

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT

OLIVINE INDUSTRIES LIMITED

ENVIRONMENTAL CONSULTANT



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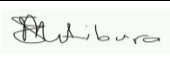


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ACRONYMS

AfDB	African Development Bank
BOD	Biological Oxygen Demand
CIP	Cleaning In Place
EIA	Environmental Impact Assessment
EMA	Environmental Management Agency
ESAP	Environmental and Social Action Plan
ESMP	Environmental and Social Management Plan
ESS	Environment and Sustainability Systems
ETP	Effluent Treatment Plant
EPCOZ	Environmental Professionals Council of Zimbabwe
ESIA	Environmental and Social Impact Assessment
GRI	Global Reporting Initiative
IFC	International Finance Corporation
HSO	Health & Safety Officer
OS	Operational Safeguards
PS	Performance Standards
PPE	Personal Protective Equipment
SHE	Safety Health and Environment
SI	Statutory Instrument
UCA	Urban Councils Act
ZINWA	Zimbabwe National Water Authority

EXECUTIVE SUMMARY

Olivine Industries (Private) Limited is one of the largest consumer goods manufacturing companies in Zimbabwe with its main products being cooking oil, margarine and soaps. The company was established in 1931 and was incorporated in the Wilmar Group in 2017. Olivine Industries is situated 4 km from Harare City Centre. The company intends to expand its operations through purchasing and installation of production equipment that will see its production capacity increasing within its premises.

The proposed project implementation will involve purchasing and installation of machinery for the manufacture of margarine and mayonnaise / tomato ketchup with financial assistance from AfDB and FMO. Three alternatives were considered which included the proposed development, relocation and the no – action alternative. The proposed project alternative was considered since there is no alternative land for the project to be implemented and also there are no such other local products on the market. As such the country was losing a lot of foreign currency on imports of these products which could be used for other critical items not locally manufactured in Zimbabwe.

Baseline studies were conducted which include field reconnaissance, an assessment of olivine's ESMS using the IFC Self-Assessment tool, due diligence study on the supply chain, legal and institutional review, literature review and stakeholder consultations to solicit for more data on the potential positive and negative impacts of the proposed project. The project implementation poses some potential positive and negative environmental and socioeconomic impacts. Potential positive direct impacts identified include employment creation, improved production capacity within olivine and the supply chain where Olivine would get its raw materials. The ripple effect of employment creation within the supply chain is incredible. The potential direct negative impacts posed by the project include occupational accidents, increased water usage, increased solid waste from packaging material and increased wastewater from CIP operations.

A number of Zimbabwean legislations, foremost the Environmental Management Act [CAP 20:27] of 2002 and S.I 7 of 2007 govern the implementation and operation of the project together with AfDB Operational Safeguards and IFC Performance Standards. Best available and affordable mitigation and enhancement measures have been developed for adoption in line with best international standards. The existing EHS System at Olivine Industries will be expanded to cover the new plants and machinery.

Mitigation and enhancement measures based on the assessment conducted have been developed for adoption and packaged into an Environmental and Social Action Plan (ESAP). These included operating within the required permits, reuse of wastewater, employment of locals, and development of environmental and social management systems, capacity building and supply chain management. The proposed budget of the ESMP Implementation is *USD 106 000.00* which represent approximately 0.4% of the investment cost. To this end, Envirotech hereby submits this Updated ESIA Report to the AfDB, FMO and Olivine Industries (Pvt) Ltd since it satisfied the local requirements and was granted an EIA Certificate on the 8th of October 2019.

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1.0 INTRODUCTION

1.1 Purpose of the ESIA

Olivine Industries is an existing company that produces cooking oils such as Olivine and Panol. In addition, it has to produce other products such as margarine, laundry and toilet soaps. The production capacities of the plants have since gone down due to equipment ageing and obsolete technologies being employed.

The proponent, Olivine Industries (Pvt) Ltd, in its quest to ensure production level and quality has embarked in the upgrading of the 2 plants. In this context, and to ensure compliance with the Environmental Management Act [CAP 20:27] of 2002 an environmental and social impact assessment was completed and submitted to the Environmental Management Agency as per the requirements of the Environmental Management Act [CAP 20:27]

In this context, the AfDB and FMO will support Olivine with the purchase of equipment for the ketchup and margarine production to be installed in the upgraded facilities. Olivine commissioned Envirotech to carry out an update of the Environmental and Social Impact Assessment originally prepared to focus on the environmental and social impact issues and comply with the requirements of AfDB and FMO focusing on the scope of the project to be financed by these international institutions.

This update to the Environmental and Social Impact Assessment report, prepared by Envirotech on behalf of Olivine Industries (Private) Limited, provides information on the proposed project to be financed within the new facilities located in Southerton in Harare.

1.2 Project Scope and Justification

The proposed site has an existing infrastructure where production of soaps and margarine is currently being done. The factory is currently under renovations and works are expected to be finalized by end of January 2020. The ESIA developed in August 2018 addresses the associated facility in pre-construction, construction and operation phases. The proposed expansion project that will be financed by AfDB and FMO involve the purchasing and installation of machinery for the production of tomato ketchup and margarine. The existing margarine plant has a maximum production capacity of 2 tonnes per hour. With the machinery to be acquired with the financial support of AfDB and FMO, the production will increase to 8 tonnes per hour. The machinery to be acquired for the margarine includes the processing units and the packaging plant while the tomato ketchup will have production lines for tomato ketchup, tomato sauce, mayonnaise, takatala sauce and mild mustard sauce. The maximum production capacity of the ketchup plant will be 8 tonnes / hour combined for the five products it will produce. Other utility facilities that will be upgraded include the boiler section which will see two 8 tonne boilers being installed and factory renovations financed by local resources of Olivine Industries. It is of importance for AfDB and FMO to give financial support to this project since it will generate employment and also provide the market with the much needed products currently provided for by imports. The project also has a positive impact within the supply chain which boosts production and ultimate socio - economic development.

1.3 Environmental and Social Impacts of the Project

The proposed project will largely result in positive social impacts, with some potential negative impacts. During installation, some negative impacts in the form of waste from installation process, as well as some risks for health and safety are anticipated. However, employment creation will be the major positive direct impact of the installation phase.

During manufacturing processes, the main risks are linked to health and safety issues related to the operation of the machinery, an increase in the demand for raw material, waste from processing procedures, and water intake and 65 m³ per month of wastewater from cleaning in place (CIP) operations. Employees are likely to be injured by the machinery during operation and there are risks associated with electrical fire explosion, electrocution and burns due to machinery heat up. Positive direct impact will include increased production capacity and efficient energy use by the machinery and boilers. Wastewater will be channelled to the existing effluent treatment plant before discharge into the municipal sewer line. Impurities from municipal and borehole water will be removed by the softening plant through reverse osmosis and cation exchange resins with impurities channelled through the effluent treatment plant. Within the supply chain, the project will have indirect positive impacts such as increased sales and production of soy beans, palm oil, sugar and tomatoes.

1.4 Methodology

The assessment which produced this ESIA Report evaluated the potential impacts of the proposed project by use of numerous methods. The baseline information collected was used to analyze the potential impacts of the proposed project. The study team carried out the following; literature review and site reconnaissance in order to generate adequate baseline information and issues of concern which served as a point of reference for analyzing potential impacts and generating an Environmental and Social Management Plan (ESMP). Based on this, the team set out key areas of observation. The field reconnaissance was conducted to collect data on the biophysical environment of the proposed project site and due diligence analysis for the supply chain. Appraisal of secondary data was also used to establish the baseline data of the area and predict the potential impacts. An integrated data collection procedure to acquire information relating to the proposed project had to be employed. The general steps followed during the assessment and collections of data were as follows:

- (i). Environmental scoping that provided the key environmental aspects;
- (ii). Review of secondary data and interviews;
- (iii). Physical assessment of the project site and surrounding areas;
- (iv). Reporting.

Site Assessment: Field visits were meant for physical inspections of the site characteristics and the status quo of the site and its surroundings. This was to enable accurate identification and prediction of

environmental impacts of the project's aspects within its footprint and the supply chain. This included collection of information about the current environmental and social management systems using IFC Self-Assessment Tool and professional judgment. In this particular study, both primary and secondary data collection methods were employed to collect qualitative and quantitative data. This included;

- a)* Conducting survey by use of interviews
- b)* Carrying out field observations, measurements and photography within the project site.
- c)* Review of relevant literature and legal documents

Field Reconnaissance: Field reconnaissance formed an integral part of the study as the experts gathered ground truth information. Visits to the project site in Southerton for field assessment of the existing infrastructure, project process and biophysical environment were done. Various techniques and methodologies were employed to establish the necessary information on site. These included;

Observation: During the visit, a field tour of the general area was undertaken and detailed analysis of the ecological settings of the area using professional judgement was done. The environmental conditions existing in the proposed project area were documented to provide the baseline data. The potential impacts of the proposed project activities were assessed against the documented baseline data. The site reconnaissance focused on observation of the ecological status of the site, hydrology, the existing infrastructure, the soils and the landscape condition as well as other environmental conditions.

A checklist- was also used to confirm literature data of the project site and the facts on the ground. It is mainly a tool for verification purposes.

Literature Review: Literature review pertaining to the project activities and significant features of the project area was done. Literature was obtained from Olivine standard operating procedures, policy documents including for the supply chain and AfDB and FMO documents. This information covers the review of the Environmental Management Act [CAP 20:27] and other related national legislations and international best practices.

Supply Chain Analysis Technique: Key raw materials were identified which would be used by the tomato ketchup and margarine plants. The suppliers were then identified and the Environmental Social Safeguards Management Framework was developed which triggered the use of the Long – term Supplier's Declaration and Assurance Forms during supply chain analysis for local suppliers of tomato paste, soy beans and sugar. Due diligence study was also done for local suppliers and a desktop survey was done for palm oil where 'Wilmar International No Deforestation, Peat and Exploitation Policy' (NDPE) and the Willmar's Aggregator Transformation Program (ART) and The Supplier Reporting Tool (SRT) in cooperation with its palm oil suppliers and NGOs were reviewed in terms of their implementation and operation.

Social Impact Assessment Method: Questionnaires were administered to over 100 participants in the SIA. These included individuals in Greater Harare who were selected at random including farmers who visited the market places in Mbare and Chikwanha Markets to solicit their views on the proposed development. Interviews were also done with government departments and the local authority as required by the Environmental Management Act CAP 20:27 when conducting stakeholder and public consultations in the EIA process where SIA issues are embedded in. Supply chain analysis issues were also integrated in the administration of questionnaires to gather public input. Review of newspaper articles on supply chain analysis of the agricultural sector was also done which fortified the study outcomes.

Impact Assessment Criteria: The assessment of the impacts was conducted according to a synthesis of criteria required by the guidelines in terms of the EIA policy. High impacts are associated with severe consequences within a short term while medium impacts relate to consequences sustained over a long duration exposure. Low impacts imply that the environment can recover from the resulting consequences as soon as the exposure is terminated. Table 1.1 shows how the impacts were assessed. Impact significance was determined using the formula in the table. Impacts with high significance will be prioritised in terms of mitigation initiatives and enhancement measures if they are positive.

Table 1.1: Impact Assessment Criteria

Criteria	Score	Description
Nature of Impact		This is an appraisal of the type of effect the proposed activity would have on the affected environmental component. The description will include what is being affected, and how.
Extent		The physical and spatial size of the impact. This is classified as:
Site	1	The impact would be limited to the project site
Local	2	The impacted area extends only areas surrounding the project site.
Regional	3	The impact could affect the province and beyond
Duration		The lifetime of the impact. This will be measured in the context of the lifetime of the proposed project.
Short term	1	The impact is temporary and will either disappear with mitigation or will be mitigated through natural process in a span shorter than a year.
Medium term	2	The impact will be intermittent or seasonal
Long term	3	The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.
Magnitude of change		The nature of destruction caused by the impact. This is rated as:
Small	1	The impact will be noticed on site only
Medium	2	The impact will be noticed or felt in Harare City
Large	3	The impact is noticed or felt in Harare Province and beyond
Reversibility		This describes the capability of being restored to the former state.
No Change	1	No change noticed at the project site
Reversible	2	The change can be reversed in the short term
Irreversible	3	The change is permanent

Probability		This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:
Low	1	The impact is expected to occur once every year.
Medium	2	The impact is expected to occur more than once a year.
High	3	The impact occurs more than twice a year.
Significance = {Extent*Duration*Magnitude*Reversibility*Probability}		
Significance		Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The classes are rated as follows:
Insignificant	1-62	The impact is not substantial and does not require any mitigatory action since natural environmental processes will restore the environment.
Low	63-122	The impact is of little importance, but may require limited mitigation.
Medium	123-182	The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
High	183 -243	Failure to mitigate the impact with the objective of reducing the impact to acceptable levels could render the entire project proposal unacceptable. Mitigation is therefore essential.

2.0 INSTITUTIONAL, LEGAL AND REGULATORY REQUIREMENTS

2.1 National Legislation

The project falls under prescribed activities enlisted in the first schedule of the Environmental Management Act 20:27 of 2002 and this section outlines pieces of guidelines and legislation regarding environmental management including, planning, installation, operation, water use, safety and health and waste management of a particular project in the environment. There are a number of legislations in Zimbabwe covering the operation and maintenance of the manufacturing company due to the high risks and high costs of any pollution or accident that may occur.

2.2 Environmental Management Act

Section 107 of the Act compels developers to minimise adverse effect of projects on environment. Subsection (1) states that every developer shall take all reasonable measures to prevent or, if prevention is not practicable, to mitigate any undesirable effect on the environment that may arise from the implementation of this project. A developer shall report to the Director-General (EMA) without delay any measures taken in terms of subsection (1), unless the measures have already been described in an environmental impact assessment report.

Part IX: This part of the Act deals with Environmental Quality Standards and pollution control including compliance, noise, discharges of pollutants, penalties for pollution, pollution prevention, pollution permits, waste management and licenses for waste. It also lists the duties of local authorities in relation to pollution. Olivine Industries abides by the provisions of the law as it has a license for hazardous substances (storage and use), and for stack emissions for a coal fired boiler.

2.3 Environmental Management (Effluent and Solid Waste Disposal) Regulations (S.I. 6 of 2007)

The instrument regulates the disposal of effluent into water bodies and drainage systems through permits. It also regulates the management of solid waste. The proponent however, treats the effluent from the boilers, and the factory through an existing effluent treatment plant which is then channeled to the municipal sewer. Wastewater samples are taken by the proponent for internal testing while City of Harare conducts the same.

2.4 Environmental Management (Environmental Impact Assessment & Ecosystems Protection) Regulations (SI 7 of 2007)

According to SI 7 of 2007, section 4 the developer should carry out wide consultations with stakeholders, and the Director General have a right to verify whether full stakeholder participation was undertaken. Section 107 (1) states that every developer shall take all reasonable measures to prevent or if prevention is not practicable to mitigate any undesirable effects on the environment that may arise from the implementation of his project. Olivine Industries has since complied with this SI since it now have the EIA certificate annexed to this report in Appendix B.

2.5 Environmental Management (Atmospheric Pollution Control) Regulations (SI 72 of 2009)

The aspect of air polluting appliances is regulated under the Environmental Management Act (Chapter 20:27), Section 64 and its SI 72, which requires stack emissions from fuel burning appliances to be measured at least once per quarter. Section 2 of SI 72 defines "air-polluting appliance" as an appliance whose emissions cause or are likely to cause pollution of the atmosphere. Section 64 of the Act prohibits owners or operators of a trade or any establishment from emitting a substance or energy which causes or is likely to cause air pollution without an emission license issued by the Board. As such the proponent has an air emission licence to that effect

2.6 The Factories and Works Act (CAP 14:08)

The Factories and Works Act states the specifications for use, storage and production of dangerous substances and stresses on the need for the conditions of such to be approved by inspectors. Boiler inspections are routinely done by NSSA in compliance with the law. There is also an emphasis that the areas where persons are exposed to dangerous gas, fumes or dust be identified as such and clearly defined. It also controls the storage and use of hazardous substances and chemicals. It promotes employee safety and health in the use of machinery during employment. It also governs factories and their use and maintenance. The following regulations shall mainly apply to the operations of the company:

2.7 Factories and Works (General) Regulations – RGN 263

These regulations set standards for permissible noise levels in work places, accident register and reports, stacking of materials, protective clothing, drinking water requirements, first aid, medical fitness, dust and fumes, dangerous substances and processes, goods hoisting and safety, dangerous places, use of explosive powered tools, ladders, cranes, lifting appliances and lifting gears. These regulations are administered by the chief inspector of factories and works on behalf of the Minister of Labor and Social Welfare to promote employee safety and health. All employees are provided with personal protective clothing to ensure their safety at work.

2.8 Factories and Works (Machinery) Regulations – RGN 302 of 1976

The set standards and regulations regarding factory and works RGN 302 on machinery prescribe to general machinery protection, cleaning, repairing, adjusting and oiling of machinery. Applicable regulation to this project is Part II regarding to siting of machinery, clear space around the machine, conditions of floor space around machinery, underground rooms and dangerous places. The regulations also stipulate the clearance space required for machinery. Where persons who cannot speak or read English are employed in the operation of, or in close proximity to, machinery, the user shall be responsible for their proper instruction, using their own language, regarding the dangers associated with the use of such machinery and the hazards which must be avoided to ensure safety in accordance with section 6 of the Zimbabwe National Constitution.

2.9 Factories and Works (Electrical) Regulations – RGN 304 of 1976

RGN 304 of 1976 is an applicable regulation in line with the proposed project implementation and it includes Part I, II and III and subjective sections. Aforementioned regulation Part and respective sections govern electrical machinery including fencing and closure, safety precautions, portable electrical tools and lights. On safety precaution, all electrical machinery, apparatus and conductors to be so installed, worked, maintained and identified as to prevent danger to persons and to be protected in such a manner that no injuries can be caused to any person by inadvertent contact with any portion thereof. Part II section 8 to section 10 addresses standards for maintenance including examination and repairs, temporal earthing and isolation. The act also governs installation of transformer(s), switch-rooms and houses and prerequisite that all cable ducts in transformer and switch houses to be covered with suitable non-slip material.

2.10 Public Health Act (CAP 15:09)

This is the law which governs public health protection. The Act regulates the general health of all potential clients, staff members and society at large. It prohibits activities which can pose a threat to public health. The project will adhere to the requirements of the Public Health Act. All visitors are provided with personal protective clothing to minimize safety and health risks which may be attributed the company's operations in compliance with the law.

2.11 Pneumoconiosis Act [CAP 15:08] of 2002

The Pneumoconiosis Act provides for the control and administration of persons employed in dusty occupations; and to provide for matters incidental to or connected with the foregoing. According to the act, there are health related benefits which are granted to workers suffering with pneumoconiosis. Health certificates have been issued to workers with their respective certificate type after fitness examinations were conducted.

2.12 National Social Security Authority (Accident Prevention and Workers' Compensation Scheme) Notice, 1990.

According to the Act, accident means an unlooked-for mishap or untoward event arising out of and in the course of a worker's employment, which was not expected or designed by the worker and which results in injury to him. The Act serves to provide workers with compensation in respect of injury arising from their employment as specified and for the promotion of occupational health and safety at every organisation. The Act measures compliance of employers with any legislation relating to work safety and accident prevention, including the Factories and Works Act [*Chapter 14:08*] and the Pneumoconiosis Act [*Chapter 15:08*]. Olivine is registered with NSSA and makes contributions to WCIF and NPS.

2.13 Civil Protection Act (CAP 10:06) of 2001

This act was set to establish a civil protection organization and provide for the operation of civil protection services in times of disaster and to provide for matters connected with or incidental to the foregoing. The proponent will have to ensure that the nearby communities are protected from any disaster associated with

its operation. As such the proponent will take all reasonable measure according to the governing laws chief among them undertaking a comprehensive Environmental and Social Impact Assessment.

2.14 Water Act (CAP 20:24) of 2000

The Act is administered by the Zimbabwe National Water Authority (ZINWA). Part IV of this Act is concerned with the control of water pollution and the protection of the environment. The discharge of effluents or waste into any body is regulated by permits which are issued with conditions in accordance with prescribed standards for which fees and fines will be payable. In Sections 67 to 71 of the Act, provision is made for ensuring that water resources management is consistent with the broader national environmental approaches. The discharges by this project are not direct into a natural water body as it is channelled into the municipal sewer system after prior onsite treatment.

2.15 Voluntary International Environmental Policies and Conventions

These are voluntary international best practices which the proponent can adopt in the implementation of the proposed project but however most of their provisions are addressed in the Zimbabwean pieces of legislation. Zimbabwe is a signatory of many international environmental agreements, treaties, and conventions. EMA and Ministry of Environment, Tourism, and Hospitality Industry (METHI) play important roles as the focal points for these agreements. Zimbabwe has signed the Ramsar Convention on Wetlands, Convention on Biodiversity, United Nations Framework Convention on Climate Change and Kyoto Protocol which Olivine will seek to adhere to in terms of its operations and externalities.

2.15.1 AfDB Integrated Safeguards System and FMO IFC Policies

The project falls under Category 2 of the AfDB ISS system. Category 2 projects are defined as Bank operations likely to cause less adverse environmental and social impacts than category 1. As such the proposed project is likely to have site – specific negative impacts which can be controlled by applying appropriate management and mitigation measures and incorporating recognized design criteria and standards. There are Operational Safeguards (OS) required to be observed by the parties intending to make use of AfDB finance sources.

These standards are as shown in Table 2.1:

Table 2.1: AfDB Operational Safeguards

<i>OS 1: Environmental and Social Assessment</i>	This OS is triggered through the mandatory Environmental and Social Screening Process through which the project is assigned a Category based upon its potential environmental and social risks and impacts in its area of influence. These potential risks and impacts include physical, biological, socio-economic, health, safety, cultural property, trans-boundary impacts and global impacts including Greenhouse Gas (GHG)
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	emissions and vulnerability to climate change effects. As such the proposed project triggered OS1 which falls under category 2.
<i>OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation</i>	The proposed project does not trigger OS2 since it will be done in a private property owned by Olivine Industries and has title deeds to that effect for the proposed site.
<i>OS 3: Biodiversity and Ecosystem Services</i>	The proposed project does not trigger OS3.
<i>OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency</i>	The proposed project does not trigger OS4 although the existing project triggers it from emissions by the boilers, water and energy use in the production processes.
<i>OS 5: Labor Conditions, Health and Safety</i>	This OS is triggered if the project involves the establishment of a temporary or permanent workforce. As such, the proposed project triggers OS5 since the project will create employment locally and right down through the supply chain.

FMO requires that all clients comply with applicable environmental, social and human rights laws in their home and host countries. The proposed project falls under category B of FMO E& H risk categories. FMO uses International Finance Corporation Policies

This means that the proposed business activities have potential limited adverse environmental or social risks and/or impacts that are few in number, generally site specific, largely reversible, and readily addressed through mitigation measures. These standards are as shown in table 2.2:

Table 2.1: IFC Performance Standards

<i>PS 1: Assessment and Management of Environmental and Social Risks and Impacts</i>	This PS is triggered by the environmental and social risks of the project. As a consequence, Olivine will develop a system that comprises identification of risks and effects, management programs, organizational capacity and competence, preparedness for and response to emergencies, stakeholder engagement and monitoring and assessment by Olivine and its stakeholders to ensure that they are managed through an ESMP.
<i>PS 2: Labor and Working Conditions</i>	This PS is triggered and Olivine will ensure that the minimum age for recruitment is 18 years. However, the proposed project will not cause much change to labour and working conditions considering that Olivine is

	currently adhering to labour issues guided by the labour law and ILO principles.
<i>PS 3: Resource Efficiency and Pollution Prevention</i>	This PS is triggered by the use of raw materials by the proposed project especially water from municipal supply and boreholes. As such Olivine will operate with discharge permits and licenses as required by the law. Emissions from standby generators and boilers will be monitored on quarterly basis the same way discharges of water will be done and remedial actions taken in order to protect the environment and downstream users as required by the laws governing Zimbabwe and this standard.
<i>PS 4: Community Health, Safety and Security</i>	This PS is triggered because the project directly interacts with the surroundings in terms of emissions and discharges which can impact negatively on community health and safety. Olivine will put measures that aim at preventing or reducing such risks and effects to the surrounding community.
<i>PS 5: Land Acquisition and Involuntary Resettlement</i>	This PS is not triggered.
<i>PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</i>	This PS is triggered by emission and wastewater discharges from the boilers and ETP respectively as they may have negative impacts on the environment and downstream aquatic life. As such Olivine Industries will ensure that pollution prevention and abatement measures are put in place in order to protect ecological evolutionary power houses upon which biodiversity is conserved in a more futuristic and sustainable manner.
<i>PS 7: Indigenous Peoples</i>	This PS is not triggered.
<i>PS 8: Cultural Heritage</i>	This PS is not triggered.

3.0 DESCRIPTION OF PROJECT PROCESSES AND MACHINERY

3.1 Project Description

The proposed project will result in Olivine Industries increasing not only its capacity in the margarine line but also increase its product range to include tomato ketchup, tomato sauce, takatala sauce, mild mustard sauce and mayonnaise. The production capacity will be increased from the current 2 tonnes per hour to 8 tonnes per hour upon successful implementation of this project for the margarine plant.

3.2 Tomato Ketchup Processing

The tomato ketchup manufacturing process includes the use of tomato pulp, vinegar, sweeteners, spices, sugar and salt. The stages involved are concentration, the heating process, packaging, pasteurization then finally storage.

The concentration stage involves pumping the tomato pulp into cooking tanks or open kettles and heating it to boiling point. Foaming may occur if fresh tomato pulp is used, but can be corrected with anti-foaming compounds or compressed air. Sweeteners, vinegar, salt, spices, and flavourings are then added to the tomato pulp. Then onions and garlic are mixed in with spices, placed in a separate bag, or chopped and then placed in the open kettle.

The second stage involves heating the mixture. The mixture cooks for 30-45 minutes under 80-88° C temperatures and is circulated by rotating blades installed in the cookers. This process produces the tomato ketchup product. There is steam released during this heating process which is collected into a vacuum and channelled into a cooling system which forms water that can be reused.

Then finally the tomato ketchup undergoes packing and pasteurization process. The tomato ketchup product is filled into cans or bottles and sealed. These are then subjected under very high heat for preservation purposes and killing of any remaining bacteria known as pasteurization. Then finally the tomato ketchup is cooled and stored. Tomato ketchup plant will be supplied and installed by Stephan Food Processing Machinery with the following product lines and capacity specifications:

- Tomato Ketchup – 4 TPH
- Mayonnaise – 2 TPH
- Mustard – 1 TPH
- Sauce, Dressing and Chutney – 2 TPH
- Takalaka Sauce – 1TPH

The proposed project will result in creation of a market for tomatoes locally within the supply chain and also increased imports by Olivine for palm oil and soy beans since the local market does not produce enough soy beans and there is no production of palm oil in Zimbabwe. Figure 1.2 shows the proposed process flow diagram for tomato ketchup.



Figure 3.1: Process Flow Diagram for Tomato Ketchup Production Flow Diagram

Table 3.1 shows the material balance for producing 1 tonne of tomato ketchup. About 10% of the water which is lost as steam from the concentration process will be sucked by extraction fans, condensed and reused in a circular system. About 5% of it will be lost to the environment but after passing through the ETP. This wastewater will be used for watering the lawns and flower beds around the plant.

Table 3.1: Material Balance for Tomato Ketchup Production

Inputs	Plant Processes	Products	Refuse
Tomato Ketchup Plan			
310 kg of Tomato Paste	Concentration and thermal processing	1000 kg of Tomato Ketchup	60m3 per month of wastewater from CIP operation of the line during the product changeover or after a fixed period of continuous running
200 kg of Sugar			
250 kg of Vinegar			
30 kg of Salt			
30 kg of Celery Saromex			
180 kg of Water			

3.3 Margarine Processing

Creating buttercup margarine by Olivine requires salt, emulsifiers, lecithin, flavouring, colouring agent, water/skim milk and plant based oils, such as palm or soy bean oil. It has two phases which is processing the oil phase and processing the aqueous phase.

Oil Processing Phase

The first phase is the oil phase which involves hydrogenation of the oil. This is whereby the oil is placed inside a chamber and pressurized using hydrogen, turning the oil to semi-solid state resembling custard. The hydrogen particles remain within the oil which helps increasing the temperature point at which it will melt and to make the oil less susceptible to contamination through oxidation. This process can turn the unsaturated oil fats into trans - fats. This oil is then poured into a large stirring pot which is heated at 60°C to 70°C.

Aqueous Processing Phase

The second phase is the aqueous phase which involves the adding of water or skim milk into the oils. After these oils are mixed with either water or skim milk they create an aqueous product. The skim milk produces a margarine that tastes better than the one with water. Salts, emulsifiers and thickeners are also added at this

stage to give the margarine extra flavor, aesthetic or nutritional value. The mixture is treated with mild heat which is less than 100° C through a process called pasteurization. This process is carried out so as to kill any remaining pathogens and extend shelf life for the margarine. This heating also deactivates or destroys organisms or enzymes that contribute to spoilage or risk of diseases. After the mixture is smoothly combined, it is then transferred to the agitation chambers. The first chamber is the pre-crystallizer which cools and rapidly rotates the mixture. Then the mixture is channeled to the next chamber known as the crystallizer. In the crystallizer chamber the temperature rapidly drops causing the margarine to crystallize and thicken. The margarine is then packaged and stored in a cool and dry place. The margarine plant will have the following lines:

- Margarine Plant - 5 TPH
- Shortening Plant – 8 TPH

The buttercup margarine manufacturing process is shown in figure 3.2 with table 3.2 showing the material balance for producing 1 ton of buttercup margarine.



Figure 3.2: Process Flow Diagram for Buttercup Margarine Production Flow Diagram

Table 3.2: Material Balance for Buttercup Margarine Production

Inputs	Plant Processes	Products	Refuse
Margarine Plant			
490 kg Wilmic Palm Fats		1 000 kg of Margarine	-Coal Ash from boilers -Wastewater from blow downs which will be channelled to Effluent Treatment Plant (ETP)
30 kg Milk Powders			
20 kg Soya Lecithin			
20 kg Sodium Benzoate			
20 kg Citric Acid			
10 kg Vitamin A + D3			
330 kg Refined Soy Oil			
25 kg Salt			
10 kg Beta Carotene			
15 kg Eva 895 Flav			
15 kg Brigitta 873 Flav			
15 kg Dimodan HS KA			

Figures 3.3 and 3.4 show some pictures of the machinery that will be purchased by Olivine with financial support from AfDB and FMO.

Fig 3.3: Hot Filing & Closing Machine



Fig 3.4: Wrapping & Packaging Machine



3.4 Machinery Certification

Olivine shall purchase machinery for the margarine and ketchup plants from suppliers who are ISO 14001:2015, ISO 9001: 2015 and ISO 45001 certified in order to reduce its environmental footprint by promoting suppliers who have safeguard systems for environmental protection. There is a risk of purchasing poor quality machinery if it's not certified especially in ISO 9001:2015 which will increase the risk of poor investment by both the financiers and Olivine. As such Olivine shall demand such certifications prior to purchasing of machinery.

4.0 DESCRIPTION OF PROJECT'S NATURAL ENVIRONMENT

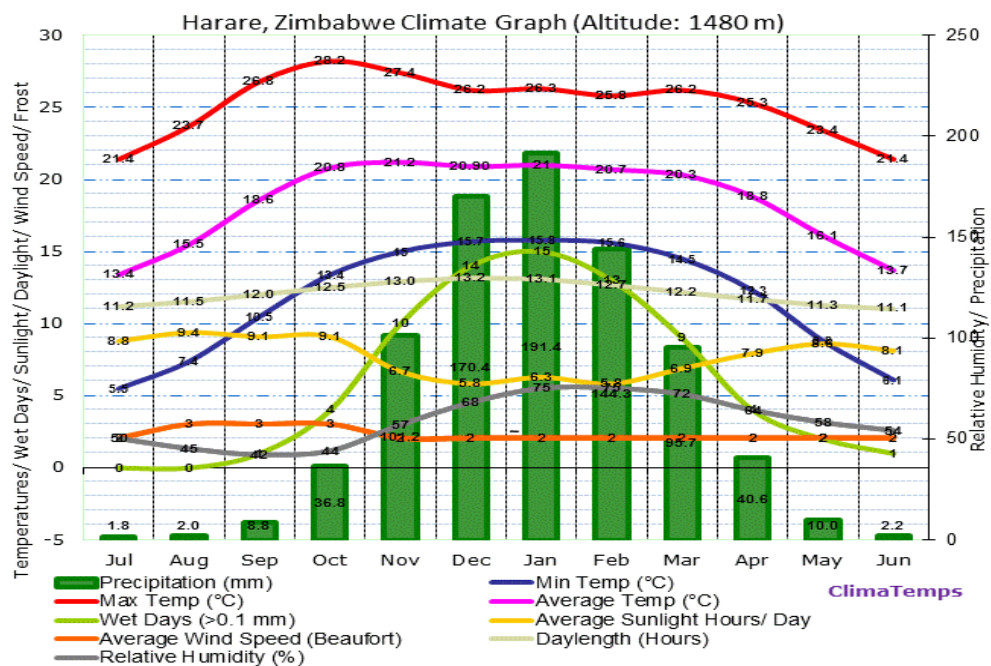
4.1 Introduction

The project site consists of various baseline elements which characterize the area. The baseline setting of proposed site includes an assessment on the following: climatic conditions, the bio-physical components, socio-economic environment, existing infrastructure and ambient noise status.

4.2 Climatic Conditions

The proposed project area is situated in Agro-ecological region IIA and the climatic conditions for the area are summarized diagrammatically in figure 4.1.

Figure 4.1: Overall climatic conditions of the proposed site



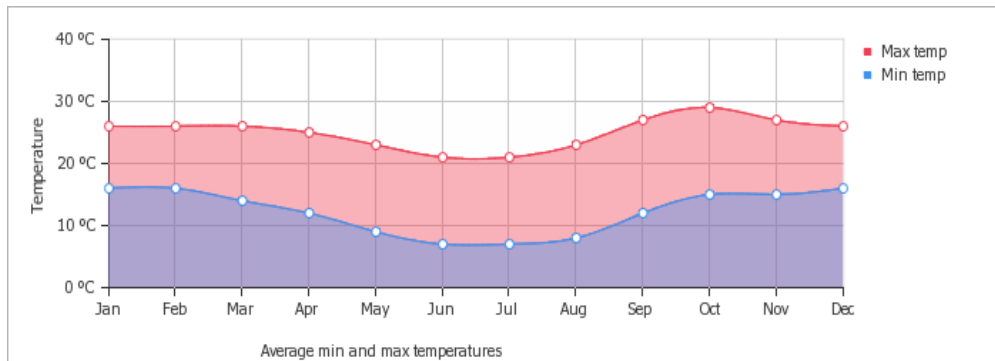
The climatic conditions of the site can be further described in terms of temperature and rainfall as follows.

4.2.1 Temperature

The site experiences hot wet summers and cold dry winters. The proposed site has dry periods in May, June, July, August and September. On average, the warmest month is October with the coolest month being July. In hot season or summer which is experienced, temperatures can be as high as 29°C. The average annual temperature is 17.95°C, and this is due to its high altitude and a prevalent cool south easterly airflow. Average temperature ranges from 13.5°C in winter to 21.5°C in summer.

Daily temperature ranges from 7°C to 20°C in winter to 13°C to 29°C in summer. This is illustrated in figure 4.2.

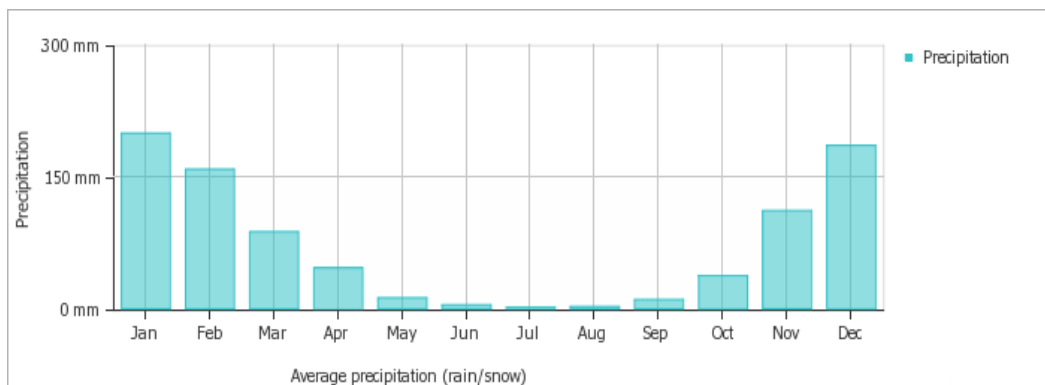
Figure 4.2: Average minimum and maximum temperatures



4.2.2 Rainfall

The project lies in agro-ecological region IIa and rainfall ranges from 750 to 1 000 mm/year. It is fairly reliable, falling from November to March/April. The proposed project area is characterized by wet conditions during the rainy season confined to summer months (January, February, March and December). The month of January is the wettest of them all. The area has its dry periods from May to September with July being the driest month. This is graphically shown in figure 4.3.

Figure 4.3: Average precipitation



4.3 Ambient Noise

The proposed site, where the Olivine Industries is located is along Birmingham Road. Noise was measured using a sound meter and recorded 65dB which could be attributed to the passing by vehicles and some nearby industrial activities. The machinery to be purchased and installed by Olivine Industries with financial support from AfDB and FMO will not cause significant deviation from the measured noise level.

4.4 Water Resources

There is no surface water body within the project site. The factory is serviced by municipal water. However, there is a registered borehole on site which is used to supplement municipal water. The proposed project is expected to consume a lot of water which will in turn be reused after product processing for watering the lawn and flowers thereby enhancing the aesthetic value of the factory and also contributing to carbon fixation by lawns and flowers. As such the proposed project brings about green development in an industrial area.

4.5 Socioeconomic and Existing Infrastructure

The site has built up premises with different sections. The main infrastructure in existence includes soaps factory, edible fats factory, engineering workshop, laboratory and a canteen. The factory is serviced by ZETDC in terms of electricity supply and municipal sewer and water reticulation system. There is one generator for power back up stored within a housing facility together but in different compartments with two ZESA transformers. The replacement of a 20 ton boiler with an 8 ton coal fired boiler for heating processes is in progress and expected to be complete by December 2020. The area is industrial surrounded by manufacturing companies and to the south of the factory there is BOC gases. Figure 4.4 shows the infrastructure on the site.

Fig. 4.4: Existing Infrastructure at the Olivine Industries Premises



5.0 PRESENTATION OF THE ALTERNATIVES AND PROJECT JUSTIFICATION

5.1 Introduction

Alternatives to the project, including the no action alternative and the relocation option are presented in this section. These alternatives will be discussed from environmental and socio-economic perspectives. A comparison of the alternatives was then done fortified with a justification to the desired option.

5.2 No - Action Alternative

This alternative implies that the proposed project is disbanded. Without the proposed development, the production capacities for margarine will remain in its current state. Ketchup plant will not be installed as well if this option is to go by. This no-action alternative presents environmental and socioeconomic concerns, since there will be no direct and indirect employment opportunities at Olivine and within the supply chain. From a socio-economic perspective, the no-action alternative will definitely not yield any benefit to Olivine, lenders, government and Zimbabwe at large. This alternative would mean that the project does not proceed and is not in tandem with the drive of the new dispensation on the ease of doing business.

Advantages

- The health and safety risks associated with installation and operation of machinery will be eliminated.
- Risk of using agrochemicals which can pollute the environment due to demand for raw materials will be eliminated as well.
- Olivine will not be in debt from FMO and AfDB.
- No electrical fire risk would be increased.

Disadvantages

- There will be no additional employment creation.
- There will be no additional facility to drive socio-economic development.
- There will be no growth within the supply chain.
- Increased production capacity as a result of the project would not be realized.
- The expected income in the form of profits to the developer and in the form of taxes / royalties to the government and local authority will not be realized.

5.3 Relocation Alternative

Relocation to a different site is an option that has been considered for the project implementation. However, at the moment, there are no alternative sites for the proposed development in Southerton industrial areas (i.e. the project proponent does not have an alternative site). This alternative implies that the proponent has to

search for vacant land if relocation is proposed. Searching for the land to accommodate the scale and size of the project and completing official transaction on it may take a long period and requires a considerable amount of investment. In addition, it is not guaranteed that such land would be available in the timeframe the proponent intends to invest in Southerton and the longer it takes to have alternative site, there more difficult it becomes to find interested potential investors or financiers.

5.4 Comparison of Alternatives

Under the No - Action alternative, no development would be allowed leading to minimal positive economic effects and more negative economic effects. Relocation alternative will mean that the project will be put on hold until alternative sites are identified and this may result in the proponent abandoning the project and alternative sites may be unserviced hence becomes uneconomic to pursue. Under the proposed development alternative, the positive economic effects outweigh the negatives therefore the proposed development would create temporary employment for contractors and permanent employment for full time employees who will manage the two factories. The project also has cascading benefits to suppliers of raw materials such as soy beans, palm oil, tomato paste and sugar. Some of these raw materials are local and some are imports which means the benefits goes beyond Zimbabwe. Provided the mitigation measures are implemented the project can be full harmonised with the current environmental setting resulting in no negative shock to the environmental balance. Implementation of the Environmental and Social Management Plan associated with the proposed development alternative will ensure that potential negative impacts are avoided or reduced or eliminated while positive impacts of the project are enhanced.

5.5 Project Justification

The proposed project will result in an increased economic productivity of the land and results in an increase in the productivity of the country resulting in an increased Gross Domestic Product (GDP). This project which is located in an industrial location falls within the requirements of the city planning. It adds value to the area in which it is designated. The economic zone in which this project lies is intended for goods manufacturing, value addition and beneficiation. The goods to be produced by the plant are fast moving consumer goods which the country has been importing from neighbouring countries to cater for the local demand. This increased the country's imports and reduced Zimbabwe's foreign currency reserves, which are already low. There is no other local manufacturer of margarine and tomato ketchup in Zimbabwe. As such this project will bring relieve to the consumers since they will have a local brand which can also be competitive at the regional and international market thereby bringing in the much needed foreign currency. If the proposed project manages to produce enough consumer goods to not only cater for local demand but also tap into foreign market, this could eventually bring the much needed foreign currency to the country. The new plants which are to be installed will result in the creation of employment in a country which has for several years been plagued with high unemployment rates.

6.0 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

6.1 Introduction

The project will bring about many positive impacts, including employment, provision of market for farm produce specifically soy beans, palm, tomatoes and sugar cane within the supply chain, product beneficiation, reduced import bill for the government, product diversification and increased production capacity. Some adverse environmental and social impacts are expected limited to the footprint of the project and manageable through an ESMP/ESAP. The proposed development will have numerous direct positive impacts both within the study area as well as outside:

- **Employment Creation:** Employment opportunities will be created during plant installation and operation. This will be a significant impact since unemployment rate is currently quite high in the country at large.
- **Equipment Upgrade:** The project will result in the upgrade of equipment which is envisaged to generate more revenue for Olivine and the country at large through taxes.
- **Product Beneficiation:** The country will benefit directly from exports since the products will have more value than the raw materials. As such the country and Olivine will get foreign currency much needed for economic development on top of supply the local market.
- **Increased production capacity within the supply chain:** The project will require supply of large quantities of raw materials such as tomatoes, soy beans, sugar cane and palm oil are expected to increase thereby increasing production within the supply chain and employment creation downstream.
- **Increased product choices by the consumers:** Increased production capacity for tomato ketchup and margarine will result in decreases in retail prices of these products hence affecting the market through economies of scale thereby giving consumers more choices of products to choose since prices will be competitive

Some negative impacts have been identified within the scope of the proposed project and are listed as follows:

- **Increased waste generation from packaging material:** Packaging lines for margarine and tomato ketchup may generate paper and plastic waste. During repair and maintenance, some waste such as oils can be generated which will need proper handling and disposal.
- **Increased water uptake or consumption:** More water will be used during processing mainly by the boilers to generate steam which provide heat required during margarine production.

- **Increase in volume of wastewater generation:** About 65 m³ per month of the water used during CIP operation will be discharged as wastewater and this will be channeled to the effluent treatment plant for treatment before discharge into the municipal system. This water will have high BOD.
- **Occupational Health and Safety Aspects:** During installation and operation operators may get hurt, electrocuted if there are naked wires and at times burn by hot surfaces of the machinery. The same occupational risks can be felt within the supply chain since there will be increased demand for raw materials which can result in unsafe acts as a result of increased work pressure.

6.2 Supply Chain Analysis

The Wilmar International Management System and the Environmental Social Safeguards Management Framework would be used to ensure that tomato paste, sugar, soy and palm oil procured by Olivine as a raw material for tomato ketchup and mayonnaise are produced in compliance with IFC performance standards especially PS 2 and PS 6. In this regards suppliers will fill in the ESSA Declaration and Assurance form stipulating that their produce which is Olivine's raw materials are produced in line with the best acceptable environmental and social practices. Olivine will conduct programs to enforce and to monitor implementation of its Environmental Social Safeguards Management Framework in its supply chain. For monitoring, Olivine use grievance mechanism to receive noncompliance complaints, regular internal audits of selected suppliers.

6.2.1 Tomato Production and Traceability

A desktop study for the supply chain was done and revealed that Best Fruit Processors (BFP) launched its tomato paste line where Olivine will purchase its tomato paste. Best Fruit Processors is a joint venture between Schweppes Zimbabwe's 100% owned Beitbridge Juicing Co and the Agricultural and Rural Development Authority. To ensure an uninterrupted supply of raw material, the company will engage more than 3 000 farmers to grow tomatoes. The tomato processing and canning plant at Best Fruit Processors has highly technological components and most of its processes are also highly automated including the packaging of the paste, which is poured and sealed into 200 litre-drums under strict hygienic conditions. This reduced incidences of forced labour in compliance with IFC PS 2 (OS 5). A due diligence study conducted revealed that BFP procures raw tomatoes from community farmers within a 150-km radius and processes the tomatoes into purees and paste. The purees and paste are then purchased by local food manufacturers while some are exported. Further to creating a sustainable export market for processed tomatoes, BFP will simultaneously create additional economic value through the creation of about 100 jobs from direct employment and more than 3 000 indirect jobs as farmers are being signed up for the out-grower programme. To date, 300 farmers are benefitting from the out-grower scheme. BFP business model heavily relies on the community's ability to invest in the production of relevant fruit for processing at a reasonable price and at the right quality. The business model for contract growing for fruit is based on a mix of community irrigation schemes, small-holder farmers as well as a few commercial farmers. A sustainable inclusive business model incorporating communal farmers into BFP value chains is a key pillar for the tomato processing division and therefore a lot of effort is needed in creating a solid platform for

investment in that area. This will ensure that PS 2 (OS 5) and PS 6 (OS 3) are complied with and lenders have an opportunity for further engagement and capacity building in that regard. However, there is no system in place for tracing the source of the tomatoes that will be in the tomato paste that Olivine will procure and hence there is need for Olivine to adopt Wilmar Management System and implement it so that environmental and social risks associated with tomatoes are eliminated in order to ensure that the investment is sustainable.

6.2.2 Sugar Cane Production and Traceability

Sugar which constitutes 20% in terms of raw material requirements will be sourced from Tongaat Hulett which has sugar cane refineries. About 80% of Zimbabwe's sugar cane crop is produced by two large estates namely, the Triangle Sugar Estate and Hippo Valley Estate. In these estates, sugar cane is grown under canal irrigation in Chiredzi District of Masvingo Province. Furthermore during the due diligence study, it was discovered that Zimbabwe has introduced new and higher yielding cane varieties which will significantly increase supply of sugar cane in 2020. This has an advantage in that there will be no further deforestation in order to meet sugar cane demand since the new hybrid sugar cane will have increased yield per hectare. The completion of the Tokwe - Mukosi dam in 2013 has enabled the Zimbabwe sugar operations to sustain current levels of production in terms of water supply to the estates. Tongaat Hulett embarked on a comprehensive private farmer rehabilitation programme named Successful Rural Sugarcane Farming Community Project (SusCo), a number of years ago, with the goal of rehabilitating private farmers, with the support and expertise of Tongaat Hulett, to increase their supply of sugarcane, employment opportunities, meaningful stakeholder value creation and reduction of environmental risks in sugar cane production. However, there is need for continuous capacity building and engagement so that environmental and social risks can be eliminated in sugar cane production. Tongaat Hulett is listed on the Zimbabwe Stock Exchange under the ZSE Listing Requirements SI 134 of 2019 calls for sustainability reporting and as such Tongaat Hulett will be implementing a sustainability system that allows it to be able deal with its materiality and report sustainably.

6.2.3 Palm Oil Production & Traceability

Palm oil will be procured from Wilmar International Limited. IFC PS 2 and IFC PS 6 are triggered by contextual risks in the Wilmar palm oil supply chain, which are managed by the 'Wilmar International No Deforestation, Peat and Exploitation Policy' (NDPE) and the Wilmar's Aggregator Transformation Program (ART) and The Supplier Reporting Tool (SRT) in cooperation with its palm oil suppliers and NGOs. There is evidence of a fundamental shift towards sustainable production in the palm oil sector and by Wilmar International as evidenced by the launch of Child Protection Policy in 2017 to address the need to protect the wellbeing and interests of children living in plantations. In May 2019, Wilmar also launched the Human Rights Framework and the Women's Charter. SRT is an online self-reporting tool that is hosted on the OnConnect System to allow suppliers to report their current compliance to environmental and social risk-related issues within our supply chain and this is very helpful in effective NDPE policy implementation by Wilmar and reduction of their environmental footprint.

In April 2019, WWF recommended investment banks not to divest from the palm oil companies implementing NDPE measures, but rather work with them to improve NDPE enforcement. In June 2019, major palm oil producers Wilmar, Mondelez, Unilever and a palm oil specialized NGO consultancy Aidenvironment made a joint statement about making the supply chain fully transparent and accountable through satellite-based maps, sanctions and remedial programs to deliver on NDPE. Willmar's NDPE Policy and ART and SRT Programs' key performance indicators include traceability status, NDPE trainings and actions plans for supplying mills/farmers. Their implementation undergoes regular third-party verification and is done in cooperation with an alliance of independent NGOs, impact investors and not-for-profit consultancies. As such Wilmar International has tried to minimise environmental and social risks associated with palm oil production in compliance with PS 2 (OS 5) and PS 6 (OS 3). Olivine will require National Biotechnology Authority certification prior to delivery of palm oil consignments.

6.2.4 Soy Production and Traceability

Soy will be purchased from Wilmar International through Surface Wilmar. Increasing the production of certified soy will help to address the industry's environmental and social challenges. Sourcing certified soy will help to reduce reputational and commercial risks faced by soy end-users such as food companies. Surface Willmar's operations are also guided by Wilmar International standards and as such Olivine will ensure that it purchases certified soy through the Environmental Social Safeguards Management Framework. Soy will also be purchased from Zimbabwe, However Zimbabwe crop generates 40 000 tonnes which in turn produces 7 200 metric tonnes of oil since the soy bean has 18% oil on average. However the country needs 300 000 tonnes of soy bean per annum. As a result of this variance Olivine will either importing soy beans through Surface Wilmar which sources it from South Africa and Argentina or import crude oil depending on the prize and the local soy meal requirements. Olivine demands GMO Free Certification and National Biotechnology Authority certification prior to delivery of either soy bean or crude oil purchased as imports.

6.3 Stakeholder Consultations

The respondents were made aware of the proposed project and welcomed this development. In general stakeholders from government were in agreement and supportive of the project as a welcome development with socioeconomic benefits. They emphasised that the project should be implemented in accordance to local legislation and best international practices but take into account local expectations and issues raised by the neighbours and key stakeholders. Potential impacts were identified and mitigation measures proposed.

6.3.1 Feedback from Stakeholders

National Social Security Authority: NSSA welcomed the development as it brings employment creation and improves production capacity. NSSA urged the proponent to ensure that there is adherence to standard environmental and occupational safety procedures and regulations as well as implementing safety and health management systems which include a precaution plan, pressure vessel inspections and tests as required by law.

Zimbabwe Republic Police: The ZRP - Mbare welcomed the development as it offers jobs to the local people that are not employed and in need. The potential benefits of this project can be improved by ensuring that the factories are situated at an area that is easily accessible and also to ensure that non-technical aspects of project implementation are done by locals. There is also generation of the much needed foreign currency when products are exported to other countries. The problems can arise if the factories' wastewater is disposed of without pre-treatment, thus contaminating the local streams. Precautionary and pollution abatement measures should be put in place to avert the detrimental effects of the polluting substances. ZRP recommended that they must put tight security at the site, exercise professionalism and exhibit best customer care.

Health Department: Houghton Park Surgery is the closest medical facility which accepted the project saying it will bring employment to the local people. The project will also provide the country with local products. The department concluded that was no problem with the implementation of the project.

Civil Protection Unit: The civil protection unit embraced the project as it not only improve production capacity but also creates employment opportunities. It however suggested that continuous risk assessment mechanisms should be put in place to prevent accidents possible disasters.

City of Harare Traffic Laws Division: The Harare City embraced the project citing that increased production will lead to lower prices and better competition. They also recommended that machinery should be maintained to reduce emissions, and also to create more employment through such developmental projects.

City of Harare Department of Works: The physical planning section which falls under the department of works directorate of the City of Harare welcomed the proposed project. They highlighted employment creation, and improved revenue for the city and fiscal growth as positive impacts of the project. Solid packaging waste, occupational accidents and generation of fats oils and grease were cited as the negative impacts of the project. However, provision of PPE, skip bins, construction of oil interceptor, use of noise reduction technologies and boiler monitoring were some of the mitigation measures proposed for adoption.

Surface Wilmar: This organisation as the supplier of soy bean oil to Olivine is ISO 14 001 certified and has standards and procedures in place to ensure sustainable environmental protection in their operations. There is also a SHE management system with SHE representatives who also ensures that working conditions are safe for employees. The recruitment of staff is done by HR department which demands identity documents in order to verify the age of potential employees so that there will be no child labour or employment of those above pensionable age in compliance with the Labour law of Zimbabwe and best international practices.

Beitbridge Juicy: As the supplier of tomato paste, the organisation highlighted that the proposed project will have a significant impact and benefit to communities through value chain. There will be smallholder schemes which will benefit from the project. However there exist an opportunity for capacity building of the farmers in order to ensure that environmental and social benefits are mainstreamed in the Olivine's ESAP with additional funding from lenders.

Star Africa Corporation: This supplier of sugar together with Tongaat Hulett has a waste recycling system where wastewater is recycled in the plant and plastic waste is sold to plastic recycling companies in order to minimise waste that goes to the landfill thereby closing the loop for plastic. The company has a safety, health and environmental management system. Also the minimum employee hiring age is 18 years and is verified by HR before employment.

Wilmar International: As the provider of palm oil to Olivine, the company has an NDPE policy where it has made commitments to protect the environment and ensure resource use efficiency in its plantations. There is also a Health and Safety Policy for Wilmar International to ensure that the communities and staff are protected in terms of safe working conditions and the environment.

General Public in Zimbabwe: Public consultation involving the local neighbour's participation was conducted to solicit public and neighbouring companies' views on the proposed project. Section 73 of the National Constitution of Zimbabwe read together with the Environmental Management Act [CAP 20:27] provides people environmental rights in the implementation of projects, in whichever dimension (social, economic and/ or ecological). The law affords every person the right to live in a clean environment that is not harmful to their health, access to environmental information and the right to participate in the implementation of projects to prevent pollution, environmental degradation and sustainable management and use of natural resources while promoting justifiable economic and social development. In light of this the consultant instituted public participation in order to involve the receiving neighbours in the project planning. Issues raised by neighbours are as follows:

6.3.2 Envisaged Positive Impact

Employment creation: The neighbouring companies embraced the project noting that it will create employment for their children as well as contracts for services for their companies as well. 100% of the neighbors consulted saw employment creation as one of the potential benefits. The neighbors also appreciated the development with their participation in the planning of the project and approximately 80%, suggested employing local service providers or suppliers.

Increased Business Opportunities: The neighbouring companies were excited about the proposed project as it meant that there would be increased visibility of their own companies by those who pass by on their way to Olivine. This would mean more potential clients for them too thus were ecstatic of having a chance to increase customer base. About 70% of the neighbours consulted regarded this as a potential benefit to them.

Industrial Development: The neighbours emphasized about the development as it is an achievement towards socio-economic development of the area. 60% of the neighbours which were consulted saw industrial development as a potential benefit.

Quality Products: The introduction of local products on the market can give a competitive run to those already in the business thus making everyone to produce good quality products in order to have a competitive edge. 35% of the neighbours envisaged this line of thought in relation to the proposed project.

6.4 Impact Significance Rating

Significance of an impact is a function of 5 parameters which are extent, duration, magnitude, reversibility and probability of its occurrence. Each impact will be subjected to each parameter and is given a score based on its effect on a particular parameter using professional judgment. Impacts with high significance take priority in terms of mitigation or enhancement measures to be implemented. Also in terms of resource allocation, they will require more especially if the impact is negative. Significance rating hence serves to prioritise impacts so that mitigation measures and resource allocation can be done in a way which helps to avoid or reduce the negative environmental and social footprint of a project in an area.

Table 6.1: Impact Significance Matrix

Impact	Extent	Duration	Magnitude	Reversibility	Probability	Score	Significance
Machinery Installation Phase							
Employment creation	3	1	2	2	1	12	Insignificant
Equipment upgrade	3	2	2	2	3	72	Low
Electrocution	2	2	2	2	2	32	Low
Risk of occupational accidents /injuries	2	1	2	3	3	36	Low
Staff anxiety	2	2	2	2	2	32	Low
Electrical fire outbreak	1	1	2	2	1	4	Insignificant
Asphyxiation	1	1	2	1	1	2	Insignificant
Musculo – skeletal disorder	1	1	2	1	1	2	Insignificant
Increased market for machine spare parts	2	1	2	3	3	36	Low
Operation of Machinery							
Solid waste generation	2	2	2	2	2	32	Low
Occupational accidents	2	1	2	3	2	24	Insignificant
Wastewater pollution	2	1	2	2	2	16	Insignificant
Employment creation	3	3	3	3	3	243	High
Increased energy consumption	2	2	2	2	2	32	Low
Increased raw material consumption	3	3	3	2	3	162	Medium
Increased water usage	2	3	3	3	3	162	Medium
Increased fire outbreaks and explosion	2	2	2	3	2	48	Low
Air pollution	2	2	2	3	3	72	Low
Improvement of the scenic value	2	2	3	3	2	72	Low
Increased government revenue	2	3	2	3	3	108	Low

Increased production within the supply chain	2	3	3	3	3	162	Medium
Soil pollution by agrochemicals in the supply chain farms	2	2	2	2	2	32	Low
Increased revenue	2	3	3	3	3	162	Medium
Electrocution	2	2	2	2	2	32	Low
Risk of occupational accidents / injuries	2	1	2	3	3	36	Low
Product diversity in the market	3	3	2	3	3	162	Medium

7.0 MITIGATION MEASURES AND COMPLEMENTARY INITIATIVES

7.1 Introduction

The proponent with guidance from the Envirotech will comply with provisions of Section 107 (1) of the Environmental Management Act which calls for every developer to take all reasonable measures to prevent or, if prevention is not practicable, to mitigate any undesirable effect on the environment that may arise from the implementation of its project. This section presents a detailed description of the key environmental and socio-economic impacts and the proposed mitigation and enhancement measures given together with the designation of responsibility.

The aim of an ESIA is to ensure good environmental management is undertaken during the lifetime of the project. The ESIA identifies the potential negative impacts of the project on the environment and recommends mitigation measures to reduce the impacts. The framework for administering the implementation of mitigation guidelines in the ESIA is presented in the Environmental and Social Management Plan (ESMP) according to AFDB standards or alternatively the Environmental and Social Action Plan (ESAP) according to IFC / FMO standards.

An ESMP / ESAP is principally an integrated effort of utilization, planning, maintenance, supervision and control. The ESMP / ESAP is necessary to ensure that the proposed procedures, actions and measures identified as part of alleviating environmental impacts of the proposed project are not just a statement of goodwill by the proponent but that will be effectively implemented. The success of the ESMP / ESAP depends on the method and techniques of management to be implemented. Corrective action will be undertaken where necessary. If the ESMP / ESAP is implemented correctly and fully the impacts can be greatly reduced/ prevented. An ESMP / ESAP has been developed to assist the proponent in enhancing or mitigating and managing environmental impacts associated with the life cycle of the project through a program of continuous improvement. Table 7.1 shows the ESMP/ ESAP that will be adopted by Olivine.

Table 7.1: Olivine: Environmental and Social Action Plan (ESAP)

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Estimated Annual Cost / Budget
CORPORATE LEVEL					
E&S Capacity and Knowledge					
1	Appoint Environment & Sustainability Systems. Manager	Olivine CEO	ESS Manager Recruited to oversee environmental systems and H & S issues	February 2020	\$24 000.00
2	Appoint Health and Safety Officer (HSO)	Olivine CEO	Health and Safety Officer recruited to oversee H&S issues in the plants	February 2020	\$18 000.00
3	Development of the overarching Olivine E&S Policy and E&S Management Systems.	ESS Manager	E&S Policy and System	June 2020	\$5 000.00
4					
5	The current EHS Committee's ToR to be expanded to include Sustainability consisting of operational senior managers to monitor the Olivine E&S Policy development and implementation.	Olivine CEO	The EHS & Sustainability Committee Charter, including objectives and SOP (Standing Operating Procedure) for areas like decision-making, capacity, roles and responsibilities throughout the company (including review of E&S policy and procedures, and a part of internal annual review of the company). With monthly meetings and quarterly reports to CEO.	3 months after contract signing	
6	Conduct (introductory) trainings on IFC PS and AfDB OS for EES Manager, HSO, Olivine staff members, and Sustainability Committee. Develop a comprehensive EHS training matrix and an annual training plan including the budget.	Environmental Consulting Firm	The training curriculums and a list of participants. A copy of the training materials and participant list. Matrix and Training Plan for 2020/2021	6 months after contract signing 6 months after contract signing	\$6 000.00
E&S policy					
1	Develop an integrated Olivine E&S Policy that is in line with requirements of AfDB OS and IFC PS, the Sustainable Supply Chain Management Policy requirements of FMO	ESS Manager	A signed copy of the Olivine E&S Policy SOP for policy review and revision	6 months after contract signing	

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Estimated Annual Cost / Budget
	and the Wilmar Int'l ESMS and EHS standards.			6 months after contract signing	
	Set up KPIs as key integrated element - the Resource Efficiency and Community Health, Safety and Security, Raw Material Supply chain. All guided by a SOP describing the review and revise process, internal and external communication as well as how the Sustainability Committee and Senior Management are involved.	ESS Manager	Outline of Key Performance Indicators of the Environmental Social Management System.	6 months after contract signing	
2	Development a well - documented system for grievance handling procedure which allows for stakeholder engagement. The handling grievance mechanism must address complaints and communications from internal stakeholders, namely workers in compliance with IFC PS 2	ESS Manager and Environmental Consulting Firm	Grievance handling procedure aligned to Wilmar International and FMO Sustainability Policy	9 months after contract signing	\$3 000.00
3	Develop an Emergency Preparedness and Response Plan with neighbouring companies	ESS Manager and Environmental Consulting Firm	List of contact details of emergency rescue team and standard operating procedures for emergency evacuations	12 after project commissioning.	\$3 000.00
4	Develop sustainability reports guided by GRI Standard	ESS Manager supported by an Environmental Consulting Firm	Sustainability Report focusing on environmental, social and economic performance of Olivine Industries and aligned to Wilmar international and FMO Sustainability Policy.	18 months from project commissioning	\$1 500.00
E&S Management System					
1	Update the E&S risk inventory and E&S Management Programs to ensure that all E&S risk and impacts, associated with the expansion of the factory, raw material	HSO and Environmental Consulting Firm	Copy of E&S risk inventory and SOP for completing remedial actions (RAs). Completed RAs as per priority list A copy of the stakeholder mapping analysis.	January 2020	\$1 200.00

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Estimated Annual Cost / Budget
	supply chain and external stakeholders, are addressed.				
2	For E&S risks associated with various stakeholders , include E&S risks and impacts on women and vulnerable groups, and livelihood of communities; include water use and traffic safety risks for a nearby community. Ensure the assessment is reviewed regularly for its adequacy and whenever there is a change in processes, activities or expansion.	ESS Manager	A copy of the signed grievance mechanism document.	June 2020	
3	Upgrade an external grievance mechanism based on stakeholder mapping. Communicate updated grievance mechanism to affected stakeholders.	Environmental Consulting Firm	Evidence of the Olivine Sustainability Policy disclosure and access to the external grievance mechanism on the Olivine website.	September 2020	\$1 200.00
4	Conduct an audit to obtain ISO 14001 (Environmental Management), ISO 45001 (OHS Management System) and ISO 22001 (Food Safety System) certifications for Olivine factory.	ESS Manager And Environmental Consulting Firm	Audit reports.	September 2020	\$25 000.00
5	To ensure periodical ESMS performance review , develop SOP to include current management review process and internal audit program within a pre-determined schedule (every two years is preferred).	ESS Manager and Environmental Consulting Firm	SOP for ESMS review procedures	December 2020	\$2 000.00
6	Conduct independent review of Olivine ESMS to assess alignment with IFC PS and AfDB E&S Safeguards.	Environmental Consulting Firm	Report by an independent E&S Advisor (Envirotech)	December 2020	\$6 000.00

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Documents submitted/action progress
PROJECT LEVEL					
PS-1 / OS-1: Assessment and Management of Environmental and Social Risks and Impacts					

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Documents submitted/action progress
1	Conduct quarterly environmental monitoring of ESMP implementation in line with Environmental Management Act CAP 20:27	Environmental Consulting Firm	Quarterly Environmental Monitoring Reports to be submitted to Olivine EHS Manager	Ongoing every quarter	\$1 200.00
2	ESMP monitoring and reporting in line with AFDB & FMO	Environmental Consulting Firm	Biannual ESMP Monitoring Reports	6 months after project implementation	\$1 200.00
3	Conduct quarterly air emissions assessments in line with SI 72 of EM Act CAP 20:27	Environmental Consulting Firm	Quarterly Environmental Monitoring Reports to be submitted to Olivine ESS Manager and EMA Air emission licenses from EMA	Ongoing every quarter	\$1 200.00
4	Request quarterly environmental monitoring and audit reports from Tongaat Hulett, BFP, Surface Wilmer and Wilmer International.	ESS Manager	Copies of Environmental Monitoring Reports stored in Olivine Drop box	3 months from signing	
5	Development of Integrated Hybrid Management System (ISO 14001, ISO 45001 and 2200)	ESS Manager and Environmental Consulting Firm	ISO 14001, ISO 45001 and ISO 9001 Certifications	December 2020	\$25 000.00
6	Conduct fire drills and inspection of fire-fighting equipment	EHS Manager	Reports on fire drills and fire-fighting equipment	Ongoing	
PS-2 / OS-5: Labor and Working Conditions					
1	Prioritise employment of local residents and expatriates if there is need	HR Manager	Updated Employee Register with current trainings and capacity building qualifications	Prior to new recruitments	
2	Compliance with Labour Act, NSSA requirements on National Pension Scheme (NPS) and Workers Insurance Compensation Fund (WICF) and Factories and Works Act.	HR Manager and ESS Manager	Updated Employee Listing from NSSA and valid medical certificates for factory staff. The same applies for contract and temporary staff.	Done and this will be with new recruits	
3	Biannual audits of the implementation of the Environmental Social Safeguards	ESS Manager and Environmental	Audit reports of the ESSM framework	6 months from contract signing	\$4 000.00

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Documents submitted/action progress
	Management Framework within the supply chain.	Consulting Firm			
4	<p>Enhance the HR Policy and Procedures in line with IFC PS, ILO conventions, including:</p> <ul style="list-style-type: none"> • IFC-PS aligned retrenchment policy; • IFC PS aligned employee grievance policy and procedures for addressing worker concerns accessible to both permanent and temporary workers and contractors. • IFC PS aligned contractor management policy; • IFC CPS aligned performance evaluation system for employees. 	HR Manager and ESS Manager	A signed copy of the HR Policy and SOPs.	First Quarter 2020	
5	<p>Improve the housekeeping & OHS maintenance at new factory.</p> <p>Updated procedure and associated action plan to be prepared and implemented, in line with IFC-PS, ISO 45001 requirements and based on the hierarchy of prevention, minimization and control.</p> <p>Actions:</p> <ul style="list-style-type: none"> • Establish an internal Olivine Safety Committee to ensure enforcement of housekeeping and OHS maintenance at the factory site. Train members and develop EHS audit forms and mechanism to incorporate findings in ESMS, SOPs and EHS trainings. 	ESS Manager	Housekeeping SOP	On project completion	
6	Review the terms of reference of the Safety Committee to include environmental and sustainability issues	HSO	Safety Committee Statute and SOP	March 2020	

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Documents submitted/action progress
7	Update housekeeping and maintenance procedures, implement them	HSO	Housekeeping action plan	March 2020	
PS-3 / OS-4: Resource Efficiency and Pollution Prevention					
1	Conduct quarterly air emissions assessments in line with SI 72 of EM Act CAP 20:27 and OS 4	Environmental Consulting Firm	Quarterly Environmental Monitoring Reports to be submitted to Olivine E&S Manager	3 months after contract signing	\$1 200.00
2	Reduction from 20 ton boiler to 8 ton boiler which will use less coal and generate enough steam for the factory hence reducing air pollution	Project Manager	Quarterly reports of coal and water usage by the boilers	6 months after contract signing	
3	Use of Effluent Treatment Plant to treat 70% wastewater that will be generated by the factory before discharge in municipal sewer system.	ESS Manager	Monthly reports of quantities of wastewater treated through the ETP	2 months after factory commissioning	
4	Treatment of wastewater from CIP operations to meet IFC Environmental Wastewater and Ambient Water Quality and EMA standards.	ESS Manager	Records of discharged water quality and quantities of recycled/ reused water	2 months from factory commissioning	1 200.00
5	Laboratory analysis of effluent from ETP prior to discharge so that the wastewater is of quality that does not cause negative impacts to aquatic life forms guided by IFC General EHS Guidelines (Environmental Wastewater and Ambient Water Quality) and EMA standards.	ESS Manager	Wastewater discharge permits and monthly reports	2 months after factory commissioning	
PS-4: Community Health & Safety & Security					
1	Conduct quarterly air emissions assessments in line with SI 72 of EM Act CAP 20:27.	Environmental Consulting Firm	Quarterly Environmental Monitoring Reports to be submitted to Olivine E&S Manager	3 months after contract signing	\$1 200.00
2	Acquire wastewater discharge permits and solid waste discharge permits from local authority and EMA.	ESS Manager	Records permits and licenses issued by relevant environmental regulatory bodies	6 months after factory operation	\$1 000.00
3	Demand certificate of Analysis (that comes with shipment) showing the origin of the	Commercial Manager	Records of certificates	Ongoing	Certificates

Ref. #	Measure and/or Corrective Actions	Responsibility	Deliverable	Deadline (Date/Event)	Documents submitted/action progress
	refinery, Certificate of Origin (that comes with shipment) showing the same, GMO Free certificate (that comes with shipment) from refinery stating their production from same refinery, Phyto sanitary certificate (that comes with shipment) and Bill of Lading showing supplying refinery.				

7.2 Environmental Monitoring Plan

According to Environment Management Act (Environmental Impact Assessment & Ecosystems Protection) Regulations, Statutory Instrument 7 of 2007, 14 (1) The Agency shall carry out biannual environmental audits to ensure that all projects being implemented are in compliance with these regulations. Subsection 2 states that the developer shall submit a quarterly environmental monitoring report on any issues raised in the Environmental Impact Assessment report or any other issues that arise as a result of the implementation of the project. The objectives of the quarterly environmental monitoring and follow-up programs are as follows:

- To verify the accuracy of predicted environmental impacts described in the ESIA/ESMP report;
- To determine the effectiveness of the measures taken to mitigate or enhance environmental impacts of the project and
- To promote compliance in meeting regulatory requirements.

In this section the Environmental Monitoring Plan lists the aspects of the potential impacts, their origin, the designated authority/ authorities responsible for undertaking the monitoring, how frequently the impact should be monitored and the possible recommendations. If monitoring of the identified impacts is carried out correctly and fully the adverse impacts can be greatly reduced or prevented. The proposed Environmental Monitoring Plan is shown in Table 7.2.

Table 7.2: Environmental Monitoring Plan

Aspect	Frequency	Location	Responsibility	Comment
Solid Waste	Daily	Site and surroundings	Proponent /EMA	Clean standards should be maintained
Exhaust fumes	Daily	Site	Proponent	Polluting vehicles to be serviced
Spills and leaks	Daily	Site	Proponent	Should be guided by EMA
Waste water	Daily	Pre-treatment before discharge where necessary	Proponent	Waste water quality should determined
Health and safety	Daily	Site	Proponent /NSSA	Proponent to cooperate with NSSA
Aesthetic / Housekeeping	Daily	Site and surroundings	EMA and Environmental Consultant	Should be guided by EMA
Environmental Performance	Quarterly	Site	Environmental Consultant	To follow ESMP

7.3 Waste Management Plan

The project has employed about 285 people to work on the site and 5 contract companies therefore waste is generated. An integrated solid waste management system is recommended. First, the proponent should give priority to reduction of waste generation. This option demand a solid waste management awareness program and responsible handling. Secondly, recycling, reuse and composting of the waste will be the second alternative in priority. Finally, residual waste will be collected for disposal at a designated site. Table 7.3 outlines the recommended Waste Management Plan.

Table 7.3: Waste Management Plan

Waste stream	Management Option	Responsibility	Frequency
Paper Waste	Collected separately into labelled receptacles for sale to recycling merchants	OHS	Monthly

Plastics Waste	Collected separately into labelled receptacles and be sold to recycling companies	OHS	Monthly
Faecal waste	Municipal Sewerage System	OHS	Daily
Organic	Collected by City of Harare or composted using vermitechology.	OHS	Weekly
Stack emissions	Wet Scrubbing and long stack height for minimal ground level pollution	Environmental Consultant Firm	Quarterly
Wastewater	Wastewater channelled to ETP and reused for watering lawns	OHS	Daily

7.4 Disaster Management

An emergency response and preparedness plan is already adopted for the project to cater for emergencies such as fires, diseases. This plan shall be crafted in consultation with relevant stakeholders such as the Civil Protection Unit, Harare Fire brigade and NSSA. Work safety measures shall be provided according to the national requirements of the National Social Security Authority (NSSA). First aid training and personal protective equipment is provided to all employees and visitors to the site in accordance with national regulations. Firefighting training shall be done in consultation with the Harare Fire Department.

The proponent is committed through budgetary and resource mobilization to mitigate against or prepare for the potential disasters in a bid to ensure enough coverage on safety, health and environmental issues (SHE). Structural and non-structural measures shall be put in place during both installation and operation phases of the project. The ultimate purpose of the disaster management plan is to save life, preserve the environment and protect property. Olivine Industries shall maintain a register of all the potential risks of disasters at the site. Table 7.4 shows the register of disaster risks.

Table 7.4: Disaster Risk Register

Source	Risk description	Preparedness / Response controls
Electrical fire outbreaks	Potential fires caused by ignition of fuel or electrical faults	<ul style="list-style-type: none"> - Evacuations - Early warning systems
Operator entrapment by conveyor belts	The moving parts especially for the packaging lines can trap operators	<ul style="list-style-type: none"> - Use of tag in tag out systems during plant maintenance - Installation of emergency switches on machinery
Trips and falls	Staff can trip or fall due to slippery floors or poor illumination	<ul style="list-style-type: none"> - Ensure good housekeeping - Factory to be properly lit and ventilated - First Aid kit and aiders to be on call
Heat generation	Operators can be burnt when the contact surfaces or pipes bringing steam to the machinery	<ul style="list-style-type: none"> - Proper insulation of all pipes carrying steam - Proper signage to be put in place
Steam escape from pipes	Operators can be burnt with dry steam circulating in the manufacturing machinery / plants	<ul style="list-style-type: none"> - Pressure tests for vessels and pipes to be done periodically and operators to have appropriate PPE.

8.0 ESMP IMPLEMENTATION BUDGET

8.1 ESMP / ESAP Implementation Budget

Table 8.1 shows the ESMP Implementation proposed budget for all the actions that were proposed for adoption. However there are some actions which will continue and Olivine Industries will meet the cost of ESAP Implementation in compliance with the relevant laws and commitments made. The ESAP budget is approximately 0.4% of the total investment.

Table 8.1 ESMP Budget

Activity	Cost (USD)
Appointment of ESS Manager	24 000.00
Appointment of HS Officer	18 000.00
Development of Olivine E&S Policy and E&S Management Systems.	5 000.00
Introductory Trainings on IFC PS and AfDB OS for Management	6 000.00
Development & Implementation of Grievance Handling procedure consistent with IFC PS 2	4 200.00
Development & Implementation of Emergency Preparedness and Response Plan	3000.00
Development of Olivine Sustainability Report as per GRI Standards	5 000.00
Update of the E&S risk inventory and E&S Management Programs	1 200.00
Development & Implementation of Integrated Management Systems	25 000.00
ESMS performance review and development of SOPs	2 000.00
Independent review of ESMS alignment with IFC PS and AfDB E&S Safeguards	6 000.00
ESAP / ESMP Monitoring Review	1 200.00
Air Emission Surveys	1 200.00
Biannual Environmental Social Safeguards Management Framework Implementation Audits	4 000.00
Discharge Permits and Licences	1 000.00
Wastewater Treatment Costs	1 200.00
TOTAL	106 000.00

9.0 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusion

The assessment of the site and factors that are considered in the project has shown that the implementation and operation phases of the proposed project will have positive impacts to the proponent and the country. The impacts will include improved production capacity, creation of jobs, increase in government revenue and general development of the site. There are no new impacts expected since the project is an extension of the existing project.

Although the proposed development will stimulate economic benefits, there are negative environmental impacts that are associated with its implementation. The Environmental and Social Action Plan in this report provided mitigation measures for the negative impacts and enhancement measures for the positive impacts to ensure sustainable implementation of the project. The strategy will ensure sustainable execution of proposed activities and protection of the environment. The predicted negative impacts can be mitigated with an effective implementation of the Environmental and Social Management Plan.

9.2 Recommendations

Recommendations to reduce the negative environmental impacts and enhance the positive ones include;

- In compliance with Environmental Management Act (CAP 20:27) periodic environmental monitoring of the project will need to be conducted
- Ensure sound implementation of the Environmental and Social Management Plan
- Ensure that all employees receive adequate periodic Safety, Health and Environmental training through a well capacitated SHE Department.
- Ensure compliance with all applicable legislation.
- A fire prevention system should be installed
- Emergency procedures for spillages and hazardous substances handling
- Put in place occupational safety and health protection measures and implement EMS ISO 14001: 2015; OHS ISO 45001:2018 and ISO 22001.

10.0 APPENDICES

APPENDIX A

A1. Site Map



Proposed project site



APPENDIX B

B1. EIA Certificate

		Licence Number: 8000055430
		
ENVIRONMENTAL MANAGEMENT AGENCY (EMA)		
ENVIRONMENTAL IMPACT ASSESSMENT CERTIFICATE		
<i>Issued in terms of the Environmental Act [Chapter 20:27]</i>		
This serves to certify that Washington Maworise		
Name of Company	:	Olivine Industries
Full Address	:	Zimbabwe
Contact No.	:	
Has been granted EIA acceptance to operate:		
Development Project Name	:	Olivine Factory Expansion (10064)
Physical address of Project:	Hall & Birmingham Avenue Southerton Harare	
Type of Development	:	Industry
Telephone at site	:	0242 754556
And is permitted to operate in accordance with Part XI of the Environmental Management Act (Chapter 20:27) under the specified terms and conditions.		
Invoice/Receipt No.	:	80395/397572
Issuing Officer	:	Dadirai Kwenda
Issue Date	:	08.10.2018
Expiry Date	:	07.10.2020
Director General:		
		