LOCATED AT MWANANYAMALA NIL
DAR ES SALAAM

WITH EFFECT FROM 15 September 2021

GIVEN UNDER MY HAND

THIS 15th DAY OF September 2021

HERBERT M.T KABYEMELA
COMMISSIONER FOR VAT

VAT

VAT

NOTE: THE REQUIREMENTS UNDER WHICH THIS CERTIFICATE IS ISSUED ARE STATED OVERLEAF

FOR NATIONAL DEVELOPMENT

FOR NATIONAL DEVELOPMENT

APPENDIX II: INCETIVES CERTIFICATE

THE UNITED REPUBLIC OF TANZANIA

02242667

Certificate of Incentives

(Section 17 of the Tanzania Investment Act, 1997)

No: 20222667

This is to certify that

MOVIT PRODUCTS (TANZANIA) LIMITED

of address **P.O.BOX 11858**

DAR-ES-SALAAM

has been granted a Certificate of Incentives to invest in a new investment project. This Certificate replaces the previous No. 20222667 issued on 03/02/2022 due to the amendment of project Location

PROJECT NAME - COSMETICS MANUFACTURING PLANT AND DISTRIBUTION HUB

Which is located at **PLOT NO. 9, 10 & 11 SOGA AREA**

KIBAHA-PWANI

Further particulars required by Section 17 of the Tanzania Investment Act are set out overleaf

Ag. Executive Director

Tanzania Investment Centre
P.O.Box 938 , Dar-es-salaam

Dated: **6 September, 2022**

APPENDIX IV: LIST OF THE CONSULTED STAKEHOLDERS

- **At Institution Level**

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF COSMETICS MANUFACTURING PLANT AND DISTRIBUTION HUB TO BE BUILT AT BLOCK J, PLOT NO. 9, 10 & 11 SOGA VILLAGE, SOGA WARD IN KIBAHA TOWN COUNCIL, PWANI REGION.

STAKEHOLDER`S CONSULTATION FORM AT INSTITUTION LEVEL.

S/NO	NAME OF STAKEHOLDER	DESIGNATION	ORGANISATION	CONTACT	DATE	SIGNATURE
1.	PHILIPO MAKORO	SD.	TBS	0764133225	09/01/2024	
2.	ALOYCE O. SENIONO	OHI	OSHA	0715 300985	09/01/2024	
3.	EMANUEL LEVANGA	ZILS	GCLA	0737878024	09/01/2024	
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15.						

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF COSMETICS MANUFACTURING PLANT AND DISTRIBUTION HUB AT BLOCK J, PLOT NO. 9, 10 & 11, SOGA VILLAGE, SOGA WARD IN KIBAHA DISTRICT COUNCIL, PWANI REGION.

STAKEHOLDER`S CONSULTATION FORM AT INSTITUTION LEVEL.

S/NO	NAME OF STAKEHOLDER	DESIGNATION	ORGANISATION	DATE	SIGNATURE
1.	MAXIMILIAN E. MTERA	DEMO	KIBAHA DC	05/01/2024	
2.	PETER J. MAREDI	FIRE SAFETY CONSULTANT	FIRE AND RESCUE FORCE	26/08/2024	
3.					

- **At ward Level**

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF COSMETICS MANUFACTURING PLANT AND DISTRIBUTION HUB AT BLOCK J, PLOT NO. 9, 10 & 11, SOGA VILLAGE, SOGA WARD IN KIBAHA DISTRICT COUNCIL, PWANI REGION.

STAKEHOLDER`S CONSULTATION FORM AT LOCAL LEVEL.

S/NO	NAME OF STAKEHOLDER	DESIGNATION	ORGANISATION	DATE	SIGNATURE
1.	ZUBERI S. KAWAMBWA	KAIM W.E.O	SOGA	05/01/2024	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13					
14					
15					

APPENDIX V: MINUTES OF THE STAKEHOLDER MEETING AT JONUNG'HA MTAA

MUHTASARI WA KIKAO CHA DHARURA CHA HALMASHAURI YA KIJIJI CHA SOGA KUJADILI UJENZI WA KIWANDA CHA KUTENGENEZA VIPODOZI CHA MOVIT KILICHOPANYIKA MNAMO TAREHE 05/01/2024.

AGENDA ZA KIKAO.

1. KUFUNGUA KIKAO
2. UTAMBULISHO
3. UJENZI WA KIWANDA CHA KUTENGENEZA VIPODOZI MOVIT
4. KUFUNGA KIKAO.

OFISI MTENDAJI KATA KATA YA SOGA

AGENDA NO 01/01/2024 KUFUNGUA KIKAO.

Mwenyekiti aliwasukuma Ndugu wajumbe waliohudhuria kikao hicho. Pia aliwaambia wane kuu katika kudumisha maoni na uhuru wao. Pia alifungua kikao rasmi mnamo Saa. 11:56 Asubuhi.

AGENDA NO 02/01/2024 UTAMBULISHO.

Mwenyekiti aliwakaribisha wajumbe wa kikao hicho ili waweze kujitambulisha kwa majina na nyadhifa zao za Serikali ya kijiji.

Aidha aliwakaribisha mgeni aliyepo ni Mshauri elekezi kwa upande wa Mazingira kwa niaba ya Mwekezaji. Pia alielezea kusudio lake ni Mchakato wa ujenzi wa kiwanda cha kutengenezea Vipodozi cha Movit. Aidha aliomba ushirikiano wao katika kufanikisha Jambo hilo.

Pia Mshauri aliomba kupunguziwa gharama za kikao kama itzwapendeza na kuwa Tsh 220,000

Mjumbe mwingine alisema kuwa utaratibu wao kama Serikali ya kijiji ni Tsh 300,000. Ugumbe kwa Pamoja walikubaliana na ombi la Mshauri elekezi.

AGENDA NO 03/01/2024 UJENZI WA KIWANDA CHA KUTENGENEZA VIPODOZI CHA MOVIT:

Mwenyekiti alimkaribisha Mshauri Elekezi kueleza na kutoa ufafanuzi zaidi ili kujengana uelewa wa Pamoja.

Afisa alianisha faida na fursa zitakazoneza kupatikana kupitia mwekezaji huyo wa kiwanda.

i/ fursa za ajira kwa vijana.
ii/ Mzunguko wa fedha kuongezeka.
iii/ kuboreshwa kwa miundombinu ya Barabara, Maji na umeme.
iv/ kuongeza kwa Mapato ya halmashauri

Mjumbe mwingine alitaka kujua umiliki wa Eneo lilo la Mwekezaji, ambapo Mshauri elekezi alitoa ufafanuzi kuwa Mwekezaji huyo alilipata kwa kufuata Taratibu za kwa Mamlaka ya Eneo kati ya Mamlaka Tanzania Investment Centre na Halmashauri Common Seal na Hatimiliki zote zipo katika hali nzuri ambapo ilihusisha Eneo la Plot no 9, 10 na 11.

AZIMIO

Wajumbe kwa kauli moja walikubaliana kumpokea mwekezi wa ujenzi wa kiwanda cha kutengeneza Vipodozi wa Movit. Pia walikubaa Mwakilishi wa Mwekezaji kufika kijijini ili kuzungumza na Viongozi kwa lengo la kufahamiana zaidi.

AGENDA NO 04/01/2024 KUFUNGA KIKAO.

Mwenyekiti alishukuru wajumbe kwa Mchango yao Mzuri Uliyofanikisha kikao kizima. Pia alifunga kikao rasmi Majira Saa 07:16 Mchana.

MWENYEKITI
JINA: ~~JADHILI~~ HASANI
SAINI: ~~J~~
TAREHE: 05/01/2024

KATIBU
JINA: HILDA UHAGILE
SAINI: /
TAREHE: 05/01/2024.

AFISA MTE... KATA YA SOGA

MAHUDHURIO YA KIKAO CHA HALMASHAURI YA KIJIJI CHA SOGA KUHUSU KUJADILI MWEKEZAJI NA UTOAJI WA KIWANDA CHA VIPODOZI KILICHOFANYIKA MNAMO TAREHE 05/01/2024.

NA	JINA LA MJUMBE	CHEO	SIMU	SAINI
1.	FADHILI HASANI	M/KITI	0675 454616	
2.	HILDA UHAGILE	KATIBU.	0675 454616	
3.	KASHINDE MAONASE	MJUMBE	0692700534	
4.	ZAINA M MUSA	= 11 =	0719163447	
5.	AMINA P. MWANZI	M/KAMATI	0689-107976	
6.	Rebeca S. Kumwenda	MJUMBE	0656702475	
7.	MARIAM. MFAUME	MJUMBE	0658859173	
8.	HADIJA JUMA R.	MJUMBE	0675, 575178	
9.	TATU A KAHUTA	11	0656317861	
10.	NURU ALLY KAHUNDA	11	0653-194898	
11.	ANNA D. SALEWI	11	0714377449	
12.	Joseph Mawe	mjumbe	0676449 70	
13.	MRISHO M. MSONGOLE	M/KIBOA	0714744622	
14.	FATUMA m. KAZI	MJUMBE	0672626544	
15.	HADIJA R. SALUMU	M/KITONGOJI	0789109640	
16.	SAUDA H. SALUM	MJUMBE	0714483640	
17.				
18	WALIKUWA.			
19	NEEMA JULIUS	ENV.	0767-258876	
20	MAXIMILIAN MTOKA	DEMO	0714-099306	

AFISA MTENDAJI WA KATA YA SOGA

AFISA MTENDAJI KATA YA

APPENDIX VI: LEASEHOLD AGREEMENT

(See overleaf)

5 21 TFN -833

TANZANIA INVESTMENT CENTRE

LEASEHOLD AGREEMENT

(Issued under Section 20 of the Land Act, Cap. 113 [R.E.2002])

Land Form No. 56

TANZANIA INVESTMENT CENTRE

THE LAND ACT
(No. 4 of 1999)

DERIVATIVE RIGHT
(Under Section 20)

C.T. No: 14200 PWN
L.O. No: 1071682
Ref. No. LD/238216

Made and entered into this.....day of 2022

BETWEEN

TANZANIA INVESTMENT CENTRE (TIC)

A body corporate established under The Tanzania Investment Act, 1997 (Act No. 26 of 1997) by order published in the Official Gazette as Government Notice no. 291 of 1997; of P.O Box 938 DAR ES SALAAM (thereinafter referred to as the **"LESSOR")** on the one part

AND

MOVIT PRODUCTS (TANZANIA) LIMITED

of P.O Box **11858 DAR ES SALAAM** and having Certificate of incentives No. **20222667** (hereinafter referred to as the **"LESSEE"**) on the other part.

THIS LEASE WITNESSES as follows:

WHEREAS the Lessor is the holder of a Right of Occupancy registered in the Land Registry at **DAR ES SALAAM** under Title No. 14200 PWN in respect of land within Plot No. **9 Block 'J'** situated at **Soga in Mlandizi Township,** and in the terms thereof is authorized to grant leases, the Lessor hereby demises unto the Lessee the land being more fully described in the schedule hereto for a term of **Ninety eight (98)** years commencing on the **First** day of **July, Two Thousand and Twenty Two** and expiring on the **Thirty** day of **June, Two Thousand One Hundred** and **Twenty** subject to the provisions of the Land Act No. 4 of 1999 and regulations made thereunder and subject to the following conditions:

The Land shall be used for **Heavy Industrial** Purposes only; Use Group **'N'** Use classes **(a)** and **(d)** as defined in the Urban Planning (Use groups and Use Classes) Regulations, **2018.**

PART A: THE LESSEE SHALL:

1. **HAVING** paid in advance Land Rent up to thirtieth day of June **2023;** shall hereafter continue to pay rent **Tshs (4,449,042/=) only (Four Million four hundred forty nine thousand forty two only**) or any other amount as assessed by the Commissioner for Lands or Authorised Officer being annual Land Rent, and 10% thereto being TIC Facilitation Fee, payable on the first day of July in every year of the term.
2. **BE** liable to pay any and all costs arising here from and in particular;
   (i) Any fees or stamp duties which may be discovered to be payable in connection with the lease;
   (ii) An amount or amounts levied by the duly authorized institutions by way of rates or like local property taxes;
   (iii) An amount or amounts equal to any rates or like levy paid by the lessor in respect of the land or improvements thereon;
3. **DEVELOP** the land by establish a project for Manufacturing and distribution of cosmetics **within thirty-six months** from the date of signing of this Derivative Right. To that end, the lessee shall;
   (i) Submit building plans to the **KIBAHA DISTRICT COUNCIL** within six months from the commencement of this lease.
   (ii) Begin construction of building(s) in permanent materials within six months after the approval of the plans.
   (iii) Complete construction within thirty six months from the day of commencement of this lease.
4. **BE RESPONSIBLE** for:
   i. The protection of all beacons on the Land throughout the term of the Lease. Missing beacons will have to be re-established at any time at the Lessee's expenses as assessed by the Director responsible for Surveys and Mapping.
   ii. Preserving the environment and protect and prevent soil erosion on the land: and do all things which may be required by the authorities responsible for environment and to achieve such objective.
   iii. Make and maintain on the land throughout the term adequate arrangements for water supply, drainage and disposal of trade refuse and effluent to the satisfaction of the Authority.
   iv. Make and keep all the buildings on the land rat-proof and carry out such measures as the Medical Officer of Health for the Authority may require for this purpose.
   v. Provide and maintain on the land such ablution facilities and take and maintain such hygienic measures as may be required by the said Medical Officer of Healthy.

vi. Fence the land with good quality fencing, car parking spaces shall be provide as required by the Authority, Loading unloading facilities shall be provided within the boundaries of the land.

5. **NOT** make any disposition to the leased land without prior consent of the lessor. In case of transfer the lessee is required to have developed the land substantially, while regarding mortgage the Lessee should present to the lessor a project evaluation report showing that the level of development on the land is at least 60% of the total investment cost as indicated in the investor's Business Plan.
6. Allow the lessor or any other authorized government officer to get access to the leased land for official duties.
7. **SUBJECT** to the foregoing conditions, enjoy permanent and exclusive rights of the leased land throughout the term of the Lease.
8. **YIELD** up the Lessor the Land and improvement in good order and condition upon determination of the Lease by affliction of tithe me or otherwise.

PART B. THE LESSOR SHALL:

1. **ENSURE** that the Lessee paying rent and other charges hereby reserved in PART "A" Clause (1) hereof and complying with other terms and conditions hereinbefore contained shall peaceably and quietly hold and enjoy the land and improvements during the said term without interruption from the Lessor or any other person claiming under or in trust for the Lessor.
2. **UPON** breach by the Lessee of any of the foregoing terms and conditions re-enter upon the land and improvements theron and forfeit the Lease and immediately thereupon the said term shall absolutely determine and whenever this power of re-entry and forfeiture shall arise the Lessor shall serve upon the Lessee a written notice specifying the nature and extent of the breach and requiring the Lessee to remedy the breach within the time to be specified in the said notice and also the action to be taken by the Lessor if the breach is not remedied within the specified period.

PART C: ARBITRATION

In the event of any dispute arising between the parties hereto in respect hereof either the Lessor or the Lessee may commence arbitration proceedings in conformity with the provision of Section 23 of the Tanzania Investment Act, 1997 or under the provision of the Arbitration Ordinance, Cap 15 of the Laws of Tanzania.

We, the within-named **MOVIT PRODUCTS (TANZANIA) LIMITED** hereby accept the terms and conditions contained in the forgoing Lease Agreement.

SCHEDULE

ALL that Land known as Plot No. **9 Block 'J'** situated at **Soga in Mlandizi Township,** containing **one hundred fourteen thousand seven eight (114078) square metres** shown for identification only edged **black** on the plan attached to this Lease Agreement and defined on the registered Survey Plan Numbered **162160** deposited at the Office responsible for Surveys and Mapping at Dar es Salaam.

SEALED with the **COMMON SEAL** of the said]
TANZANIA INVESTMENT CENTRE]
and **DELIVERED** in the presence of us]
this 7th day of]
November 2022]

Name: John M. Mnali
Signature: *
Postal Address: P. O Box 938 Dsm
Qualification: Ag. Executive Director

Name: ALEXANDER MNYANI
Signature: *
Postal Address: P.O.Box 938 DSM
Qualification: SENIOR LEGAL OFFICER

SEALED with the **COMMON SEAL** of the said]
MOVIT PRODUCTS (TANZANIA) LIMITED]
and **DELIVERED** in the presence of us this 27th]
day of October 2022]

Name: BIRUNGI SIMPSON
Signature:
Postal Address: 1158 DAR ES SALAAM
Qualification: DIRECTOR

Name: KAMYA PETER
Signature:
Postal Address: 1158 DARES SALAAM
Qualification: COMPANY SECRETARY

FILED DOCUMENT No: 222281

REGISTERED ON: 12-12-2022

AT: 02:18 PM.

TANGANYIKA

Senior Asst Registrar of Titles

TANGANYIKA STAMP DUTY ACT.

Stamp Duty Shs: 100/= Paid

On Original Receipt Shs: 9223421244807658.

of: 08-12-2022

Stamp Duty Officer

TANGANYIKA STAMP DUTY ACT.

Stamp Duty Shs: 500/= Paid

Receipt No: 9223424448076 58.

of: 08-12-2022.

Stamp Duty Officer

TITLE 14200 PWN
REGD ON 16/11/22
AT 2:30 P M
Senior Asst. Registrar of Titles

Land Form No. 22

TANGANYIKA STAMP DUTY ACT
Stamp Duty Shs: 227202.11/= Paid
On Original Receipt Shs: 9222631270821 69
of: 20/9/2022
Stamp Duty Officer

THE UNITED REPUBLIC OF TANZANIA

THE LAND ACT, 1999
(NO. 4 OF 1999)

CERTIFICATE OF OCCUPANCY

(Under Section 29)

Title No. 14200 PWN
L. O. No. 1071682.
Ref. No. LD/238216.

The 11th day of November Two thousand and **Twenty Two.**

THIS IS TO CERTIFY that **TANZANIA INVESTMENT CENTER established under Act No. 26 of 1997 of P.O. Box 938, DAR ES SALAAM** (hereinafter called "the Occupier") **is** entitled to the Right of Occupancy (hereinafter called "the Right") in and over the land described in the Schedule hereto (hereinafter called "the Land") for a term of **Ninety nine (99)** years from the first day of **July, Two thousand and Twenty Two** according to the true intent and meaning of the Land Act and subject to the provisions thereof and to any regulations made thereunder and to any enactment in substitution therefor or amendment thereof and to the following special conditions:-

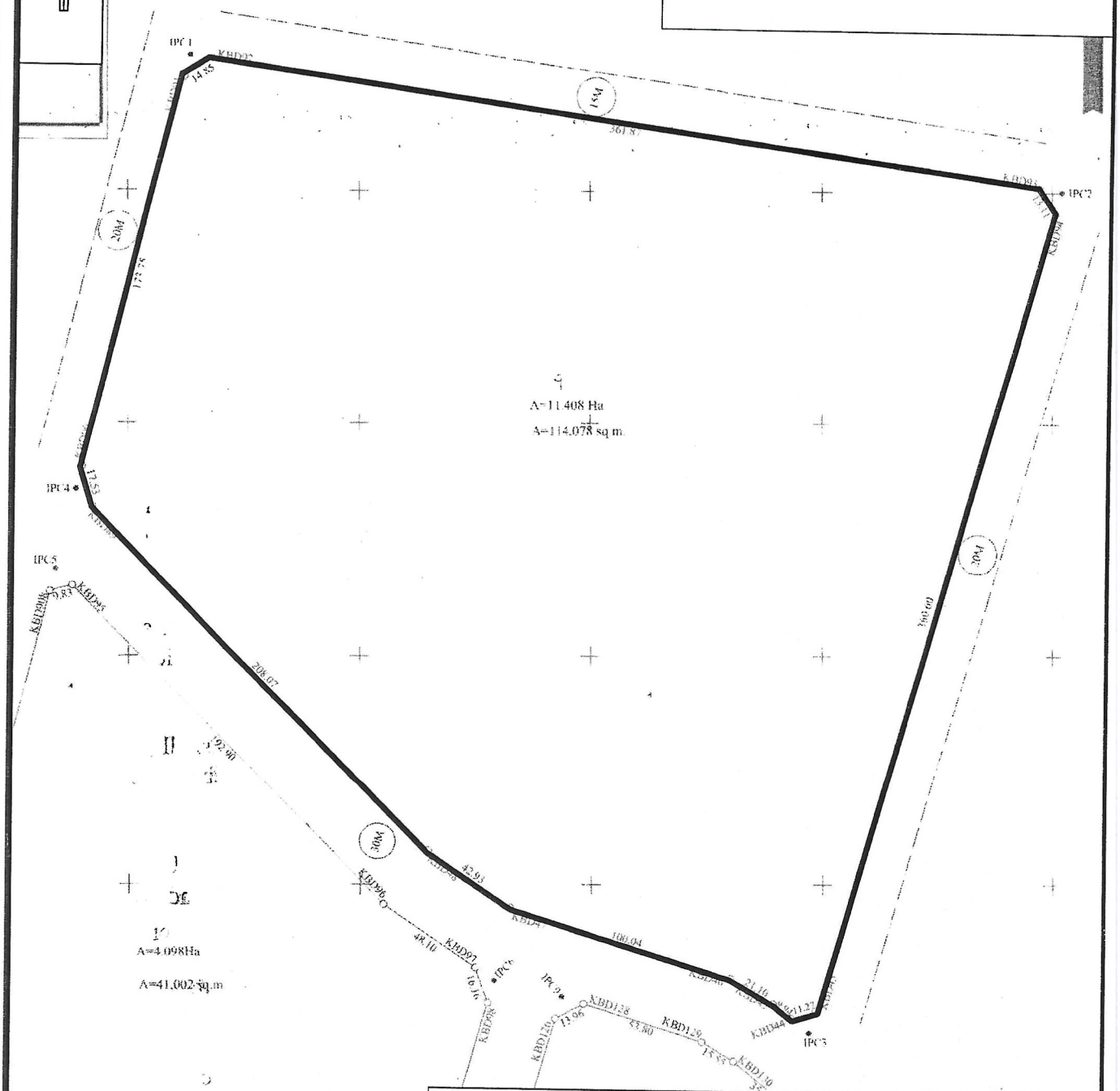
1. The Occupier having paid rent up to the thirtieth day of June, **2023;** shall hereafter pay rent of shillings **Four million four hundred forty nine thousand forty two (Tshs. 4,449,042/=) only** a year in advance on the first day of July in every year of the term without deduction PROVIDED that the rent may be revised by the Commissioner for Lands.

2. The Occupier shall: -

   (i) Be responsible for the protection of all beacons on the land throughout the term of the Right. Missing beacons will have to be re-established at any time at the Occupiers' expenses as assessed by the Director responsible for Surveys and Mapping.

MLANDIZI TOWNSHIP

LOCALITY..... SOGA
BLOCK ..... J
PLOT No..... 9
L.O. No: 107168 2
AREA:..... 114,078 SQM



This plan is prepared in accordance with Registered Plan No.....162160.....

It is approved for purpose of the Land Registration Act 334

For Director of Surveys and Mapping.....Date 15/08/2022

Ministry of Lands. Housing and Human Settlements Development. Dodoma

The issue of this plan implies no gurantee or admission of tittle by the government

SCHEDULE

ALL that Land known as Plot No. **9** Block **'J'** situated at **Soga** in **Mlandizi Township** containing **one hundred fourteen thousand seventy eight (114078) square metres** shown for identification only edged **black** on the plan attached to this Certificate and defined on the registered Survey Plan Numbered **162160** deposited at the Office of the Director for Surveys and Mapping at Dar es Salaam.

Given under my hand and my official seal the day and year first above written.

ASSISTANTCOMMISSIONER FOR LANDS

The within named **TANZANIA INVESTMENT CENTER** hereby accept the terms and conditions contained in the foregoing Certificate of Occupancy.

SEALED with the **COMMON SEAL** of the said **TANZANIA INVESTMENT CENTER** and **DELIVERED** in the presence of us this.....11th.....day of...October....., **2022.**

Name ....John M. Mnali.....

Signature.....

Postal Address....P. O Box 938 Dsm

.....

Qualification....Ag Executive Director

Name ....ALEXANDER MNYANI.....

Signature.....

Postal Address....P. O. Box 938

.....DAR - ES - SALAAM.....

Qualification....SENIOR LEGAL OFFICER.....

LAND REGISTRY DAR - ES - SALAAM

DERIVATIVE RIGHT

First Document No. 222281

Date of Registration 12-12-22 Time 02:18 pm

To MOVIT PRODUCTS (TANZANIA) LIMITED of P.O. BOX 11858, DSM. for a term of 98yrs on the 1st July 2022.

LEASEHOLD TITLE NO: 142007 ISSUED.

Senior Assistant Registrar of Titles

APPENDIX VII: HYDROGEOLOGICAL SURVEY REPORT

(See overleaf)

HYDROGEOLOGICAL & GEOPHYSICAL SURVEY REPORT

FOR

M/S. MOVIT PRODUCT LTD
P.O.BOX 11858
DAR ES SALAAM

AT

SOGA - BOMU

IN

KIBAHA DISTRICT
COAST REGION

INTERPRETED BY:
UPSCALE INNOVATIONS CO. LTD
P. O. BOX 31861
DAR ES SALAAM

AUGUST, 2024

GLOSSARY OF TERMS

Aquifer – A water bearing layer of rock or sediment capable of transmitting significant amount of water.

Discharge - The removal of water (outflow) from the zone of saturation across the water table surface, along with associated flow within the saturated zone toward the water table.

Hydrogeological - Those factors that deal with subsurface waters and related geological aspects of surface waters.

Percolation - Process of water seeping through the unsaturated zone, generally from a surface source to the saturated zone.

Permeability - The capacity of a porous medium for transmitting fluid.

Recharge - General term applied to the passage of water from surface or subsurface sources (e.g. rivers, rainfall, and lateral groundwater flow) to the aquifer zones.

Yield - Volume of water discharged from a well.

1.0. INTRODUCTION

The management of **MOVIT Product Ltd** requested for groundwater investigation at the above-mentioned area following shortage of clean and reliable water source for domestic purposes. Reconnaissance survey and detailed survey investigation was carried out on 23rd August, 2024

The survey conducted in a four routine phases;

i. Site visits to familiarize with the project areas, identify any issues that might hinder the implementation of work etcetera.

ii. To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data for the purpose of improving quality of assessment.

iii. To carryout hydrogeological evaluation and geophysical investigations in the selected sites.

iv. To prepare hydrogeological/geophysical survey report in conformity with the provisions of the rules and procedures outlined by the Ministry of Water and Water basins

1.1. Climate

Because it is close to the equator and the warm Indian Ocean, the Coastal region areas, experiences generally tropical climatic conditions, typified by hot and humid weather throughout much of the year. It has a tropical wet and dry climate. Annual rainfall is approximately 1,100 mm (43 in), and in a normal year there are two rainy seasons: "the long rains" in April and May and "the short rains" in October and November,

The temperatures of area are influenced by its proximity to warm Indian Oceanic currents and the equator. The areas are normally hot throughout the year with average highs of 31oC and lows of 19 oC. These rise in January to March and fade away with onset of rain season and repeats in November to December. Low temperatures are in the months of June to September which are also dry months

1.2. Geology and Hydrogeology

Regionally the area is characterized by unconsolidated sediments i.e. Alluvium and quaternary sand dunes, these sediments find the origin in erosion of rocks; the erosion products are deposited after having transported by streams (alluvial or fluvial deposits) or the sea (marine deposits). The sand and gravel deposits normally have high porosity and permeability.

Therefore, the expected aquifers at the surveyed area would comprise of sand-sandy clay and clayey sand intercalated with limestone interfaces between fresh and saline groundwater are very common in unconsolidated coastal aquifer environments. Depending on the local conditions, such interfaces may be rather sharp or consist of thick transition zones between saline and fresh groundwater (mixing zones).

3.0. METHODOLOGY

3.1. Geological Survey

Geological survey aimed at identifying the visible surface geology of the area and its surroundings, including identification of topography, physical features, soil type, vegetation and drainage etc. Geological survey helps to provide a model of historical development of a particular area with respect to geological time.

3.2: Geophysical Survey

Both profiling and Vertical Electrical Sounding (VES) technique were adopted to investigate the geological and hydrogeological situation of the subsurface formations in the area. The Sounding was performed by using ABEM TERRAMETER SAS 4000 resistivity meter. Measurements were made by using Schlumberger protocol. The VES probed in the studied area at the maximum separation of half current electrode AB/2 set to 180m. Potential electrodes MN/2 were separated according to the Schlumberger protocol at intervals of 0.5m, 2.5m, 5m, 10m and 25m.

3.3. Data Interpretations

The apparent resistivity data of each VES sounding were plotted against respective spacing AB/2 (distance in meters from the center of the sounding to current electrodes) on a double logarithmic paper to get a curve (graph) which was smoothened by free hand drawing. An interpretation to get (hydro-geological model) approximate formation thickness and resistivity values for each VES sounding was done by first selecting interpretable VES sounding curves; then matching field VES curves with standard graphs for resistivity. The results were further refined by computer interpretation method using **IP2 WIN** Software.

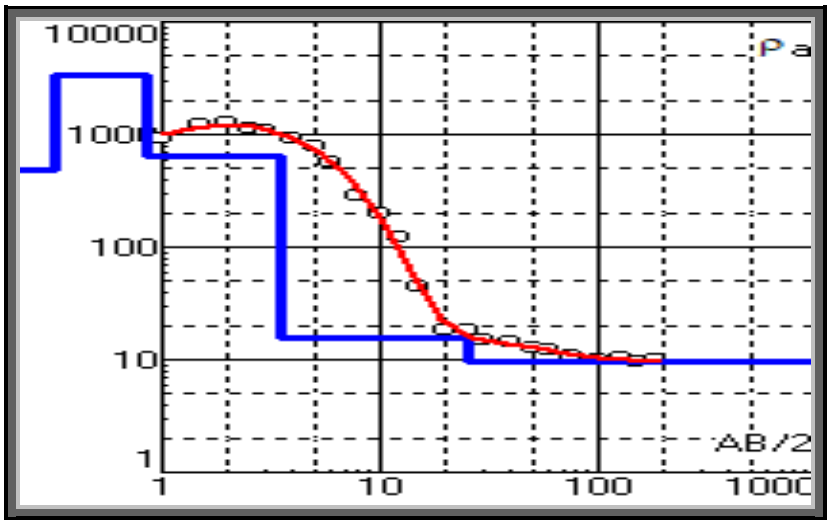


Figure 1: VES 1

Layers	Resistivity (Ohm.m)	Thickness (m)	UTM Coordinates	Remarks
1	1080.77	5.50	0483993 E 9245551 N Alt 183 m, a.s.l	**Drilling to 180m deep, 2nd choice**
2	18.40	20.19		
3	9.96	+++		

N.B: +++ Represent Undeterminable depth.

Layers	Interpreted lithological description
1	Dry sandy stratum.
2	Clayey sandy stratum; Moist
3	Clayey sand/sandy clay intercalated with limestone

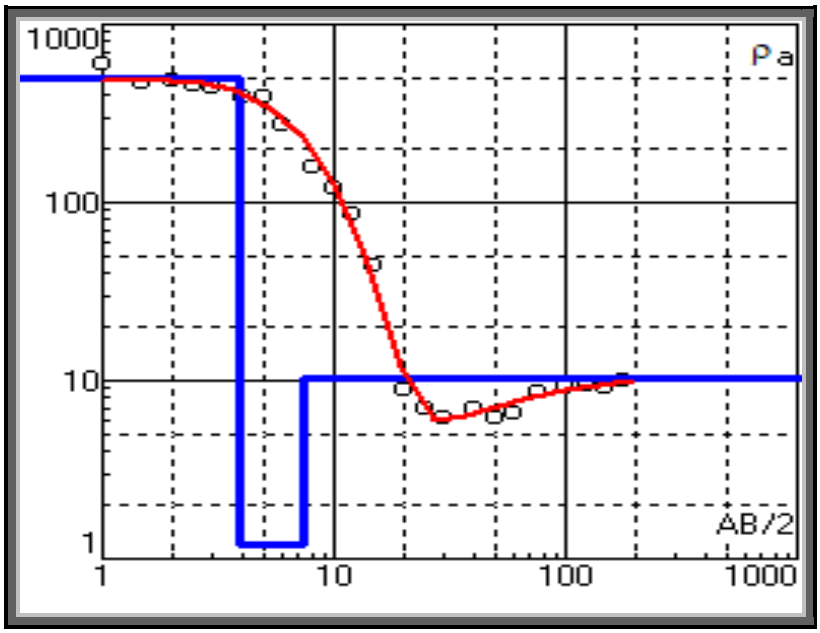


Figure 2: VES 2

Layers	Resistivity (Ohm.m)	Thickness (m)	UTM Coordinates	Remarks
1	500.60	6.05	0483639 E 9245460 N Alt 179 m, a.s.l	**Drilling to 180m deep, 1st choice**
2	6.85	54.11		
3	9.98	+++		

N.B: +++ Represent Undeterminable depth.

Layers	Interpreted lithological description
1	Dry sandy formation.
2	Sandy clay-clayey strata
3	Sandy clay - clayey sand intercalated with limestone

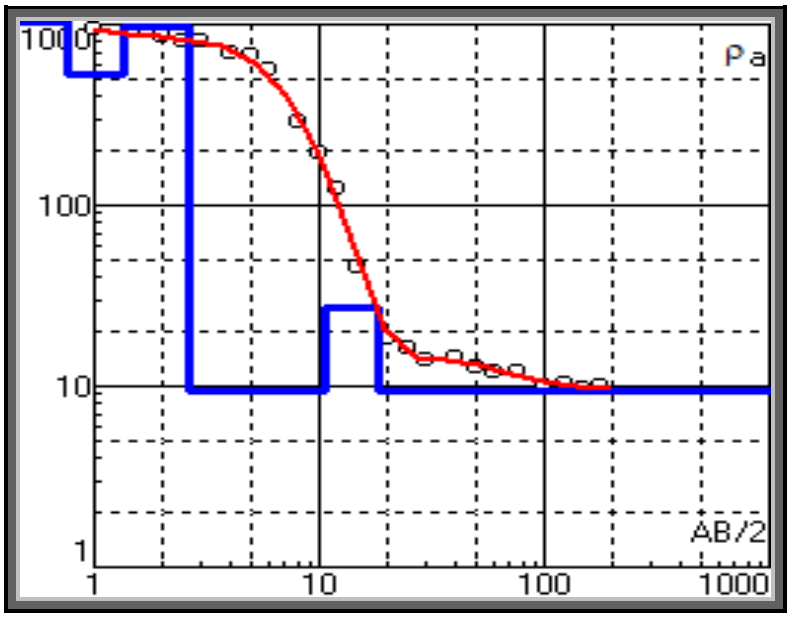


Figure 3: VES 3

Layers	Resistivity (Ohm.m)	Thickness (m)	UTM Coordinates	Remarks
1	985.60	6.03	0483750 E 9245361 N Alt 183 m, a.s.l	**Drilling to 180m deep, 3rd choice**
2	20.85	19.77		
3	9.98	+++		

N.B: +++ Represent Undeterminable depth.

Layers	Interpreted lithological description
1	Dry sandy stratum.
2	Clayey sandy stratum; Moist
3	Clayey sand/sandy clay intercalated with limestone

4.0: CONCLUSION & RECOMMENDATIONS

The result obtained from the hydro geological and geophysical findings indicate that the surveyed area is promising for groundwater exploration and development; water strikes are expected in clayey sand to sandy clay and /or weathered / fractured limestone rocks,

However, the actual water quality and quantity will be assured after drilling and perfuming pumping test, all these undertakings will be designed and supervised by a Hydro-geologist or Hydrogeology Technician from qualitative and professional point of view.

4.1. Recommendations

Table 1: VES recommended for borehole drilling

Location	VES Name	Recommended Drilling Depth [m]	Order of Preference
SOGA-BOMU	VES 1	180	2nd
	VES 2	180	1st
	VES 3	180	3rd

4.2. Drilling Depth, Method and Borehole Diameter

VES 2 is recommended to be drilled down to **180m deep as 1st choice.** Mud rotary Method is recommended to be used. The diameter of the production uPVC pipes (plain and screen) should be 6’ inches diameter.

4.3. Filter Pack Material

The recommended filter pack materials are clean, well rounded quartz gravel of diameter size range from **2mm to 4mm** (strictly); and should be free from impurities (should be thoroughly washed with water before are poured into the annular space between the well wall and the casings).

4.4. Borehole Development and Pumping Test

The productive borehole should then be well developed by airlift pumping, over pumping and finally, **Aquifer test** should be carried out to provide information about the yield and drawdown of the well **(well test)**. Such information is vital for selecting the type of pump.

4.5. Water Quality Analysis

Genially, the survey data in the area shows **slight saline water,** however, after drilling, Water samples should be collected for physical, chemical and bacteriological test analysis so as to check the suitability of the water to its intended uses (i.e. Domestic use). If the results fall short of required standards the raw-water should be adequately treated.

4.6. Drilling Permit from the Basin Office

Before drilling activities commence, the client should apply for "**Drilling Permit" as stipulated under the Water Resources Management (WRM) Act, No. 11 of 2009 Part VII Section 54**. A driller must keep and submit any relevant data on groundwater to the Basin Water Board, as stipulated under the **WRM Act No. 11 of 2009 Part VII section 57.**

APPENDIX VIII: STAMPED ARCHTECTURAL DRAWINGS

(See overleaf)

SITE PLAN

REV.NO	REVISION/ISSUE	DATE	CHECKED

Architect: GRACHIT CONSULT

GRACHIT CONSULT
P O BOX 32759 Dar es Salaam
Tanzania
e-mail: grachitconsult@gmail.com

Itemref		CAD REF.				
Drawn by M.M	Checked by I.T	Drawing Number	Filename	Date June 2024	Scale at A0 As-Shown	

Client: MOVIT PRODUCTS LTD
P.O BOX ..., KAMPALA

Project title: PROPOSED WARE HOUSES AT PLOT ..., BLOCK ..., SOGA, KIBAHA DISTRICT, COAST REGION

Drawing title:

APPENDIX IX: STAMPED STRUCTURAL DRAWINGS

(See overleaf)