

SOUTHERN AFRICA TRADE AND CONNECTIVITY PROJECT (SATCP)

REVISED OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT FRAMEWORK



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List of Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
BOQs	Bill of Quantities
C-ESMP	Contractor-Environmental and Social Management Plan
CoC	Code of Conduct
COVID-19	Corona Virus Disease- 2019
dB	decibel
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ESS	Environmental and Social Standards
GBV	Gender Based Violence
GFCI	Ground Fault Circuit Interrupter
GRM	Grievance Redress Mechanism
HAZMAT	Hazardous Materials
H&S	Health and Safety
HIV	Human Immunodeficiency Virus
HOC	Hierarchy of Control
HTC	HIV Testing and Counselling
ICT	Information Communication Technology
IEC	Inland Examination Centre
IFC	International Finance Corporation
ILO	International Labor Organization
JSA	Job Safety Analysis
JSA	Job Safety Assessments
KIA	Kamuzu International Airport
KVA	Kilo Volt-Amps
LMP	Labour Management Procedures
LPG	Liquefied Petroleum Gas
MERA	Malawi Energy Regulatory Authority
MRA	Malawi Revenue Authority
MW2063	Malawi Vision 2063
OHS	Occupational Health and Safety
OSBP	One Stop Boarder Post

OSHA	Occupational Safety and Health Administration
OSHWA	Occupational Safety Health and Welfare Act
PIU	Project Implementation Unit
PM	Project Manager
PPE	Personal Protective Equipment
SATCP	Southern Africa Trade and Connectivity Project
SDGs	Sustainable Development Goals
SEA	Sexual Harassment and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SH	Sexual harassment
SOPs	Standard Operating Procedures
STIs	Sexually Transmitted Infections
TBT	Tool Box Talk
TNA	Training Needs Assessment
UPS	Uninterrupted Power Supply
WB	World Bank

CHAPTER ONE: BACKGROUND

1.1 Introduction

The Government of Malawi through the Ministry of Transport and Public Works and Roads Authority is implementing the Southern African Trade and Connectivity Project (SATCP) with financial support from the World Bank (WB). The project is expected to run for 6 years from 1st July 2021 to 30th June 2027. The objective of the project is to support Malawi and Mozambique in increasing regional trade coordination, reducing trade costs and time, developing regional value chains and improving access to infrastructure. The project includes an infrastructure-plus approach in design, combining the upgrade of border posts, information communication and technology (ICT) investments, roads rehabilitation, as well as broader trade-related reforms and value chain development to advance regional integration. Ultimately, the project investments and activities are expected to lead to considerable economic benefits including increased regional trade, income growth, job creation, and resilience, as well as economic spill overs to other countries in the sub-region.

1.2 Project Components

The project has four components, namely:

1.2.1 Reduce Trade Costs

This component has three sub-components, which are:

- Enabling digital trade: Development of trade ICT systems,
- Improving borders and their management,
- Strengthening trade and connectivity institutional capacity;

1.2.2 Improving Regional Coordination and Project Implementation

The activities under this sub-component operationalize support for strengthening regional coordination and SATCP implementation. This has a number of subcomponents:

- Develop and implement pandemic/climate-related responses to ensure adequate trade flows between the countries.
- Remove non-tariff trade barriers, facilitate trade and develop value chains between the corridor countries.
- Implement improved transport, transit, logistics and immigration procedures.
- Establish a corridor performance measurement and monitoring system.
- Implement the Corridor Trip Monitoring System.

- Support the functioning of Project Implementation Units (PIU) and the relevant Project Implementing Entity

1.2.3 Strengthen Value Chains for Regional Integration

As under the components and sub-components highlighted above, the activities under this component contribute to the leveraging of the infrastructure-plus approach for regional integration efforts under the project and contribute to the attainment of intermediate results under component 3 of the Project. The following activities will be implemented under this component:

- Support/finance public upstream investments to generate private sector participation, as well as design studies, environmental and social instruments, bidding documents, and advisory services that will improve conditions for private-sector investment
- Build capacities of small-scale producers, emerging farmers and firms through a regional integration lens
- Develop bank and microfinance institutions' innovative financial solutions to support opportunities for regional integration and to improve access to finance.
- Extend Innovation Grants, Matching Grants and technical assistance to Selected Beneficiaries to support demand-driven risk sharing solutions

1.2.4 Strengthen transport infrastructure to improve market access

This component also has two sub-components namely:

- Upgrading roads and
- Improvement of road safety.

In order to mitigate the adverse social and environmental impacts of the project, various environmental and social instruments were developed and among them are Environmental and Social Management Framework (ESMF), the Stakeholders Engagement Plan (SEP), Labour Management Procedure (LMP) and Grievance Redress Mechanism (GRM) Manual which provide for the development of the Occupational Health and Safety (OHS) Management Plan. The OHS Management Plan shall also be implemented in line with the approved Environmental and Social Impact Assessment (ESIA) report; and Environmental and Social Management Plans (ESMP) and the Environmental and Social Management Framework, among others.

1.3 Core Values of SATCP Health and Safety Framework

In achieving and fulfilling its objective, the SATCP Health and Safety Management Framework will be guided by the following core values:

- Zero fatalities of workers, visitors or the public;
- Zero accidents and incidents of workers, visitors or the public;
- Zero harmful, hazardous or dangerous situations or occurrences;
- Zero environmental concerns or impacts; continuous improvement of the health & safety performance at site under practical conditions.

1.4 Rationale for the Occupational Health and Safety Management Framework

This Occupational Health and Safety (OHS) Management Framework is designed to define and establish commitment made by the Southern Africa Trade and Connectivity Project (SATCP) to comply with the health and safety requirements of the Malawi's Occupational Safety Health and Welfare Act of 1997 and World Bank Operating procedures and World Bank Group Environmental Health and Safety Guidelines. The implementation and management of SATCP accords the highest priority to occupational health and safety requirements in carrying out its day-to-day activities. It is the commitment of SATCP to provide adequate training, information, instruction and compliance supervision of occupational health and safety to enable contractors, subcontractors and the public to carry out their given duties safely and systematically.

This plan includes the guidelines and it outlines the roles and responsibilities of employers, workers and affected persons in the implementation of the project activities to ensure that health and safety of workers, and the public is maintained at all times. All workers have a clear responsibility to maintain a positive attitude towards their safety and to prevent injury to themselves and others due to their acts or negligence. This OHS Management framework sets out responsibilities and duties of each stakeholder in order to guarantee that the health and safety of everyone prevails throughout the implementation period of the SATCP. Further, the OHS Management framework is developed in full compliance with all the applicable international and national legal requirements and standards. The OHS Management Framework identifies the critical activities related to project execution, their timing with respect to project work programs and identifies the roles and responsibilities of project personnel with respect to these activities.

1.5 Objective of OHS management Framework

The main objective of this OHS Management Framework is to provide healthy and safe working environment in construction sites. The OHS Management plan will guide execution of project operations in a safe manner by clearly setting out procedures for assessing working conditions for different project activities and identifying safety procedures to mitigate the risks, stating out roles and responsibilities of the various project stakeholders which include: the client (contractors, subcontractors), project management, workers, communities, and all others.

Specifically, the plan will:

- Describe project activities which are deemed to be high risk in terms of occupational health and safety;
- Set out site assessment procedures to identify risks and potential safety protocols to mitigate the risks;
- Ensure that awareness is carried out on all potential workplace risks and hazards;
- Provide strategies for prevention against the workplace risks and hazards;
- Provide appropriate guidelines for training all the project staff to ensure that the workers are working in a health and safe environment;
- Maintain a constant and continuous interest in the improvement of occupational health and safety performance; and
- Identify the human and other resources necessary for the implementation and maintenance of the OH&S Plan.

1.6 Scope and Nature of the Framework

This Occupational Health & Safety Management Plan is applicable to all components of the SATCP which has several sub-projects with activities related to engineering designs, construction, manufacturing, supply, delivery, installation, erection, testing, commissioning and handing over of the completed subprojects throughout the project period. The following are sub-projects which will be guided by this OHS Plan:

- Rehabilitation of the Liwonde – Matawale (MOO3) road;
- Construction of a Weighbridge on the Liwonde – Matawale (MOO3) road;
- Construction of One Stop Border Post (OSBP) at Muloza in Mulanje;
- Construction of inland examination centers in Lilongwe;
- Refurbishment of Blantyre Inland Examination Centre;
- Development/Construction of identified value chains last mile infrastructure.

- The installation of Power Backups systems at MRA border posts and Inland Examination Centres (IEC);
- Installation of ICT equipment; and
- Value Chain subprojects.

CHAPTER TWO: PROJECT DESCRIPTION AND MANAGEMENT SYSTEM

2.1 Introduction

SATCP will mostly use contractors, subcontractors, consultants and suppliers for the execution of the project or part of it. Further, the project will use various tools, equipment and materials. As such, there are several occupational health and safety risks expected from the works which might negatively affect the project implementation.

2.2 Major Project Activities

There are a number of sub-projects that are implemented under SATC Project. However, Sub-projects listed from section 2.2.1 to 2.2.7 are the ones considered to be high-risk projects.

2.2.1 Road Construction

The road construction works from Liwonde –Matawale (45 kilometers) may lead to various impacts among them OHS, stormwater management, community health and safety, waste management, hazardous substances management, and road traffic disruption related. It is expected that the project will employ directly 250 people and over 300 indirect people during all the four phases of the project namely pre-feasibility, feasibility and design, construction, operation and decommissioning.

2.2.2 Construction of Muloza One stop border post;

Construction of Muloza one stop border post (OSBP) in Mulanje will lead to various impacts among them OHS, community health and safety hazards, increased generation of waste management including hazardous substances, poor stormwater management, and road traffic disruption related. Operational phase of the project will result in increased generation of waste and HAZMAT. This will require environmental and social impact screening to determine positive and negative impacts. The project is expected to employ about 250 people (directly and indirectly) at its implementation peak.

2.2.3 Construction of Weighbridges

SATCP will construct a Weigh Bridge Station in Machinga District and it is anticipated that the subproject will result in various impacts among them OHS, community health and safety, increased generation of waste including hazardous substances and road traffic disruption related. This will require environmental and social impact screening to determine positive and negative impacts and propose the mitigation and

enhancement measures. It is estimated that this project will employ not more than 100 people during planning, construction and operation.

2.2.4 Construction of inland examination centres in Lilongwe and Blantyre

Construction of the Lilongwe IEC and refurbishment of Blantyre IEC will result in various impacts among them OHS, community health, and safety, waste management, hazardous substances management, and road traffic disruption. This will require environmental and social impact screening to determine positive and negative impacts and propose specific mitigation measures. The two sub-projects will employ about 100 direct employees who will work onsite during its implementation.

2.2.5 The installation of Power Backups systems and Mobile Scanners at MRA border posts and Inland Examination Centre

The project will provide data centres (computers, routers, printers, firewalls, servers, local and area network materials, patch panels etc.) and mobile scanners. Additionally, the project will also provide power backup which will involve:

- Supply and installation of Centralized UPS Systems
- Carrying out electrical wiring installation
- Assessing the existing electrical wiring for the Centralized UPS Systems and carry out minor clean-up exercise.

The sizes of the UPS to be installed will range from 10 KVA to 30 KVA depending on power demand for each MRA border as in table 2.2.1:

Table 2.2.1: UPS Size for each Customs Station

Ref	Station	UPS Size (KVA)	Estimated number of direct employees
1	Blantyre IEC	30	6
2	Lilongwe IEC	30	6
3	Biriwiri	10	5
4	Nsanje	10	5
5	Marka	10	5
6	Chiponde	15	5
7	Liwonde	10	5
8	Muloza	15	5
9	Mqocha	10	5

10	Blantyre Station	30	6
11	Nayuchi	10	5
12	Chitipa	15	5
13	KIA	20	6
14	Mzuzu Station	15	7

OHS risks associated with these installations include ergonomic concerns, fire risk, electrical hazards and exposure to electromagnetic fields. Proper installation, maintenance and training can mitigate these risks.

2.2.6 The installation of ICT equipment;

This subproject will automate the management of import and export of products for agricultural trade through installation of servers, ICT facility through establishment of data storage to load documentation; collaborating with internet service providers, as applicable; re-deployment of all mobile devices (tablets, laptops and similar devices); and develop ICT infrastructure at border points. Automation of trade documentation and procedures is needed to lower transaction costs by enabling data sharing. MRA will also install ICT equipment in a data recovery site to be established in Lilongwe. The ICT infrastructure and services will also be subjected to environmental and social screening. Site-specific mitigation measures checklist to address OHS related risks that emanate from installation works will be developed. Installation of ICT will involve work at height in some cases hence posing a risk of fall injuries to workers involved. On the other hand, use of hand tools and electrical appliances will also pose Occupational health and safety risks.

2.2.7 Value Chain subprojects;

The development objective for the SATCP is to support Malawi and Mozambique in increasing regional trade coordination, reducing trade costs and time, developing regional value chains, and improving access to infrastructure. Investment in agriculture value chains remain low in both Malawi and Mozambique. SATCP will invest in hard and soft infrastructure to support regional value chains, which will lead to increased resilience along with income growth and job creation. Additionally, the project seeks to stimulate private sector recovery, bolstering economic resilience in the wake of the current downturn. Matching grants and competitive grants will form an integral part of this component. Some of the activities to be implemented by beneficiaries of Matching grants and competitive grants will pose occupational health and safety risks.

In addition to matching grants and competitive grants under value chain component, the project will identify and develop last mile infrastructures for the identified value chains. Construction of these last mile infrastructure is expected to generate negative environmental, health and social impacts, which include occupational health and safety risks that will require specific mitigation measures.

2.3 Major Risks and Mitigation Measures

A number of risks might arise due to the use of materials and equipment at various project sites. Table 2.3.1 summarizes some of the major risks from the project activities.

Table 2.4.1: Major Risks

SN	Risk
1	Fall from height
2	Slips, trip and fall
3	Falling Objects
4	Exposure to extreme weather conditions
5	Manual handling and other musculoskeletal activities
6	Exposure to hazardous materials – asbestos
7	Exposure to fire and explosions
8	Electrocution and exposure to electromagnet
9	Exposure to vibrations
10	Stuck by a moving object or hitting a stationary object
11	Risk related to hand-tools
12	Asphyxia and drowning
13	Workplace violence
14	Mental health due to exposure to GBV, sexual harassment, discrimination and labour exploitation
15	Communicable Diseases (Cholera, Covid-19, HIV and AIDS and other STDs)

CHAPTER THREE: POLICY AND LEGAL FRAMEWORK

3.1 Introduction

The Republic of Malawi has developed laws, policies and strategies for labour, occupational health and safety, sanitation and working conditions. SATCP is committed to comply and enforce those laws, policies, and strategies during the implementation of all sub-project activities. The aim of complying with these policies and legislative framework is to promote sustainable socio-economic development in the country. This chapter outlines the policies, legislative and administrative framework relevant to guide the implementation of activities of the SATCP to ensure a healthy and safe work environment.

3.2 National Policy Framework

3.2.1 National Environmental Policy (2004)

The overall goal of the policy is to promote sustainable social and economic development through the sound management of the environment and natural resources. The policy promotes the rights of every person to a clean environment while also at the same time it advocates that every person has a duty to promote sustainable utilization and management of the environment and natural resources. Among others, the policy identifies air pollution and water resources degradation as key environmental issues to be addressed in order to accord every person a safe environment.

To protect the environment from further degradation; the policy outlines actions to be undertaken to ensure adequate environmental protection including promotion of safe and proper handling and use of chemicals. SATCP will integrate environmental concerns to comply with this policy during implementation of project activities. Therefore, ensuring that every person has a clean environment.

3.2.2 National Gender Policy (2012)

The 2012 National Gender Policy recognizes that women play important roles in national development. The main purpose of the policy as stipulated under Section 1.3 is strengthening of gender mainstreaming and women empowerment at all levels in order to facilitate attainment of gender equality and equity in Malawi. The overall goal of gender policy as stated in Section 2.1 is to reduce gender inequalities and enhance participation of women, men, girls and boys in socio-economic development processes.

The SATCP, according to the provision of the policy, must make every effort to support the objectives of the policy during implementation of all sub-project activities. The project should at a minimum ensure that women are employed and prohibit any discrimination of women in decision-making processes based on gender. The project must create conducive work environment for both men and women employed under the project.

3.2.3 National HIV and AIDS Policy (2003)

The national HIV and AIDS policy highlights that HIV and AIDS impact on the country is quite significant and affects a range of socio-economic activities be it in agriculture, fisheries, public sector, private sector, tourism, urban areas, rural areas among others. HIV and AIDS prevalence in the country varies from one region to the other and from rural to urban areas. The highest rate is in the Southern Region and the lowest in the Northern Region. Prevalence rate is high in urban areas as compared to rural areas.

The National HIV and AIDS Policy identifies migrant workers and women among highly vulnerable people to transmission of HIV and AIDS and other sexually transmitted diseases. Migrant workers may contract or spread HIV and AIDS if involved in unsafe sexual intercourse with local female partners in the surrounding communities or some sex workers in the project area. In addition, increased disposal of income from migrant workers may enhance some workers to indulge in extra-marital affairs with either local girls or married women within the surrounding villages. These sexual activities would enhance the spread of HIV and AIDS among workers and local people

3.2.4 National Sanitation Policy, (2006)

The National Sanitation Policy under Section 2.3 provides a broad framework and policy guidelines to enhance and support sanitation coverage in the country through formulation of sanitation strategies, plans and programs at all levels for improving the quality of life of the people of Malawi and the physical environment necessary for health life. The primary focus of the policy is on the safe disposal of excreta away from the dwelling units and workplaces by using a sanitary latrine and includes creation of an open defecation free environment along with the safe disposal of liquid and solid wastes and the promotion of health and hygiene practices in the country.

For any social and economic development to take place, adequate sanitation in conjunction with good hygiene and safe water are essential. All entities employing people

under the SATCP should be in line with this policy by providing sanitation and hygiene facilities for workers and visitors at the site.

3.2.5 Malawi Vision 2063 (MW2063)

This is the most recent development strategy for Malawi designed to contribute to Malawi's long-term development aspirations. The strategy covers a period of forty-three years, from 2020 to 2063. MW2063 is a successor to Vision 2020 which had the goal of Malawi becoming secure, democratically mature, environmentally sustainable, self-reliant with equal opportunities for and active participation by all, having social services, vibrant cultural and religious values and a technologically driven middle-income country by the year 2020.

MW2063 is anchored on three key pillars, namely: Agriculture Productivity and Commercialization; Industrialization; and Urbanization. The vision takes into account, Malawi's international, continental and regional obligations where special consideration has been on domesticating the key commitments such as the 2030 Agenda on Sustainable Development Goals (SDGs), the African Union Agenda 2063, the Southern African Development Community Regional Indicative Strategic Development Plan (SADC RISDP) and the Common Market for Eastern and Southern Africa (COMESA) Treaty. Through a mapping exercise, the selected three key Pillars are expected to have direct links to these international commitments thereby providing a strong basis as an implementation tool for the Sustainable Development Goals (SDGs) other international agendas in the medium term. The project has been designed in response to the aspirations of Malawi Vision 2063 among other things to: increased Transport and Storage Infrastructure; develop and maintain low cost and competitive transport systems across all modes such as this proposed OSBP. This entails investing in transport infrastructure, such as in storage infrastructure, cold-rooms and modern facilities fitted with state-of-the-art equipment for the handling of cross boarder products and movement of people. The aim is to curb high transportation and storage costs, as well as clearance time that currently comprise one of the largest components of production costs.

3.3 Legal Framework

3.3.1 Constitution of the Republic of Malawi, (1995)

The Constitution of the Republic of Malawi provides the foundation for safe work environment in Malawi. Sections 13 (d) define the role of the State in environmental management as follows, which is to manage the environment responsibly to prevent degradation of the environment; provide a healthy living and working environment for the people of Malawi; accord full recognition to the rights of future generations through environmental protection and sustainable development of natural resources; and conserve and enhance the biodiversity of Malawi. The Constitution, under Section 13 (a), gives the State the responsibility to achieve gender equality for women through full participation of women in all spheres of the Malawian society, on the basis of equality with men; implementation of principles of non-discrimination and such other measures as may be required; and implementation of policies to address social issues such as domestic violence, security of the person, lack of maternity benefits, economic exploitation and rights to property.

In view of the principles stipulated in the constitution, the SATCP will ensure that activities implemented under the project provides a healthy living and working environment for the people by effectively implementing sound environmental and social management measures. The project will also integrate gender equality elements during implementation of all sub-projects' activities.

3.3.2 Occupational Safety, Health and Welfare Act (OSHWA), (1997)

The OSHWA makes provision for the regulation of conditions of employment in workplaces with regard to safety, health, and welfare of employees. Section 7 provides for the registration of workplace with the Director of Occupational Safety, Health and Welfare. General safety facilities stipulated for most workplaces include the following: adequate ventilation, not overcrowded and clean workplaces, lighting, washing facilities, change rooms, sanitary conveniences, medical examination and first aid kits. Both employers and employees are required to be sensitized on basic procedures for proper use and operations of the welfare and safety facilities within workplaces.

Section 53 stipulates matters relating to bulk storage of dangerous materials. Section 55 stipulates measures that relate to work in confined spaces and recommended means of fire escapes from workplaces which have to be properly labelled and kept free of obstruction at all times. Section 56 and 57 provide for prevention of fire outbreaks,

and control of incidences of the outbreaks within workplaces. Section 58 and 59 provides for the provisions of protective clothing (such as gloves, foot wear, screens and goggles, ear muff, breathing masks and head covering) to protect workers from excessive exposure to nuisances such as emissions of dust and fumes from some work activities. Section 63 stipulates matters that deal with noise.

All contractors under this project are obliged to register their workplaces with the Director of Occupational Safety and Health in the Ministry of Labour and comply with all provisions of this Act.

3.3.3 Environment Management Act, (2017)

The Act provides the legal basis for the protection and management of the environment, conservation and sustainable utilization of natural resources. Section 2 (a) of the act state that every person is required to perform functions relating to the protection and management of the environmental shall take such steps and measures as are necessary for promoting a clean and healthy environment in Malawi. Section 55 of that Act stipulates that every person has the duty to manage any waste generated by his activities or the activities of those persons working under his direction in a way and in a manner that he does not cause ill health to other persons or damage to the environment. Section 56 of the act requires operators to formulate measures necessary to manage handling, storage, transportation and disposal of wastes.

SATCP and all contractors hired under the project will comply with all provisions stipulated in this Act. SATCP will require all contractors to put up mitigation measures for waste management in order to ensure a clean and healthy environment.

3.3.4 Employment Act, (2000)

Employment Act of 2000 makes provision for establishment, enforcement and regulating minimum standards of employment. The purpose of the Act is to ensure equity necessary to enhance industrial peace, accelerated economic growth and social justice. The Act prohibits employers from discriminating against workers on the grounds of race, colour, sex, language, religion, political or other opinion, nationality, ethnic or social origin, disability, property, birth, marital or other status or family responsibilities in respect of recruitment, training, promotion, terms and conditions of employment, termination of employment or other matters arising out of the employment relationship. Furthermore, it prohibits forced labor and child labor. The SATCP will be implemented in line with the provisions of Employment Act (2000).

3.3.5 Labour Relations Act, (1996)

The Labor Relations Act promotes sound labor relations through the protection and promotion of freedom of association, encourages effective collective bargaining and promotes orderly and expeditious dispute settlement, conducive to social justice and economic development. Part V of the Act stipulates dispute settlement procedures by presenting ways and channels of dispute resolution. Furthermore, it encourages the establishment of internal dispute handling machinery as a primary platform to receive and handle workplace matters before the involvement of a third party. The project will utilize a Workers' Grievance Redress Mechanism set out to provide an opportunity for reporting and settling grievances from workers. In order to promote contact and dialogue, Safety Committees shall be instituted at each construction site as per the requirement under section 21 of the Occupational safety, Health and Welfare Act of 1997.

Part VII provides for an Industrial Relations Court that will hear and determine all labour disputes and its decisions shall be final and binding. The court's decisions may be appealed to the High Court on a question of law within 30 days of the decision being rendered

3.3.6 Workers Compensation Act, (2000)

The Workers' Compensation Act provides for compensation for injuries suffered or diseases contracted by workers in the course of their employment or for death resulting from such injuries or diseases; it provides for the establishment and administration of a Workers' Compensation Fund; and it provides for matters connected therewith or incidental thereto. Employer is responsible for paying compensations.

3.3.7 Public Health Act (1948)

The Act provides the legal framework for planning and management of a wide range of health-related issues including environmental health, occupational health, and solid waste management. Section 88 stipulates the requirements for separate toilets for both male and female persons in public buildings. In order to comply with the requirements of the Act the implementation of the project will ensure that adequate toilets for both men and women are provided during construction related sub-projects under the SATCP.

3.3.8 Pesticides Act, (2000)

This Act provides for the control and management of the import, export, manufacture, distribution, storage, disposal and use of pesticides. The Act also establishes the Pesticides Control Board that enforces the provisions of the Act relating to pesticides and other incidental matters. The Act protects the importation and use of expired products that can be hazardous to the environment and human health. Section 34 of the act stipulates that every employer who requires or permits an employee to use a pesticide shall provide and require the employee to use facilities, equipment and clothing conducive to the safe handling of the pesticide. SATCP is expected to use a lot of pesticides during implementation of sub-projects activities. All employers under SATCP must provide adequate and appropriated PPES to all workers handling pesticides in the course of implementing SATC project activities.

3.3.9 Gender Equality Act, (2013)

The Act makes provisions for integration of both men and women in functions of the society. The Act is intended to eliminate harmful social and cultural practices, ensure more equal opportunity in the workplace, enhance education and training opportunities equally for men and women, enhance access to sexual and reproductive advice for everyone, and ensure that everyone is treated with dignity, integrity and without discrimination regardless of sex. To comply with the requirements of this Act, SATCP and all contractors involved will undertake the following amongst others: put in place a code of conduct for workers; provide equal employment opportunities to both men and women; and put in place measures to avoid cases of sexual harassment.

3.3.10 HIV and AIDS (Prevention and Management) Act, (2018)

The Act amongst others makes provision for the prevention and management of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) and to provide for the rights and obligations of persons living with HIV or affected by HIV and AIDS. Thus, the implementation of the project should put in place measures that will ensure minimum vulnerability of workers, vendors and communities to HIV and AIDS during the implementation of the project.

3.3.11 Energy Regulation Act, (2007)

The Energy Regulatory Act establishes the Energy Regulatory Authority, MERA, and provides for the regulation and control of the production and distribution of energy resources which includes fuel. Section 9 of Act gives the Energy Regulatory Authority

the power to regulate the activities within the energy industry, which includes the issuing of licenses for energy undertakings, monitoring, and enforcing compliance by developers granted licenses. As regards to SATCP, this implies that all technicians and contractors hired to install electrical appliances must possess valid MERA licenses and certificates.

3.4 Regulations and Guidelines

3.4.1 Environmental Management (Waste Management and Sanitation) Regulations, (2008)

The Regulation provides for the management of general or municipal solid waste, liquid, and hazardous waste. Specifically, Parts III, V and VII are relevant to the implementation of this project. Part III specifies the requirements for waste separation at source; general responsibility for proper storage of municipal waste; circumstances for waste disposal by generator; collection of municipal solid waste; and disposal of general or municipal solid waste. Part VII provides for the requirements for transportation and storage of waste; license for waste transportation or storage; and materials for storage of waste. SATCP shall therefore ensure that measures are put in place for handling, storage, sorting, transportation, and disposal of solid, liquid, and hazardous wastes to avoid contamination of soils and water resources from fertilizers and chemicals.

3.4.2 Environment Management (Chemicals and Toxic Substances Management) Regulations, (2008)

In respect to the proposed project, these Regulations apply to the sale and handling of toxic substances and chemicals which have the potential for harm to human health or the environment. Specifically, Part II of the regulations empowers local authorities to make by-laws relating to the management of toxic substances and chemical wastes in their respective area of jurisdiction. Such by-laws shall ensure that the disposal method of chemical or toxic wastes is in an environmentally sound manner. Furthermore, the local authority shall be responsible for management of chemicals and toxic substances in accordance with the provisions of the Regulations. The implementation of the project will therefore ensure that measures for handling and use of toxic substances and chemicals are put in place to protect humans and environment.

3.4.3 Public Health Act (Corona Prevention Containment and Management) Regulations

This is a gazette of Public Health Act that provides prevention measures of spread of Corona Virus by persons and measures by the government to prevent, contain and manage the spread of COVID. The gazette under Section 5 stipulates that for persons to prevent the spread of coronavirus, the following prevention measures must be observed:

- When in public area wear a face mask at all times;
- Keep a social distance of at least one meter from other persons;
- Wash hands frequently with soap and water, for at least forty seconds or use an alcohol-based hand sanitizer with a minimum alcohol content of seventy percent, for at least twenty seconds;
- When coughing or sneezing, cover nose and mouth with handkerchief or tissue paper or sneeze into a flexed elbow;
- Refrain from touching face, mouth, nose, and eyes; and
- Avoid handshakes.

The gazette also states that the government shall regulate all workplaces, education institutions, public gatherings, entry into Malawi, set restrictions relating to transport and public events as measures to prevent, contain and manage the spread of Corona virus disease. Fourth schedule of the Public Health rules provide workplace guidelines that shall be followed in order to prevent the spread of coronavirus disease at the workplace. The contractor shall follow all measures stated in this public health coronavirus prevention, containment and management rules 2020.

3.4.5 COVID – 19 Workplace Guidelines for Malawi

The objective of these Guidelines is to mitigate the spread of Coronavirus in workplaces; protect jobs and incomes; safeguard the health and safety of employees; ensure business continuity and promote innovative business solutions through social dialogue. The Guidelines address a whole spectrum of issues ranging from prevention, response, mitigation/management and recovery and business continuity to sustain jobs. It spells out roles and responsibilities of both employers and employees. All contractors under SATCP will comply with provisions in the Covid-19 Workplace guidelines.

3.4.5 Guidelines for Management of Construction Sites in the Wake of the Corona Virus (COVID-19), (2020)

In response to the outbreak of the Corona Virus, also known as COVID-19, and in view of the directive by the Malawi Government on the same, the National Construction Industry Council (NCIC) has put in place measures to ensure that workers at construction sites are not being put at risk of contracting and spreading the virus. The Council urges all parties to follow the guidelines as provided from time to time by the Ministry of Health in order to ensure that construction activities continue to operate safely. The MoH has also prepared construction site guidelines for management of construction sites in the wake of the COVID-19 that are being promoted by the Council.

3.4.6 Road sector Environmental and Social Management Guidelines

Road Sector activities with regard to road construction, rehabilitation, upgrading and maintenance contribute, either directly or indirectly, to soil erosion, deforestation, water resources degradation and depletion, threat to aquatic life, threat to biodiversity, human habitat degradation, air pollution and climate change. The guidelines are aimed at ensuring execution of road works such in a safe and environmentally friendly manner through provisions for Community and Occupational Health and Safety, Traffic Management as well as Environmental and social management.

3.5 World Bank Group Environmental Health and Safety Guidelines

The World Bank Group Environmental Health and Safety Guidelines provides good international practices to be implemented at project level in management of Environmental Health and Safety (EHS) issues. Section 4.2 specifically stipulate elements to be considered in undertaking activities that can poses occupational health and safety risks to people engaged in project activities. The contractor shall abide to all the factors stipulate in the World Bank EHS Guidelines to ensure safety of hired employees and the community.

3.6 Convention on Occupational Safety and Health Convention

Malawi ratified to ILO convention on Occupational Safety and Health Convention C155 which applies to implementation of all economic activities. The convention states each member country shall, in the light of national conditions and practice, and in consultation with the most representative organizations of employers and workers, formulate, implement and periodically review a coherent national policy on occupational safety, occupational health and the working environment. Part IV article 10 state that measures shall be taken to provide guidance to employers and workers

so, as to help them to comply with legal obligations. Article 16 state that employers shall be required to provide, where necessary, adequate protective clothing and protective equipment to prevent, so far as is reasonably practicable, risk of accidents or of adverse effects on health. The convention in article 17 further requires the employer to provide, measures to deal with emergencies and accidents, including adequate first-aid arrangements.

Article 19 stipulate that there shall be arrangements that workers and their representatives in the undertaking are given appropriate training in occupational safety and health. The article also state that workers are given adequate information on measures taken by the employer to secure occupational safety and health. The article further state that Occupational safety and health measures shall not involve any expenditure for the workers. To that effect, the contractor shall develop and apply occupational safety and health measures in accordance to the convention and all occupational health and safety measures expenditure shall be borne by the contraction. In view of this, contractors are expected to include occupational health and safety risks mitigation measures when preparing BOQs.

3.7 International Labour Organization Safety and Health in Construction Convention 1988 (C167)

The safety and Health in Construction convention applies to all construction activities, namely building, civil engineering, and erection and dismantling work, including any process, operation or transport on a construction site, from the preparation of the site to the completion of the project. The Convention aims at ensuring a safe and health work environment when undertaking economic activities. Article 9 of the Convention state that all parties that are concerned with the design and planning of a construction project shall take into account the safety and health of the construction workers in accordance with national laws, regulations and practice. Part III of the convention clearly outlines preventive and protective measures to be implemented in construction sites to ensure safe and health work environments. The contractors under SATCP project are expected to comply with all the preventive and protective measures specified in the Convention,

3.8 World Bank Environmental Health and Safety Guidelines

Under these guidelines, contractors have the obligation to implement all reasonable precautions to protect the health and safety of workers. These guidelines provide guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. SATCP expects contractors to have the

technical capability to manage the occupational health and safety issues of their workers. In view of this, SATCP will ensure that all contractor have qualified health and safety personnel through formal procurement agreements. Contractors shall introduce preventive and protective measures according to the following order of priority:

- a. **Eliminating the hazard** by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes.
- b. **Controlling the hazard** at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, and acoustic insulating.
- c. **Minimizing the hazard** through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lockout and tag-out, workplace monitoring, limiting exposure or work duration.
- d. **Providing appropriate** personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE. The application of prevention and control measures to occupational hazards should be based on comprehensive job safety or job hazard analyses. The results of these analyses should be prioritized as part of an action plan based on the likelihood and severity of the consequence of exposure to the identified hazards

3.9 World Bank Environmental and Social Framework, (2017)

The Environmental and Social Framework places emphasis on strengthening national environmental and social management systems and institutions and supporting Borrower capacity building. It promotes enhanced transparency and stakeholder engagement through timely information disclosure, meaningful and ongoing consultations throughout the project life cycle, and responsive grievance redress mechanisms to facilitate resolution of concerns and grievances of project-affected parties. Relevant to OHS Plan are the following:

ESS 1: Assessment and Management of Environmental and Social Risks and Impacts - Provides for assessment, management and monitoring of environmental and social risks and impacts associated with various phases of a project supported by the Bank to ensure environmental and social outcomes are realized in line with ESSs. The OHS Plan will ensure all activities under the SATCP are subjected

to assessment and appropriate measures are in place to safeguard workers and communities to OHS risks associated with the project activities.

ESS 2: Labour and Working Conditions - Environmental and Social Standard 2 (ESS 2) recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. People employed by contractors to work on sub-projects will need to be treated according to the ESF where the work conditions must meet the required standards. Implementation of the OHSMP will ensure safe and health work environment that foster worker and management relationship.

ESS 3: Efficiency and Pollution Prevention and Management - Resource Efficiency and Pollution Prevention and Management recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle.

ESS 4: Community Health and safety - Community Health and Safety addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. All contractors under SATCP, with guidance of this OHSMP will ensure that all their operations guarantees Community Health and Safety.

ESS 10: Stakeholder Engagement and Information Disclosure – Provides for open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

CHAPTER FOUR: ROLES AND RESPONSIBILITIES

4.1 Introduction

SATCP will provide consultants, contractors and other relevant stakeholders with the authority to carry out the assigned tasks and holds them accountable for successful and safe completion of those specific tasks. All stakeholders shall be accountable to meet the SATCP's OH&S goals and objectives. Responsibilities of the key personnel and workers are described in brief as under:

4.2 Responsibilities of the key personnel and workers

4.2.1 Project Implementation Unit

- Ensure that the Contractor carry out implementation of the OHS plan.
- Review and approve OHS Plans for contractors and sub-contractors.
- Approve the staff for the contractor and sub-contractors.
- Carry out periodic OHS inspections and reporting. To be done by qualified/certified OHS personnel
- Approve specific tasks with high safety and health risks.
- Provide resources for implementing agencies to implement the OHS.
- Community awareness on SH and safeguarding measures for zero tolerance to the vice. Ministry of Gender shall be involved in these processes.
- Implement the Grievance Redress Mechanism that will ensure establishment of Grievance Redress Committees at all levels to ensure uptake and redress of grievances including those relating to Health and Safety related.
- Responsible for notifying WB or any accidents or incidents on site, compiling Root Cause Analysis and Action Plan, ensuring costs and/or compensation is paid if applicable.

4.2.2 Ministry of Labour

- Carry out joint inspections on OHS
- Inspect and issue work place registration licenses
- Carry out accidents/ incidents' investigations

4.2.3 Malawi Environment Protection Authority

- Issuing hazardous waste storage and transportation licenses and permits
- Carrying out joint inspections on OHS

4.2.4 Directorate of Road Traffic and Safety Services

- Inspect mobile equipment and plants
- Carry out road safety trainings to stakeholders

4.2.5 Supervising Engineer

- Ensure community safety and health as well safe working environment for workers through implementation of safe systems
- Review and recommend for approval Contractor's OHSMP, Traffic Management Plan and associated MSIP to the client
- Approve work methods based on risk assessments and associated control measures
- Participate in site and risk assessments
- Conduct safety inspections and propose corrective actions to be implemented by the contractor
- Notify the client of incidents and accidents within 24 hours and carry out root cause analysis and recommend corrective measures;
- Document all safeguards instructions and warnings

4.2.6 Principal Contractors

The principal contractor will ensure safe working environment for all workers on the project site and protect the environment and communities from risks and hazards associated with the works. To that end, the principal contractor will undertake the following duties and responsibilities, among others;

- Appoint CERTIFIED/QUALIFIED full time OHS Officer to oversee development and implementation of OHS plan.
- In addition to the OHS officer, each section/ work site shall have a safety representative who will be trained in OHS by the contractor.
- Conduct site assessment, including determine previous/current use of the site (including likelihood for asbestos and/or any other hazardous material), underground voids, area of the site, site restrictions, topography (especially runoff management and flooding risk), what the ground conditions are like, access to services, location of existing services on the site (so as not to impact them), any burial grounds, nature of the surrounds (position of footpaths, adjacent land uses that may require additional protection e.g. schools or places of work), access and egress to/from the site, etc.
- Compile OHS plan for the site including site control measures to protect the site, workers on the site, equipment on the site, and the surrounding community from the site and works, including site housekeeping, site rules, standard operating procedures (SOP) for plant and equipment, preparing and use of specific materials or processes, PPE requirements, etc. Applicable to

primary work site, campsite, and ancillary sites including borrow pit and quarry, transport routes between sites.

- Conduct risk assessment for all tasks and propose measures to eliminate risk and provide PPE and trainings according to results of the risk assessment
- Conduct regular training inform and train workers on risks and hazards associated with the works; including briefing on OHS Plan and relevant SOPs, daily tool box talks.
- Provide adequate and appropriate PPE including specialized PPE for specific tasks
- Provide safe drinking water and sanitary facilities
- Develop and implement an OHS Plan and any supporting plans including, waste management, Traffic Management Plan (which includes pedestrians), Hazardous substances management plan (including transport, handling, storage, disposal and emergency preparedness);
- Provide induction and training/safety briefing to all suppliers and visitors to the site, provide appropriate and adequate PPE to persons visiting the site.
- Report all H&S accidents/incidents to Supervising Engineers and Labour Office for independent investigation and initiating compensation process where necessary;
- Conduct periodic health assessments for workers as required
- Establish a Health and Safety (HS) Committee and a Workers Grievance Redress Committee.
- Provide rest areas, water break and sheds for workers for shelter during extreme weather conditions
- Conduct training for workers on how to do a Job Hazard Analysis and prestart inspections for vehicle/plant and equipment operators

OH&S communications will be done in languages that are easily understood by workers. If need be, translators should be provided.

4.2.7 Occupational Health & Safety Committee and Workers Grievance Redress Committee

The Principal Contractor will establish an OH&S Committee and Workers Grievance Redress Committee. OH&S Committee serves as an interface platform that brings workers and management together in the development and review of health and safety policies and procedures for the workplace aimed at improving work health and safety. The OH&S committee shall be trained by the contractor's OH&S Manager on all OH&S

issues which will include committee's duty, resolution of issues, OHS related laws, OHS Management Systems, various assessments and work place investigation and inspection. Members will be of significant experience on the particular works. Specifically, the committee will:

- Make it easy for management and workers to cooperate on ways to ensure workers' health and safety at workplace;
- Assist in developing standards, rules, and policies or procedures for work health and safety;
- Make recommendations relating to work health and safety;
- Carry out other tasks that are agreed between the contractor and the committee.

Workers Grievance Redress Committee provides for workers to raise complaints, concerns and inform about non-compliances with implemented OH&S Management System. They will also look at other issues that are not OHS related such as discrimination and harassment. Received grievances will be directed either to Human Resource or Occupational Health and Safety department and a provision will be made to allow workers to directly contact OH&S Staff to ensure quick response and resolution of OHS related issues. Community grievances relating to H&S will be channeled through the Community Grievance Redress Committee or directly to the contractor and it will be documented accordingly.

4.2.8 Sub- contractors

Subcontractor management is critical to OHS. All subcontractors shall be subjected to and expected to adhere to the requirements of the OHS plan the same way as the Principal Contractor. The OHS Officer for the principal contractor shall be responsible for enforcing OHS adherence, conducting inductions and trainings as well as all task assessments for subcontractor's work sites. Subcontractors will:

- Ensure their workers are familiar with the OH&S requirements of SATCP and that they sign Code of Conduct
- Provide information, induction, instruction, training and supervision to ensure that each employee is safe from injury and risk to health.
- Provide adequate and appropriate protective equipment.
- Assist in accident investigations.
- Keep and maintain all H&S related records including Job Hazard Analysis and prestart checklists.

- Adhere to sexual harassment prevention and response protocols and operationalize grievance redress procedures

4.2.9 Suppliers, Visitors and other interested parties

It is the Visitors responsibility to comply with all Health and Safety requirements as set out for the site and wear the necessary PPE as provided by the contractor. The contractors will ensure their Suppliers, Visitors and other interested parties are familiar with the H&S requirements of SATCP through orientation prior to accessing work sites.

The Contractors will provide information, induction, instruction, training and supervision to ensure that each employee, including subcontractors are safe from injury and risk to health.

- Visitors must adhere to use of personal protective equipment provided.
- Suppliers must provide appropriate PPEs to its workers
- Adhere to sexual harassment prevention and response protocols and operationalize grievance redress procedures

CHAPTER FIVE: OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT REQUIREMENTS

5.1 Introduction

SATCP contractors will develop plans and measures, based on identified hazards and risks from Job Safety Analysis and Risk Assessment, before implementation of the subprojects under SATCP in order to provide safe and health workplaces. Annex 2 provides a general risk assessment for the SATCP project activities to guide contractors to assess in detail. guide. Potential Management Strategies and Implementation Plans to be developed by SATCP contractors as a response to identified risks and hazards are presented under section 5.2.

5.2 Major Plans, Procedures and Measures to be developed and implemented

5.2.1 Occupational Health and Safety Management Plan

For all construction projects, the Principal Contractors shall develop a site-specific Occupational Health and Safety Management Plan at least 4 weeks prior to commencement of their activities on site, reviewed and cleared by the PIU/Implementing Agency. The Occupational Health and Safety management Plan shall have sub-plans, which will contribute to the overall implementation of the OHS management plan. The related sub-Plans are briefly described below:

5.2.1.1 Traffic Management Plan

Contractors will develop a traffic management plan to ensure smooth flow of traffic and manage the project induced traffic conflicts. This also ensure a safe and standard transportation of workers and material for the project.

5.2.1.2 Site Security Plan

Each contractor shall prepare a site-specific security plan to manage the project induced security issues and to ensure a safe and timely completion of the project. It will also help contractors to ensure safe work site, store and camping premises.

5.2.1.3 Storm Water Management Plan

Contractors under SATCP will be required to develop and implement Storm Water Management Plan. The Plan will outline measures the contractor will follow to avoid pollution, contamination, erosion and flooding by controlling runoff.

5.2.1.4 Hazardous Substances Management Plan

SATCP contractors will be required to submit and implement a Hazardous Substances Management Plan. This plan shall clearly define the mechanisms for managing biological, chemical, and radiological materials and wastes. The Hazardous

Substances Management Plan will address methods both to identify materials that need special handling and to prescribe processes to minimize the risk of their unsafe use and/or improper disposal. This plan shall have procedures to govern activities from receipt to disposal of these hazardous agents.

5.2.1.5 Waste Management Plan

It shall be a requirement for contractors to develop and implement a site-specific waste management plan (WMP). The plan shall address management of all solid, liquid and e-waste that result from project activities for all project phases including decommission phase. The WMP will provide guidelines on waste reduction, segregation, collection and disposal practices in accordance with international best practices, to avoid deterioration of the natural environment and negative impacts on the health and safety of workers and the communities in the project areas. The Project is committed to apply the waste hierarchy and will seek to be a zero-waste discharge facility. This plan is the primary tool to guide employees towards waste management.

5.2.2 Noise Management Measures

Each contractor shall ensure to manage the project induced noise at the worksite and the surrounding community. Excessive exposure to noise can increase the onset of Noise Induced Hearing Loss (NIHL). In this regard, the contractor shall ensure to put noise control measures to ensure the safety and health of workers and the surrounding communities. Some of the noise control measures include, but not limited to the following:

- i. Improve the design of machines (e.g. by supplying them with shock absorbers and anti-vibration mounting, installing protective Plexiglas enclosures, etc.). Where possible, use special covers, silencers and generally materials with strong anti-vibration capacity.
- ii. When technically feasible, reduce emission of noise by placing a barrier between the noise source and the employee (e.g. a sound-proof cabin).
- iii. Increase the distance between the noise source and the worker.
- iv. Provide workers with personal protective devices such as suitable earmuffs and plugs.
- v. Use tools and equipment with anti-noise design.
- vi. Maintain equipment properly since poorly maintained machinery can increase sound emissions. Reduce the speed of cutting, sawing and spinning (Facts)
- vii. Limit the amount of time an employee spends at a noise source. This can be implemented when workers take it in turns to spend time at very noisy areas.

- viii. Provide quiet areas where workers can spend time in order to gain relief from hazardous noisy environments.

The following table provides the standards, exposure times and need for personal protective equipment. Refer table **5.2.2.1**:

Table 5.2.2.1: The Occupation Safety and Health Administration Noise Level Standards

PERMISSIBLE NOISE EXPOSURES (1)	
Duration per day, hours	Sound level Dba Slow response
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
Less than or equal to 0.25hours or 15 minutes	115

Source: Occupational Safety and Health Administration

7.8.1 Air Quality Management Procedures Measures

Contractors shall ensure to put in site specific air quality measures to manage air pollution induced by the project activities to safeguard the safety and health of workers and the public. The measures shall be submitted to PIU for approval prior to commencement of any activities which may have the potential to pollute air. Major sources of air pollution include:

- Concrete batch plant;
- Storage sites for cement, quarry, sand and gravel;
- Loose soil due to excavations and vehicular movements

In this regard, there is need to locate concrete batch plant away from residential areas and campsite. Storage sites for cement, quarry, sand and gravel should always be covered. This should include the transportation of such materials. Road and weigh bridges construct may cause significant impacts on surrounding communities due to dust release. The contractor should frequently suppress dust through compaction and water spray. Where quarrying activities will be conducted under the project dust

emissions are expected from production and processing of quarried materials, transporting, loading, unloading and stockpiling quarried material. Among others, the contractors shall implement the measures listed below;

- Where Possible Install a wetting system at the quarry production site to keep materials damp;
- Cover materials by tarpaulin when being hauled by vehicles;
- Reduce drop height to a minimum;
- Limit vehicles speed;
- Provide adequate and appropriate PPEs to workers/visitors at the site;
- Prepare risk assessment for all activities happening at the quarry site.

For operation of quarry site and borrow site the contractor shall prepare specific measures through the Environmental and Social Management Plan. Malawi Environment Protection Authority as well as the Bank shall approve this Plan prior to commencement of works.

5.2.3 Safety Awareness Plan

In order to realize the safety targets, contractors along with the Sub-contractors shall conduct safety awareness campaigns, toolbox talks, inducts and hold safety meetings. An independent site safety committee shall be established, which shall have common understanding of safety requirements in accordance with Occupational Health Safety and Welfare Act 1997. This will enable all participants to recognize their restrictions and site conditions. Health & Safety meetings shall be conducted at least once a week/month, to discuss safety matters, decide safety targets, conduct site safety events for motivating and improving consciousness among all participants, review safety performance and statistics of all participants, evaluate the causes and consequences, study and suggest necessary improvement, highlight high-risk works and co-ordinate necessary measures for improvement. Pre-construction occupational Health and Safety meetings are to be conducted with all the sub- contractors to impress upon them the safety requirement and necessary preparations thereof.

5.3 First Aid Kit

- A fully equipped first aid box is to be available at all project sites, stores and offices with a ratio of 1 box to 30 people. The first aid box shall be easily accessible and all workers shall be informed of the location. The Site Engineer / Site Supervisor are responsible for maintaining and recording all the usages of the first aid box. The first aid box shall also be easily available at area where activities of high risk of injury are being undertaken.

- Ensure that the worksite has qualified First Aiders who have undergone first Aid Certification training.
- All contractors shall provide or ensure that they are provided with such equipment and facilities as are adequate and appropriate in the circumstances for enabling first aid to be rendered to any of their workers / visitors in case of illness, injury or incident at project sites.
- Eye-wash stations and/or emergency showers should be provided close to all workstations where immediate flushing with water is the recommended first-aid response
- A leaflet on first aid / posters should be kept with the first aid box at the stores.
- The workers are to be briefed regularly about first aid in the ‘Tool Box Talks’.
- Remote sites shall have written emergency procedures in place for dealing with cases of trauma or serious illness up to the point at which patient care can be transferred to an appropriate medical facility. Procedures shall be pictorial and in English as well as in common local languages.
- The contractors, in their site specific OHS plan/Emergency response plan, shall identify and indicate the closest clinic or hospital to the site in case of emergencies and shall have hospital emergency contacts.
 - The site shall have an equipped ambulance or dedicated vehicle in cases of emergencies.
 - Access roads need to be assessed and alternative routes identified in cases on emergency situations especially for remote sites

5.4 Fire Prevention

- Adequate fire-fighting systems must be in place in all sites / stores /offices. Contractors and their subcontractors shall familiarize both themselves and their workers with the fire safety arrangements and emergency evacuation procedures.
- Contractors shall develop and implement Hot work Standard Operating Procedures for Hot works. Hot work permits to be issued for all hot works activities by competent personnel.
- Provision of goggles and other specialized PPE as per risk assessment recommendations,
- Highly flammable liquids and Liquefied petroleum gas (LPG) shall be stored suitably and in designated areas only. Contractors shall store such material in

a manner as approved in the MDS/ material Data Sheet. For gas cylinders, workers shall ensure flashback arrestors are fitted on cylinders before use.

- All chemicals to be stored in bunds capable of holding 110% of quantity of the largest container; all containers to be clearly labelled with their contents and storage capacity, and risk.
- Firefighting equipment appropriate to the type of materials – diesel, oil products, and HAZMAT should not use water.
- Applicable type fire extinguishers must be kept at hand, especially when the contractor or sub- contractor is carrying out hot work.
- Fire protection equipment shall only be used in an emergency.
- Ensure that emergency drills are conducted regularly on site to prepare workers for emergency situations.
- Servicing of firefighting equipment

During operational phase, all OSBP, Inland Examination Centers and Weigh Bridges, will be provided with correct firefighting and HAZMAT containment systems and equipment for the site operation. Workers will be trained on Firefighting and HAZMAT containment procedures.

5.5 Excavation and Trench Works

All excavations shall be barricaded at all times with solid barriers. Before excavation works, a permit shall be obtained in which it shall detail:

- Clearance of existing services
- Dimensions of the trench
- Means of access
- Means of prevention of collapse and falling objects
- Where excavated material is to be kept or disposed of
- Chance finds procedures

Trenches and excavations shall be inspected regularly to check collapsing or failing.

5.6 Electricity

- No one shall tamper with the electrical power supplies or appliances.
- The contractors must not interfere with or work on any of the existing electrical installations or equipment without written consent from Supervising Consultants.

- Where Contractor staff & subcontractors have to work in the vicinity of already installed electrical equipment, they must carry out a risk assessment prior to commencement of any works.
- All equipment must be treated as “Live” unless isolated/locked off and tagged efficiently connected to earth at all points of disconnection of supply to such apparatus, or between such points and the point(s) of work;
- All electrical wires should be insulated. Double insulate electrical appliance and cables that are prone to wet conditions,
- Repair or installation of any electrical equipment must only be carried out by a competent qualified electrician certified by MERA
- Good housekeeping to avoid trip and fall hazards
- Additional safety measures need to be taken while carrying out installation works near power lines which include maintaining safe working distances while working near ‘Live’ power lines and ensuring proper tower earthing & other safety measures.
 - Provision of fall protection PPE such as harnesses and training workers on its proper use
 - Ensure double insulation for electrical appliance and cables that are prone to wet conditions.
 - Ensure all buried cables are surveyed/sketched out and route marked to avoid electrical incidents during excavations or during decommissioning where electrical works are taking place.

5.7 Stormwater / runoff water

- Rain runoff water must be appropriately attenuated on site before discharge to the surround environment and community.
- Erosion project and energy dissipation must be installed as necessary to prevent soil erosion on and off the site.
- Oil separation from stormwater must be installed, waste, including sediment, must be collected/retained on site.

5.8 Tools and Equipment

- Tools and equipment must be fit for purpose. All lifting appliances and lifting gears are to be properly inspected and certified.
- Guards and electrical trip switches must work effectively and must not be removed or bypassed.

- All tools shall be of good quality and maintained in a safe working condition. Homemade tools are not permitted.
- All power tools must have proper earthing, cables, plugs to avoid any shock.
- Erecting of Scaffolds shall be inspected and tagged accordingly by competent personnel (Safety Officer) before use

5.9 Machinery Safety

- All drivers and operators of mobile plant (mechanically propelled vehicles) shall be in possession of the appropriate license for the class of vehicles.
- Site Engineer/supervisor to ensure that all drivers and operators of mobile plant (mechanically propelled vehicles) are certified as competent.
- All mobile equipment (mechanically propelled vehicles) shall be inspected by a competent person and certified fit prior to use on site. Equipment considered to be unsafe shall not be allowed access to the site.
- Daily Check of Equipment to be carried out before starting of shift and document prestart inspection using a checklist and reporting of faults/anomalies
- All rotating parts of the plant/equipment shall be guarded properly.
- In case of any issues with the vehicle/ equipment, the operator must immediately stop the vehicle and report to Site Engineer/ Foreman and get it rectified immediately.
- The Operator/ driver must ensure that no one is close to the equipment while operating.
- A trained banksman will give signal to the operator when the equipment is being operated. The banksman must always wear Hi-Visibility jacket for easy visibility – all vehicles/plant shall be fitted with reverse beeping alarms.
- Prohibit, (through inductions/ Coc/Training), resting under parked heavy machinery, plant and vehicles.
- Provide rest areas and encourage workers to rest in designated areas/sheds only.

5.10 Reporting Obligations

All the workers, supervisors, engineers, managerial team, visitors, subcontractors and the hired persons are responsible for the verbal or written reporting of accidents, incidents, near miss, hazards and occupational illness to the concerned site OH&S Manager. Failure to do this may lead to fine or legal action according to the laws. The

H&S Reports should be submitted to PIU and to the responsible authorities on weekly and monthly basis as per 5.2 and 5.3 content.

5.9.1 Monthly Occupational Health & Safety Reports to Client

Principal Contractors shall prepare monthly OH&S reports. The monthly reports shall be submitted by close of business of the first week of following month to the PIU. The weekly reports shall comprise of the following information with respect to the reporting timeframe:

- Originator
- Name of the project
- Activities performed
- Health occurrences
- Safety occurrences
- Resulting accidents, incidents or dangerous situations
- Root cause analysis
- Investigation results
- Measures undertaken to address non-compliances including causes of incidents
- Lessons learned
- Informed authorities and resulting obligations/conditions
- Results of workplace inspections
- Training records
- OHS related grievances and resolutions

Apart from above, contractors should also have their own internal monthly reporting format. OH&S Monthly Reporting format.

5.9.2 Weekly Occupational Health & Safety Reports to Client

Contractors shall prepare weekly OH&S reports. The weekly reports shall be submitted by close of business on the first working day after a completed working week, e.g. the reporting timeframe is from Monday to Friday and the respective following working day is the upcoming Monday, if not a public holiday. The weekly reports shall comprise of the following information with respect to the reporting timeframe:

- Originator
- Name of the project
- Activities performed
- Health occurrences
- Safety occurrences

- Resulting accidents, incidents or dangerous situations
- Undertaken measures

5.9.3 Work Place Inspection Reporting

The OH&S Staff of contractors will be requested to undertake workplace inspections. In case that hazards and risks are identified during work, it is needed that the identified hazard or risk has to be eliminated and without undue delay during the inspection. In case that the problem could not be eliminated, a written report has to be prepared and issued to the OH&S Manager highlighting:

- a description of the problem;
- the reason why it could not be solved during the workplace inspection;
- the needed action;
- the responsible person;
- the associated hazards and risks;
- The deadline until the problem must be solved.

The occurrence must be reported in the monthly OH&S Report. Any other reporting requirements with respect to OH&S, e.g. audit reports, weekly and monthly OH&S reports, remain unchanged. The workers/supervisors shall also be trained to conduct and document a Job hazard analysis to be done for each task before starting work. In addition to the site inspections by the OH and S staff.

5.9.4 Incident and Accident Reporting & Investigation

Any accident resulting into damage or loss of property, injury, disability or loss of human life or have possibility of significant environmental impact shall be reported by project manager of that sub-project giving brief details to PIU at earliest possible time and not extending 24 hours from occurrence of the accident. The event summary report of the same shall be submitted to WB within 24 hours of notification. Project Manager and Principal Contractor will immediately constitute a committee to investigate the accident. The purpose of the investigation is to:

- a. Find out the root cause of the accident and ensure prevention of similar accidents in the future.
- b. Fulfill legal requirements.
- c. Determine the cost of the accident.
- d. Determine compliance with applicable safety regulations.
- e. Process workers' compensation claims.

The investigation shall proceed in shortest possible time from occurrence of the accident as facilitating observation of actual conditions at the time of accident, identifying the witnesses and undisturbed evidence could be recorded. All accidents that cause a worker to miss work for more than 3 days is to be reported to the Department of Occupational Safety and Health in the Ministry of Labour in the shortest possible time. This reporting should also be followed by reporting to Workers Compensation department.

Incident records/registers shall include near misses and will be reported accordingly. The reporting of near misses is important to ensure hazards are identified earlier on before a major incident occurs. Near misses will be recorded on a daily basis and reported to the PIU through the Supervising Engineer on a weekly basis.

5.9.5 Incident & Accident Investigation Process

The accident investigation process shall cover the following:

- Any worker available at accident spot on the time shall immediately report the accident occurrence to the immediate supervisor. Use cell phone and in case out of range arrange person to enter network zone and pass the information. Stop all activities at site ensuring safety precautions, do not disturb any material and site conditions except something unsafe that may result in further damage. Leave the accident/incident site untampered for investigation purpose and senior person on site shall be responsible to ensure adherence to this.
- OHS Officer shall arrange for ambulance and necessary hospital treatment. After ensuring the injured person has received treatment or transferred for further treatment, a team shall be formed to investigate the accident under guidance of OH & S Manager.
- Identify the root causes and other contributing points
- PM shall report the findings to WB as per reporting system. OH & S Manager and team shall develop a plan for corrective action to ensure no repetition of incidence on similar root cause or any other risk overlooked. The corrective measures shall consider identified risks and non-compliances, needed corrective actions, and needed personal and material resources, responsible person, and date for latest finalization.
- Site Manager shall implement the prevention plan through site engineers
- OH&S Manager shall evaluate the effectiveness of the corrective action and modify where necessary and in line with Emergency Preparedness and Response Plan.

In case of severe accidents resulting in major injuries or fatalities, the Project Manager shall inform the local police and World Bank for further investigations.

Contractors' OH&S Manager must share lessons learned from incidents and accidents to all workforce during tool box talks, safety meeting & electronically to all concerned parties.

5.10 Drug and Substance abuse

Smoking shall be prohibited at all times at the work site, storage and fabrication areas. Smoking shall be restricted to clearly defined and highly visible areas. The presence and consumption of illicit drugs and alcohol is strictly prohibited at all areas during working hours. Alcohol test will be carried out frequently, especially, alcohol testing shall be arranged especially for workers appointed for works consisting of potentially high-risk activities. The drug and alcohol test shall be undertaken in case of indications of a respective consumption. Until the result of the test is open, the worker(s) must not be appointed for any work at site. In case of a positive test result, the worker will be taken to disciplinary action immediately.

CHAPTER SIX: OCCUPATIONAL HEALTH & SAFETY PLAN

This chapter gives an outline on how Principal contractors and subcontractors will manage health and safety risks during project implementation. It contains an introduction, risk management process, task specific permits, job safety analysis, Safe work instructions, Health and Safety Review program, Health and Safety audits, Health and Safety, inspections, Health and Safety corrective actions and Health and Safety trainings.

6.1 Introduction

In order to ensure effective implementation of OHSM plan, the risk involved in the operation should be known. In other words, the degree of risk involved in the operation should be analyzed, controlled and properly managed. The contractor with key personnel along with Health & Safety personnel shall carry out risk assessment of all operations. The basic steps are based on Hierarchy of control (HOC) as follows:

- Classify work activities
- Identify hazards
- Assessing the Risk (Estimate the risk from each hazard): For each hazard, a risk classification will be done based on its probability to occur and its severity of impact using the risk matrix in annex 1.
- Control the Hazard using Hierarchy of Controls as follows:
 - Eliminate
 - Reduce / Isolate risk
 - Engineering and Administrative controls (Operating procedures)
 - Provision of task appropriate PPE
- For activities which fall under High/Very high risk “H” following measures will be taken:
 - Consider alternatives that eliminate the risks;
 - Decide if the risk is tolerable otherwise, prepare risk control action plan
Identify the qualification/capacity level for persons to undertake the activity
 - Providing task specific training, Tool Box Talk, Safety Induction and on the job training.
 - Monitor and audit the progress of plan and effectiveness
 - Review adequacy of action plan and revise if necessary

6.1 Risk Management Process

6.1.1 Job Safety Analysis

The principal contractor shall undertake job safety analysis (JSA) or Job Hazard Analysis (JHA). A JSA is a procedure which shall help to integrate safety and health principles and practices into a particular job operation. In a JSA, each basic step of the job-related hazards has to be identified and recommendations have to be provided to choose the safest way to do the job. For conducting a JSA, five steps have to be considered as follows:

- selecting the job to be analyzed
- breaking down the job into a sequence of steps
- Identifying the core requirements and competency for doing the job for instance Don't use an illiterate person for a task that requires lots of numbers and counting/reading
- identifying potential hazards
- Determining preventive measures to overcome these hazards.

Each contractor shall submit a JSA procedure for the approval of the Supervising Engineers and PIU prior to commencement of any activity. Contractor's team comprising of Site Engineer, Site Foremen, task experienced workers and OHS team will prepare the JSA taking into consideration the above five points. The JSA will be based on past experience and will be current site specific. Once, the JSA is ready it will be submitted to PIU or supervising engineer for review and approval. The results of the JSA will be shared with all workers and where there is migrant labour, the contractors will provide for a translator to ensure instructions and safety protocols are correctly understood.

6.1.2 Risk Register

The significant risks involved in the installation/ construction and related activities is assessed and registered in the form of qualitative risk assessment. The risk register is a systematic break down of activities, its potential hazards, and the risk involved. Risk rating is identified by multiplying severity by probability of occurrence based on the risk matrix chart and then its control measures. It is always recommended to prioritize those activities which are having high risk (See Annexure 2). The concept of a risk register recognizes that risk elements arising from proposed or actual activities fall into one of following four categories:

- a. Risks which are deemed to have a low risk can be proceeded with taking care of all safety measures

- b. Risks that have a medium risk will proceed with caution & necessary safety measures
- c. Risks that have a high Risk need to be managed & checked with site engineer & site OH&S officer. If uncontrolled, a risk event at this level may have a significant impact for the actions and tasks at an installation and construction site as a whole. Mitigating actions need to be very reliable and should be approved and monitored by the OH&S Officer & Site Engineer. Even with mitigating actions in place, the construction site staff potentially exposed to that risk should be advised of identified or potential risks which have been graded at this level.
- d. Risks, which have an extreme high risk and therefore the activity, should probably not proceed until Site engineer & OH&S Officer take all necessary corrective measures. Identify if there are any controls currently in place to mitigate those risk; If not, develop and document risk mitigation actions. These could include:
 - Planned actions: Reducing the likelihood of a negative risk to occur and/or reduce the seriousness should it occur (What should you do now?)
 - Contingency actions: Planned actions to reduce the immediate seriousness of a negative risk when it does occur. (What should you do when?)
 - Recovery actions: Planned actions taken once a negative risk has occurred to allow you to move on. (What should you do after?)
 - Risk Transfer: Contractor staffs are covered under firms' accidental insurance. The risk is transferred to subcontractors covering all high-risk work. For example, bush clearing, excavation etc.

6.1.3 Task Specific Permits

Task specific permits are a formal safety management system used to control high risk activities. These enable an assessment of risks to be made and to specify control measures which will be put in place in order to minimize the risk. Permits to work will usually be necessary for such activities as:

- working at height work,
- electrical or mechanical maintenance or construction work by workers, sub-contractors or external party, unless a risk assessment indicates otherwise. A permit to work system has to be implemented by the contractor.

- Hot work
- Confined space

For work to commence the following steps should be taken:

Stage 1 Highlight Potential Hazards:

Worker(s) and the Site construction foreman guided by the OHS Officer should highlight potential hazards of a task and identify all necessary safety measures. Hazard identification must consider all required electrical and mechanical equipment. Stage 1 has to be done in writing. Work is not permitted to commence until Stage 4.

Stage 2: Permit Application:

The contractor will submit a request to work with attached Task Method Statement, associated risk assessment and proposed control measures. Risk Control Measures will include a proposed team to undertake the task with their competencies (experience, skills and certification). Note electrical works, mounting of scaffolds and excavation collapse measures will only be allowed to proceed on condition that certified personnel will undertake the said tasks..

Stage 3 Evaluation of Permit:

The Supervising Consultant will evaluate and verify that all safety conditions specified in the permit to work have been fulfilled and are adequately described. The Supervising Consultant may also recommend additional measures in the permit to work when necessary. Inspection to the location of work where the permit to work has been applied for is to be done, with the Foreman during this process. Only when all safety requirements and conditions stated in the permit to work are fulfilled, the permitting Supervising Consultant will then endorse the permit to work form and forward to the Health & Safety Manager.

Stage 4 Approval of Permit:

The Supervising Consultant may approve and issue the permit to work only when it is satisfied that:

- Proper evaluation of risk and hazards for the work concerned has been conducted including competence and skills of the persons to carry out the task should be checked;
- No incompatible work will be carried out in the same time and location of the permit to work, which may pose a risk to the persons at work;
- All reasonably practicable safety measures have been taken and all persons involved in the work have been informed of the work hazards under the Permit to Work;

- All electrical and mechanical equipment is demonstrable checked and in safe condition. Please note that the permit can be signed by E&S specialists in absence of Project Manager as authorized persons. E&S Specialists must inform the Project Manager before signing the permit. A work permit is valid for a time limit say one working day and for the specified working time. An extension could be provided for additional two hours. In case the tasks could not be finalized within the validity of the permit to work, the permit to work must be renewed before commencement of work on the day the work may continue;
- Provision of workers welfare (drinking water etc.) and facilities for workers e.g. designated places to eat, sleep, etc. will be put in place set as a conditional for approval of permit to work following risk assessments.

6.1.4 Safe Work Instructions

Contractors shall develop site-specific work instructions. Safe work instructions identifying the occupational health and safety issues that may arise from use of the machinery and equipment. The safe work instruction must be based on the OH&S Plan. A safe work instruction should identify:

- the risks and hazards associated with the use of a specific tool or piece of equipment;
- the required control measures to be checked to ensure a safe use of a specific tool or piece of equipment;
- the specific training and/or qualification required;
- the personal protective equipment to be worn.

Note that Safe work instructions do not replace the requirement for a risk assessment, Preparation of a workplace procedure, the need of a permit to work or the need for training. They may be used to supplement the process of creating and providing a safe system of work. In the forms of standard operating procedures or standard work method statements for activities to be undertaken. The safe work instructions shall be submitted for approval from the concerned authorities. The approved work instruction must be communicated to each and every member of the working crew for understanding.

6.2 Health & Safety Review Program

All contractors under SATCP shall commit to review their performance in Occupational Health & Safety on a timely manner and as and when required basis. SATCP believes the review (Check) will play an important role in continual improvement of any OHS management procedure. Principal Contractor shall

implement a Project specific H&S Review Programme for the project. The review program shall include a systematic evaluation of the implemented management system, compliance with this Occupational H&S Standards document, and the project OH&S Plan and local legislative requirements. The Occupational Health and safety Review program shall have the following tools:

6.2.1 Health & Safety Audits

Contractors shall review the OH&S management system by undertaking Occupational Health & Safety Site Audits on a quarterly basis OR randomly. The audits shall be performed by the Construction Manager, OH&S Manager, and the Supervising Consultant. The audits shall be conducted at the construction sites, material and equipment storage areas, workshop areas and accommodation areas (Worker's camp area), and the adjacent areas affected by the project activity sites, including ancillary sites. These audits shall be recorded and a copy of the audit report shall be attached to the monthly Health & Safety report. Each contractor will develop its own internal as well as external auditing procedure and Project specific Audit Plan.

6.2.2 Health & Safety Inspections

Competent Inspection and monitoring are the key to continual improvement when monitoring deviations from the plan and change in the conditions. The inspection will help the contractors to improve their performance by early detection of indicators to major incidents. PIU shall ensure competent inspection and monitoring on weekly basis of all contractors OHS performance.

6.2.3 Corrective Action Plan

After conducting an accident or incident investigation or inspections, a Corrective Action Plan should be developed and implemented. The Corrective Actions Plan should include actions that are specific to identified hazards and risks, measurable, attainable, realistic and time bound. The plan should include the following information:

- Identified risks and non-compliances: These risks, hazards and non-compliances are a basis that will inform what sort of corrective actions will be undertaken;
- Recommended Corrective Actions: The actions must be specific, clear and measurable;
- Timelines: for each action, realistic times lines should be assigned;
- Needed personnel and material resources: Assign appropriate resources and personnel to the implementation of each action

- Responsible Person: Assign responsibilities between institutions (contractor, Supervision Consultant, Client, WB) and regulatory authorities;
- Date for latest finalization and provision for review.

6.3 Trainings

OHS trainings aims at equipping workers with knowledge and skills on identifying safety, health and environmental hazards as well as determining appropriate control measures. The trainings will be provided in workers' language. Prior to commencement of works, the OHS Officer and other ESHS personnel and key personnel shall be subjected to WB ESS training and Client ESHS Orientation and OHS representatives will be trained by the ESHS personnel prior to their taking up of assigned roles. Further, a Needs Assessment will be done for the OHS officer and representatives for further trainings. Trainings take different forms as indicated below:

7.8.1 Induction

The recruitment and placement processes ensure that all workers and subcontractors have the necessary physical and mental abilities for the job or can acquire these through training and experience. The contractors will ensure that all new workers, labor supply (from approved vendor) and subcontract personnel (approved) shall be given a Health and Safety induction, carried out by Occupational Health & Safety managers. No personnel/ Sub-contractor will be engaged prior to approval. Prior to commencement of work all tradesman shall be given a trade test by a qualified and competent site foreman and/or site engineer.

H&S induction can be defined as the initial training and awareness imparting session to make the personnel aware of the inherent hazards and risks involved in the process and area. Prior to commencing work, the contractor will ensure that all personnel undergo an H&S Induction course which stresses the need for the highest standards of health and safety on the project and conveys the requirement to fulfil the requirement of this OH&SM Plan. No workers will be allowed to work/visit on site without prior induction. Refresher program will be conducted once in every 6 months. Specific training related to their work will be imparted before engaging the individual in those specific activities. For example, working at height training for all potential candidates climbing on ladders during electrical installation of power backup systems. Below is a list of some of the topics to be covered during worker's induction:

- World Bank and National OH&S policy statement
- Brief of safety rules and regulation

- Permit to work systems
- Emergency response procedures, emergency telephones numbers assembly points.
- First aider's telephone numbers, egress routes, first aid fire-fighting procedures.
- Reporting procedure.
- Reporting system for unsafe working conditions and practices
- Proper usage of PPEs at site.
- Hand tools and its usages.
- Unauthorized jobs or tasks (RWP)
- Fire safety rules and warning signs 1
- Location of fire alarm points and extinguishers
- House Keeping and waste identification.
- Warning signs and cautions displayed on site.
- Scaffold tagging system, capacities and primary inspection.
- Chemical handling procedure and usage of material Safety Data Sheets
- Transport, vehicle and equipment movement. Traffic safety
- Smoking policy at site.
- Drug and alcohol policy.
- Occupational health and hygiene.
- Accident, incident and Near Miss Reporting procedures
- Heat stress, dehydration and remedies (Heat related abnormalities).
- Working on heights, standards and safety aspects.
- Explanation of project and employee duties and responsibilities.
- Electrical hazards.
- Protection of environment, pollution to Air, Water and Soil
- Waste handling and disposal procedures.
- Basic site safety rules.
- Recent Similar field incidents.

The contractors will ensure that they have Induction scheduled for the newly joining workers any day irrespective to pre-planned program. Refresher training will be done on a semi-annual basis or as and when situation demands.

Before entering the site, all visitors must undergo H&S induction process. An induction module for Visitors will be designed by OH&S Manager for the contractors.

The visitors will be provided with an overview of OH&S rules particularly OH&S risks, risky areas, significance of PPEs they need to wear before entering the site and emergency protocols. Visitors' induction records will be maintained.

6.3.2 Toolbox Talks

Tool box talk (TBT) is a 5-10 minutes communication between working crews and site supervisor/site engineer related to job specific safety issues, roles responsibilities on daily basis and as and when required. Contractors will ensure that TBT document is available with safety department. During the meeting the site engineer will always ensure all the work force is aware of their duties, Dos and Don'ts and risk involved. The site engineer/ supervisor shall also monitor/ verify the fitness of the personnel for work. Toolbox talks should consider as well lessons learned from incident and accident investigation, audits, workplace inspections etc. The Site Engineers/ Supervisor shall conduct regular toolbox meeting on different topics by selecting small groups of people (maximum 15).

6.3.3 Needs Based Trainings

Needs based trainings look at the knowledge, skills, and abilities of workers to determine what types of training they need to achieve SATCP objectives.

6.3.3.1 Training Needs Analysis

Training Needs Analysis (TNA) is the process to discover the training and development needs of people so that they can carry out their job effectively and efficiently, and also to continue to grow and develop their careers. TNA covers a range of approaches. All contractors will carry out a TNA to identify the training needs of the work force as regards OHS.

6.3.3.1 Training Schedule

Planned training programs gives the opportunity of continual improvement and reinforcing the best work practices by reminding the bad practices acquired during the work. All contractors will prepare a training schedule to be in line with TNA to help the personnel gain required level of competency for the time in need.

6.4 Personnel Protective Equipment (PPE)

PPEs are the last resort of personnel protection. Contractors shall identify PPEs for the working personnel considering the following: For each hazard identified, select personal protective equipment that will protect the employee by creating a barrier against workplace hazards. Consider the likelihood of an accident and the seriousness of a potential accident. Personal protective equipment must be selected to protect against any hazard that is present or likely to be present. It is important for department

personnel to become familiar with the potential hazards, the type of protective equipment that is available, and the level of protection that is provided by that equipment. The personal protective equipment selected must fit the employee it is intended to protect. Make certain that workers have the correct size of protective equipment. Whenever possible, select adjustable personal protective equipment. Workers including subcontractor workers must be trained in the use of their specifically needed appropriate PPE and adhere to No PPE, No work policy.

Employee input in the selection process of PPE is critical. Personal protective equipment that fits properly and is comfortable will more likely be worn by workers. Damaged or defective protective equipment must be taken out of service immediately to be repaired or replaced and workers must be provided with the proper equipment in the interim. Mandatory PPEs requirement at site will be Helmets, Safety Shoes, and Hi-visibility vest before entering to site. Few examples listed below the purpose of using such equipment as: Helmet used to prevent – Objects might fall from above and strike them on the head; might bump the heads against fixed objects, such as exposed pipes or beams; or there is a possibility of accidental head contact with electrical hazards. Safety Shoes- for example employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials, should wear protective footwear. High visibility vests to be used for good visibility specially to attract drivers/operators while operating equipment and vehicle. Task specific PPEs will be used while carrying out specific activities. Mandatory PPEs picture below:



Hardhat



Safety boots



High Visibility vest

Table 6.5.1: OHS PPE Vs SPECIFIC TASKS

No	Specific Task	Task Related PPEs
1	Working At Height above 6 feet from ground	Full Body Harness with double lanyard and shock absorbing medium

		& tower hook connected to safety point; and necessary PPE
2	Material Handling, Manual work, pulling, handling hazardous substance, chemical, grinding, welding	Hand gloves suits the work.
3	Grinding, cutting,	Face shield, gloves especially if material heats up while grinding
4	Working on electrical panels or on live line	Electrical insulated hand gloves and face shield, not steel toe cap boots, rather alloy toe capped boots
5	Concreting	Gumboots
6	Noisy Area	Ear plugs / ear muff
7	Dusty Area	Dust Masks
8	Insulator fixing or work on cross arm	Self-Retracting Lanyards
9	Concrete work, handling chemical, object swinging towards the eyes, protruding object	Eye goggles

6.5 Signs, Signals & Barriers

The Occupational Safety and Health Administration (OSHA) have revised the construction industry safety standards to require that traffic control signs, signals, barricades or devices protect workers. Contractors shall analyze the site requirement for the signs, signals and barriers on daily basis prior to the start of activity. The signs shall be pictorial and in English, common local language and any other language for migrants.

CHAPTER SEVEN: OCCUPATIONAL HEALTH AND SAFETY PROCEDURES AND MEASURES

This chapter will outline specific activities to be implemented by contractors when implementing sub-projects activities under SATCP project. The Contractors will always adhere to the measures that follows:

7.1 OHS Procedures

7.1.1 Task/Activity Risk Assessment

Principal Contractors shall undertake a risk assessment for all activities and will be assessed to be of a low, medium, high and very high risk. The OH&S Manager shall conduct the risk assessment with the involvement of the experienced staff, Foreman, and worker(s) to undertake the activity. The risk assessment shall be carried out before the execution of the activity and the risk assessment shall be documented. The risk assessment shall be approved by the Manager responsible for the installation or construction site. The risk elements shall be identified from actual activities and associating them in terms of likelihood of occurring and seriousness of impact. Measures such as: fenced work areas to prevent community of entering the premises, facilities for workers (designated places to eat, sleep, etc.) will be put in place set as a conditional for approval of permit to work following risk assessments as in annex 1.

7.1.2 Electrical Installations

SATCP recognizes electricity as a significant hazard. This safety measure provides guidelines for safely working around electrical hazards. It includes provisions for training, lockout requirements, and specific types of work practices and the required precautionary practices when using portable electric equipment. Workers will be trained in specific hazards associated with their potential exposure. This training will include isolation of energy, hazard identification, premises wiring, connection to supply, generation, transmission, distribution installations, and clearance distances, use of personal protective equipment and insulated tools, and emergency procedures. Qualified Person is a person permitted to work on or near exposed energized parts and trained in the applicable electrical safe work practices. Qualified persons shall have

valid papers from recognized training institutions and be certified by MERA. They shall also be familiar with:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electrical equipment, the skills and techniques necessary to determine the nominal voltage of exposed live parts, and the clearance distances specified and the corresponding voltage to which the qualified person will be exposed. All electrical energy sources must be locked out and tag out when any employee is exposed to direct or indirect contact with parts of fixed electrical equipment or circuits. Specific types of work practices covered by this safety procedure include:
 - Working with de-energized parts;
 - Working with energized parts vehicular and mechanical equipment near overhead lines and underground lines
 - Illumination
 - Conductive materials and equipment
 - Insulated Portable Ladders
 - Housekeeping
 - Portable Equipment
 - Labelling of wiring

Portable electric equipment and flexible cords used in highly conductive work locations or in job locations where workers are likely to contact water or conductive liquids shall be approved by the manufacturer for those locations. The hazardous locations that workers should be aware of include, wet locations and locations where combustible or flammable atmospheres are present.

On construction sites tipper trucks and flatbed carrying machines must adhere to electrical safety. Tipper trucks must not raise their loads underneath overhead cables and loaded flatbed operators shall not have load exceeding the lowest 59eight of cables.

7.1.3 Energized Parts

If installation work must be performed while equipment is energized or if de-energizing is not feasible, additional safety measures will be taken to ensure the safety of the qualified employee and any other persons who may be exposed. Protection from energized parts will be suitable for the type of hazard involved. Exposed energized parts in areas accessible to the public shall be continuously protected by an authorized attendant, and clear signage, area should be cordoned off/barricaded in areas not

accessible to the public, workers shall be protected from exposed energized parts by the use of signs or tags. In addition to signs or tags, barricades shall be used where necessary to limit access to areas with exposed energized parts. Only Qualified persons will be allowed to perform work directly on energized parts or equipment. Qualified persons will be capable of working safely on energized circuits and will be familiar with special precautionary techniques, personal protective equipment, insulating and shielding materials and insulated tools. Qualified persons must also have received the training required in this safety procedure. Illumination workers will be provided with adequate light to work on energized equipment or equipment will be relocated to ensure adequate light is available.

7.1.4 Reclosing Circuits

When circuits are tripped using a protective device such as ground fault circuit interrupter (GFCI), power will not be restored until the reason for the interruption is determined and corrected. Fuses or breakers will not be replaced or reset until it is determined that the circuit is safe to operate. Fuses will not be replaced with higher rated fuses or with makeshift devices to by-pass circuit protection as designed. Problems will be identified and promptly repaired by a qualified person.

7.1.5 Electrical Equipment/Machinery/Tools

All electrical equipment and machinery must be grounded effectively so that there is no potential difference between the metal enclosures. Use the voltage detector to find discrepancies and other test equipment to determine the corrective action required. Disconnects should be easily identified with the specific machinery they shut off. Disconnects should also be accessible near the machinery for use in an emergency. The disconnect switchgears should be activated periodically to be sure they are operable. All electrical connections to the equipment must be secure so that no cord or cable tension will be transmitted to the electrical terminals within the equipment. The wiring installation should be such that it is protected from damage at all times.

7.1.6 Lifting

Implementation of SATCP sub-projects will involve lifting of some materials from one point to another. Cranes shall be used to manage massive and heavy loads of all kinds. On the other hand, Forklift shall be used for safe movement of materials especially within the premises. The following procedures shall be adhered to when lifting materials:

- Only trained workers shall be authorized to use forklift or cranes and OHS team and DRTSS shall ensure compliance
- OHS Team and equipment supervisor shall inspect the equipment prior to use, to test control operations such as brakes, horns, lights and steering wheel
- Ensure forklift and cranes carry load according to their specified weight limit, traveling speed, and turning radius,
- Ensure loads are appropriately packed/stacked, weight disbursed correctly
- Ensure correct straps/chains are used when lifting heavy materials
- Keep forks low to the ground to maintain 360° visibility.
- Ensure a barrier/walk around where cranes are operating, or a spotter at the back of the crane
- Prohibit workers from riding the equipment
- Drive the equipment with the designated speed limits,
- Maintain a safe operating distance,
- Use personal protective equipment where needed, such as gloves with good grip and steel-toed boots where appropriate.
- Implement rest breaks and job rotation when lifting heavy materials manually.
- All lifting equipment to be certified by a competent third party.

7.1.7 Working at Height as a Significant Hazard that Requires Operating Procedure

Scaffolds and Ladders

The purpose of this procedure is to ensure the safe use of ladders and scaffolds. The procedure covers selecting, procuring, erecting, dismantling, inspecting, and using scaffolds. It applies to workers and supervisors. Fixed welded ladders shall be used for escape ladders at excavated pits. Standard operating procedures will be developed for scaffolds and ladders. The use of wooden scaffolds and ladders is prohibited under this project. In case working on or near electrical installations, then insulated ladders should be used.

Erection of Ladders and Scaffolds shall be done by a competent person and shall be inspected and tagged by a OH&S Officer before use if appropriate for use or not. Workers shall be trained on meaning of tags: green for safe and red for unsafe and not to be used). All workers shall be trained on meaning of tags. Ladders should be

removed or barriered when not in use e.g. end of day to prevent unauthorized persons climbing up scaffolds.

As a ladder user

Always verify if an inspection tag is attached to a fixed ladder. Green tagged ladders may be used without additional requirements; yellow-tagged ladders will have additional information/requirements on or attached to the tag; red-tagged ladders are not to be used. However, considering nature of installation the following should be done before using ladders:

- Perform pre-use inspection every time one uses a ladder and reports unsafe conditions to ladder custodian or supervisor
- Report fixed ladders that fail the pre-use inspection to the ladder custodian.
- Ladders must be inspected by OH&S officer as well as site foreman.

As a scaffold user

- Verify an inspection tag is attached to the scaffold with a scaffold qualified person's name, signature, and date before using a scaffold
- Perform pre-use inspection before accessing the scaffold and report unsafe conditions to the qualified person listed on the inspection tag, custodian, or supervisor (confirming no change in conditions since last inspection).
- Ensure base plates are in place under vertical scaffolds.
- Ensure cross bracing in place.
- Ensure netting/drop boards in place for works above one-story
- Workers wearing correct PPE equipment, including body harnessed and connected to safety point

As a supervisor

- Ensure that workers perform pre-use inspections and follow proper safe use practices
- Contact scaffold qualified person to evaluate the need for scaffolding
- Ensure only ladders that meet applicable regulations and standards are authorized for purchase
- Ensure scaffolds are reviewed by a scaffold qualified person before they are authorized for purchase.
- Review scaffolding purchase requisitions and rental contracts before they are approved to ensure compliance with client requirements
- Review work plans for work performed at heights to help evaluate if scaffolding is needed

- Supervise scaffolding erection and dismantling
- Ensures correct, color-coded inspection tag is in place near the access point and is kept current

As a Scaffold Erector / Dismantler

- Is trained
- Erects and dismantles scaffolds according to scaffold qualified person instructions

In general, the contractor shall adhere to all recommended fall prevention measures for all workers undertaking activities that involve working on heights. These recommended fall prevention measures include;

- Installation of guardrails with mid-rails and toe boards at the edge of any fall hazard area,
- Proper use of ladders and scaffolds by trained workers,
- Use of fall prevention devices, including safety belt and lanyard travel limiting devices to prevent access to fall hazard area, or fall protection devices such as full body harnesses used in conjunction with shock absorbing lanyards or self-retracting inertial fall arrest devices attached to fixed anchor point or horizontal life-lines,
- Appropriate training in use, serviceability, and integrity of the necessary PPE
- Develop and implement rescue and/or recovery plans, to respond to workers after an arrested fall.

7.1 Working in Confined Spaces

SATCP considers working in confined space as a significant hazard, which requires development of an operating procedure.

- Entry in the confined place should only be undertaken with appropriate and adequate PPEs
- OSHA recommends that the atmosphere within the confined space should be tested to assure the oxygen content is between 19.5 percent and 23 percent, and that the presence of any flammable gas or vapor does not exceed 25 percent of its respective Lower Explosive Limit.
- Workers entering confined spaces should always be supervised.

7.2 OHS Measures

7.2.1 Securing the Site

SATCP contractor shall secure the site by erecting holding, fencing or demarcating

boundary drums/new jerseys around the site to prevent public access. Access control measures shall be in place throughout works and these will include:

- Diversions and work site for linear project will be clearly separated using drums or any other suitable devices;
- Building sites will have one entrance and no-unauthorized entry signs will be displayed.

All visitor into the worksites (including camp, borrow and quarry sites) will be subjected to visitor's Health and Safety induction and they shall sign an induction form. Additionally, a map of the site will be displayed indicating risky area.

7.2.2 Portable Water Supply

The contractor shall be responsible for supply of potable water for drinking and raw water for washing/toilet facilities, and construction purposes. Drinking water shall meet the drinking water quality standards as specified by Malawi Bureau of Standards.

7.2.3 Lighting

Under SATCP some of the activities will be done indoors or when need be, works might be carried out at night. Lighting may also be needed as part of safety and security measures of the site at night. Therefore, the contractor shall ensure workplaces to the degree feasible, receive natural light, which can be supplemented with sufficient artificial illumination to promote workers' safety and health, and enable safe equipment operation. Supplemental 'task lighting' may be required where specific visual acuity requirements should be met. Emergency lighting of adequate intensity shall be installed and automatically activated upon failure of the principal artificial light source to ensure safe shutdown. Below are the OSHA lighting standards:

- Minimum of 3 foot-candles: Concrete placement, evacuation and waste areas, loading platforms, active storage areas, refueling and field maintenance areas
- Minimum of 5 foot-candles: The standard lighting for general construction areas, warehouses, corridors, hallways and exit ways
- Minimum of 10 foot-candles: General construction plants and shops including indoor bathrooms and mess rooms
- Minimum of 30 foot-candles: First aid stations, infirmaries and offices

Not that 1-foot candle is defined as enough light to saturate a one-foot square with one lumen of light.

The contractor shall employ the following controls while providing adequate light to all workplaces;

- Use of energy efficient light sources with minimum heat emission.
- Undertaking measures to eliminate glare / reflections and flickering of lights
- Taking precautions to minimize and control optical radiation including direct sunlight. Exposure to high intensity UV and IR radiation and high intensity visible light should also be controlled
- Controlling laser hazards in accordance with equipment specifications, certifications, and recognized safety standards. The lowest feasible class Laser should be applied to minimize risks
- Ensure back up power to keep lights operational

7.2.4 Workplace Temperature

Exposure to hot or cold working conditions in indoor or outdoor environments can result in temperature stress-related injury or death. Use of personal protective equipment (PPE) to protect against other occupational hazards can accentuate and aggravate heat-related illnesses. Extreme temperatures in permanent work environments should be avoided through implementation of engineering controls and ventilation. Where this is not possible, such as during short-term outdoor work, temperature-related stress management procedures should be implemented which include:

- Monitoring weather forecasts for outdoor work to provide advance warning of extreme weather and scheduling work accordingly
- Adjustment of work and rest periods according to temperature stress management procedures provided by ILO, depending on the temperature and workloads as in annex 4;
- Provide temporary shelters to protect against the elements during working activities or for use as rest areas
- Use of protective clothing .
- Providing easy access to adequate hydration such as drinking water or electrolyte drinks;
- Alcohol tests will be done every morning and workers who test positive will be barred from entering the site

7.2.5 Lone and Isolated Workers

A lone and isolated worker is a worker out of verbal and line of sight communication with a supervisor, other workers, or other persons capable of providing aid and assistance, for continuous periods exceeding 5 minutes. The worker is therefore at increased risk should an accident or injury occur. Where workers may be required to perform work under lone or isolated circumstances, the contractor/client shall develop and implement Standard Operating Procedures (SOPs) to ensure all PPE and safety measures are in place before the worker starts work. The developed SOPs shall establish, at a minimum, verbal contact with the worker at least once every hour, and ensure the worker has a capability for summoning emergency aid. If the worker is potentially exposed to highly toxic or corrosive chemicals, emergency eye-wash and shower facilities should be equipped with audible and visible alarms to summon aid whenever the eye-wash or shower is activated by the worker and without intervention by the worker.

7.2.5 Lavatories

During implementation of all SATCP subproject the hired contractor shall provide adequate and appropriate lavatory facilities. The facilities shall be maintained in a clean and orderly condition. The provided lavatory facilities shall meet the number of people expected to work in the facility and allowances made for segregated facilities, or for indicating whether the toilet facility is “In Use” or “Vacant”. In cases where both male and females are employed the lavatories will have separate entry for each sex. Toilet facilities shall also be provided with adequate supplies of water and soap.

7.2.6 Welding, Cutting & Grinding

SATCP considers welding, cutting and grinding as an occupational health and safety risks. Welding, cutting and grinding creates an extremely bright and intense light that may seriously injure a worker’s eyesight. In extreme cases, blindness may result. Additionally, welding may produce noxious fumes to which prolonged exposure can cause serious chronic diseases. In order to minimize these risks, the contractor shall adhere to the following recommended measures:

- Provision of proper eye protection such as welder goggles and/or a full-face eye shield for all personnel involved in, or assisting, welding and grinding operations, as well as other PPE e.g. gloves, overalls, and safety boots.

- Use welding barrier screens around the specific workstation (a solid piece of light metal, canvas, or plywood designed to block welding light from others).
- Install devices to extract and remove noxious fumes when welding is done in confined places.
- Implement special hot work and fire prevention precautions and Standard Operating Procedures (SOPs) if welding or hot cutting is undertaken outside established welding work stations,
- Maintaining the fire watch for up to one hour after welding or hot cutting has terminated.
- Develop and implement special procedures when welding, cutting or grinding tanks or vessels that have flammable materials.
- Provision of drinking water for welders – so not dehydrate or cause kidney stones

CHAPTER EIGHT: CONCLUSION

The Occupational Health and Safety Management plan has provided guidelines to all contractors and subcontractors for both infrastructural and non-infrastructural projects on the Occupational Health and safety parameters of the SATCP. The Plan has shown that different OHS risks might result in a number of accidents and incidents as well as ill health. However, the SATCP through this document will take preventive measures to avoid accidents and incidents. The plan also provides for investigating all the potential incidents, accidents, and outcomes shall be shared to all stakeholders as a lesson learned to prevent such occurrences. Further, The OHSM plan will ensure that SATCP comply with all the international legal frameworks and standards relevant to this project in order to ensure that the project is terminally completed without any incident/ accidents within its period and to the fullest satisfaction of all stakeholders and above all the World Bank. The OHSM Framework is a living document. Therefore, it will be updated periodically based on the outcomes of the audits, incidences or accidents investigations outcomes and management reviews.

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Annexes

Annex 1: Risk Assessment Matrix

The Risk Management Process

Health and Safety risk management will be undertaken for all activities where there is the potential for harm including: before activities commence; before the introduction of new equipment, procedures or processes; and when equipment, procedures or processes are modified. Where a manager, worker, subcontractor or visitor to the workplace identifies a hazard, it requires that it is eliminated or reduced in consultation with the relevant stakeholders. In this OSBP Project, JIANGXI will follow the following risk management process as indicated in the Roads Authority Environmental and Social Management Guidelines. The risk assessment is attached in Annex 1.

Step 1: Identifying the Hazard

A hazard is a source or potential source of injury, ill health or disease and property damage while hazard identification is the process of identifying all situations and events that could cause injury or illness by examining a work area/task for the purpose of identifying all threats which are ‘inherent in the job’. Tasks can include, but may not be limited to using tools, hazardous chemicals, dealing with people, lifting and moving items.

Step 2: Assessing the Risk

Assessing the risk from a hazard determines its significance. It involves considering the consequences should something happen; will it cause a serious injury, illness or death or a minor injury. Secondly, it involves considering how likely is this to occur—very likely, not likely at all or somewhere in between? Some of the things to think about during this process include:

- how often is the task undertaken
- how frequently are people near the hazard
- how many people are near the hazard at a particular time
- has an incident happened before
- have there been any ‘near misses’

Figure 1 presents the Risk Matrix for Risk Assessment and Risk Rating that will be used in the Project. This is followed by interpretation of the Risk Matrix

RISK MATRIX					SEVERITY (WHAT DEGREE / EXTENSIVE IS THE IMPACT?)				
	FREQUENCY OF EXPOSURE	LIKELIHOOD OF OCCURRENCE			1	2	3	4	5
			CONTROLS AVAILABLE		NEGLECTIBLE / NEAR MISS	FIRST AID OR CAUSE MINOR PROPERTY DAMAGE	LOST TIME OR CAUSE MINOR PROPERTY DAMAGE	PERMANENT DISABILITY OR CAUSE MAJOR PROPERTY DAMAGE	FATALITY OR CATASTROPHE
					No injury / ill health	Minor injury-first aid Impact causes temporary ill health, discomfort Minor damage to property of the concerned section of the plant	Injury resulting to lost time Impact causes short term ill health Minor damage to property of the concerned section of the plant	Major injury resulting to permanent disability Impact will cause long term ill health Major damage to the whole plant	Impact will cause fatality Impact will cause major damage to the plant and neighbouring communities
PROBABILITY = FREQUENCY x LIKELIHOOD HOW MANY TIMES DOES IT OCCUR? (DOES IT HAVE CONTROLS?)	1 (1-4)	Once Per YEAR	IMPROBABLE No associated incident on the said hazardous event Adequate engineering control There are signages / warnings & admin control There is appropriate PPE	Eng'g Admin PPE	✓ ✓ ✓	LOW RISK	LOW RISK	MEDIUM RISK	MEDIUM RISK
	2 (5-7)	More than Once every 6 MONTHS but not per MONTH	LESS PROBABLE No associated incident on the said hazardous event for the past 2 years Adequate engineering control There are signages / warnings & admin control or appropriate PPE	Eng'g Admin PPE	✓ ✓ 1/2	LOW RISK	LOW RISK	MEDIUM RISK	HIGH RISK
	3 (8-15)	More than Once per MONTH but not per WEEKLY	PROBABLE Incident has occurred. No engineering control or inadequate engineering control There are signages / warnings and/or admin controls There is appropriate PPEs	Eng'g Admin PPE	✗ ✓ ✓	LOW RISK	LOW RISK	MEDIUM RISK	HIGH RISK
	4 (16-20)	More than Once per WEEK but not DAILY	ALMOST CERTAIN Happened several times per year No engineering control or the controls are inadequate There are signages / warning and/or admin controls or there is appropriate PPEs	Eng'g Admin PPE	✗ ✓ 1/2	LOW RISK	MEDIUM RISK	HIGH RISK	HIGH RISK
	5 (21-25)	DAILY	CERTAIN Happened several times per year in an area / department NO engineering control or the controls are inadequate No signages / warning and/or admin controls NO PPE	Eng'g Admin PPE	✗ ✗ ✗	LOW RISK	MEDIUM RISK	HIGH RISK	EXTREME RISK

Step 2.1—CONSEQUENCES: how severely could it hurt someone? Or how ill could it make someone?

Extreme Risk – fatal / permanent injury

High Risk – Long term injury / illness

Medium Risk – Medical attention / some days off duty / first aid

Low/acceptable risk – Low or zero impact

Step 2.2—LIKELIHOOD: how likely is it for an injury to occur?

Certain/Very likely, could happen frequently, almost daily

Almost Certain/Likely, could happen occasionally more than once a week

Probable/Unlikely, could happen more than once a month,

Less Probable, could happen more than once every 6 months, but rare

Improbable/Very unlikely, could happen once a year, probably never will

Step 2.3- Risk Priority Score -Identifying the Necessary Action and Response

Figure 2 provides a Risk Priority Score that JIANGXI will use in the Project. This is followed by the mitigation measure or response that will be taken by the Contractor once risk rating is done

RISK SCORE	ACTION AND RESPONSE
(1 - 4) = LOW	ACCEPTABLE These risks need to be recorded, monitored and controlled by the responsible manager.
(5 - 9) = MEDIUM	ADEQUATE Action is required to prevent injury or illness. Report to the responsible manager.
(10 - 16) = HIGH	TOLERABLE Proceed with caution. Immediate report to the Project Manager for decision is mandatory.
(17 - 25) = EXTREME	UNACCEPTABLE Stop Activity And Make Immediate safety action before the activity recommences

Low Risk – These risks should be recorded, monitored and controlled by the responsible Manager. Implement measure immediately. Manage by routine procedures / methods

Medium Risk –report the risk to the responsible supervisor / EHSS team before the next work shift; be aware—action required as soon as possible to prevent injury or illness. Report risk to OSH Personnel and Management before the next work shift;

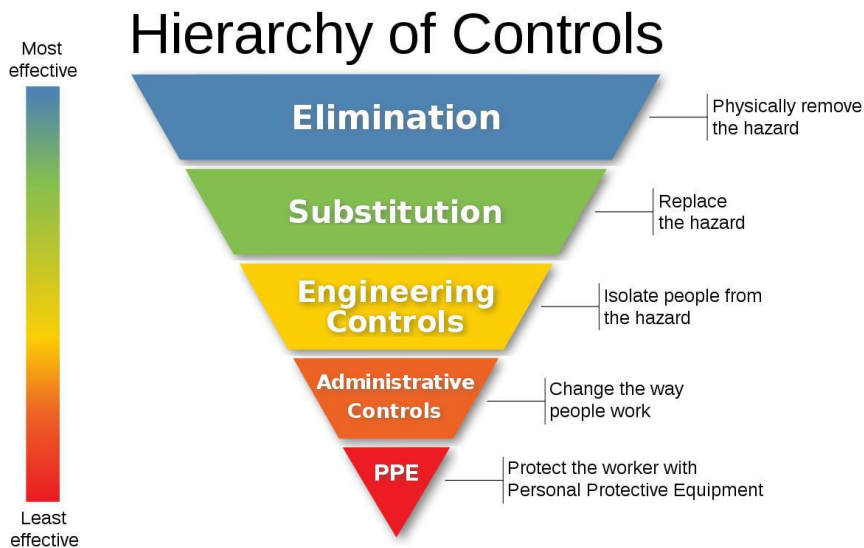
High Risk - proceed with caution—immediate reporting of emerging or ongoing risk exposure at this level to the management and supervising OHS Personnel for decision is mandatory.

Extreme Risk- stop the activity—immediate action is required to ensure safety—safety measures applied must be cleared by the management and Supervising Consultant's OHS personnel before any activity recommences.

Step 3: Controlling the Hazards

The aim of controlling the hazards is to implement the most reliable controls to create a safe workplace rather than simply relying on people to behave safely, following processes or using protective equipment. In many cases, a combination of several control strategies may be the best solution as illustrated in the Hierarchy of Controls (in order of preference) below:

- a) Elimination of the hazard
- b) Substitution with a less hazardous material or process
- c) Engineering controls through redesigning equipment or work processes
- d) Administration controls
- e) Identifying and using appropriate PPE



Step 4: Risk Registering and Rating

The significant risks involved in the construction and related activities is assessed and registered in the form of qualitative risk assessment. All identified risks have to be registered and rated by multiplying severity by probability of occurrence based on the risk matrix chart and then its control measures. It is always recommended to prioritize those activities which are having high risk. Risk elements arising from proposed or actual activities fall into one of following four categories:

- e. Risks which are deemed to have a low risk can be proceeded with taking care of all safety measures
- f. Risks that have a medium risk will proceed with caution and necessary safety measures
- g. Risks that have a high Risk need to be managed and checked with site engineer and site OHS officer. If uncontrolled, a risk event at this level may have a significant impact for the actions and tasks at an installation and construction site as a whole. Mitigating actions need to be very reliable and should be approved and monitored by the OHS Officer and Site Engineer. Even with mitigating actions in place, the construction site staff potentially exposed to that risk should be advised of identified or potential risks which have been graded at this level.
- h. Risks, which have an extreme high risk and therefore the activity, should probably not proceed until Site engineer and OHS Officer take all necessary corrective measures. Identify if there are any controls currently in place to mitigate those risk; if not, develop and document risk mitigation actions. These could include:

- Planned actions: Reducing the likelihood of a negative risk to occur and/or reduce the seriousness should it occur (What should you do now?)
- Contingency actions: planned actions to reduce the immediate seriousness of a negative risk when it does occur. (What should you do when?)
- Recovery actions: planned actions taken once a negative risk has occurred to allow you to move on. (What should you do after?)
- Risk Transfer: Contractor staffs are covered under firms' accidental insurance. The risk is transferred to subcontractors covering all high-risk work. For example, bush clearing, excavation etc.

Annex 2: Permit to work Sample

HOT WORK PERMIT

After this is filled out and signed, send to _____
for recordkeeping in the _____ file.

Type of work: _____

Permit is good for one shift only, or not to exceed the time limit. TIME LIMIT: _____ a.m.
p.m.

Area: _____ Date: _____

Describe work to be done: _____

Note: Check Yes or No. If question does not apply, indicate it with N/A (not apply).

	YES	NO
1. Can this equipment be removed from the building?		
2. Have all process materials been removed from equipment?		
3. Have all connections been blanked off and switches been locked open?		
4. Has equipment been ventilated?		
5. Can sparks ignite material in vicinity lower level?		
6. Is the work area clear of all explosive, flammable, and hazardous material (35-ft. rule)?		
7. Is all combustible material removed from the work area or protected (35-ft. rule)?		
8. Has a fire watch been assessed?		
9. Is an operational fire extinguisher readily available?		
10. Has the nearest fire alarm pull station been located?		
11. Does the operator have the correct personal protective equipment (e.g., eye protection, gloves, face shield)?		
12. Is the area where the work will occur adequately ventilated?		
13. Have the dangers associated with the following been eliminated or specifically addressed?		
a) Penetrating a pressurized system?		
b) Penetrating a container of hazardous chemicals?		
c) Affecting an item that is potentially radioactive		
d) Damaging property?		

14. SPECIAL PRECAUTIONS TO BE OBSERVED: _____

I have personally inspected and approve conditions for above.

Signed: _____ Department: _____
(Operating Supervisor)

and/or Signed: _____ Time: _____ Date: _____
(Safety Department)

HW-RULES000(12/97)

Annex 3 Sample Work Permit

Work Order No.:	WORK PERMIT		Work Permit No.:
CONTRACTOR _____ AREA OF WORK _____ _____			
WORK STARTING DATE _____ TIME _____ WORK ENDING DATE _____ TIME _____ DESCRIPTION OF THE WORK _____ _____			
The above signing person is responsible to ensure the work is performed under all the			
INDIVIDUAL PROTECTION EQUIPMENT (CROSS WITH AN X): ☐ Helmet ☐ Hear Protectors ☐ Gas Mask ☐ Dielectric Gloves ☐ Safety Gloves ☐ Welder's Helmet ☐ Emergency Respirator ☐ Safety Shoes ☐ Rubber Safety Boots ☐ Safety Glasses ☐ Welder's Apron ☐ Protective Goggles ☐ Anti-Dust Overalls ☐ Welders Breeches ☐ H2S Mask ☐ Work Clothes ☐ Safety Belts ☐ Dielectric Boots ☐ Safety Harness			
Is Electrical PTW required YES NO		Is Confined Space PTW required YES NO	
In case Electrical or Confined Space PTW is required? YES			
Site Preparation completed and work can commence. Contractor Operating Authority		I understand the precaution to be taken as described above. Contractor Operating Authority	
The Work is completed and working area cleared		The Site has been checked and working Area accepted	

Annex 4: ILO Standards: Working temperatures

Reference values of WBGT heat stress index from ISO 7243 related to a maximum rectal temperature of 38°C (in °C)

ACTIVITY	Acclimatised	Non- acclimatised
Resting	33	32
Low	30	29
Moderate	28	26
High	25 (26)	22 (23)
Very High	23 (25)	18 (20)

Annex 5: Expected Contents on Contractor's OHS Plan

An OHS Plan is expected to cover the following:

- i. Project Brief – Scope of work including activities, number of people and identified sites (material sources and camp site)
- ii. Site Management – organogram, communication arrangements,
- iii. Provisions for Workers Welfare – Workers insurance, working hours, lighting, water and sanitary facilities, protection from adverse weather
- iv. Safe Working Environment – HAZMAT, Air quality, noise, Plant and Machine Management
- v. Trainings
- vi. Safety Committees
- vii. Risk Assessment Process (Sites and Tasks)
- viii. Hazards identification & Risk Assessment and Control Measures
- ix. Emergency Procedures – first aid, fire-fighting, spill or hazardous material or waste release
- x. Reporting – Risk Assessments, Inspections, incident/accident, weekly and monthly reporting
- xi. OHS Review Programs
- xii. Annex – Code of Conduct, Worker Grievance Redress Mechanism, Job Hazard Analysis and Site Risk Assessments, Training Materials and Sites layouts

Annex 6: Code of Conduct Templates

A. Code of Conduct Provisions for Contractors

The contractor will create and maintain an environment which prevents social, health and environment risks. In order to prevent social, health and environment risks, the contractors shall adopt core principles and minimum standards of behavior and actions that are in line with World Bank ESS, International Best Practices in construction projects, National legislations and policies. The following principles and

minimum standards of behavior and actions will apply to the Contractor's all employees without exception.

- a) Ensure a safe working environment
 - Carry out risk assessments, implement appropriate control measures which include provision and retention of qualified ESHS personnel and timely replacement upon vacancy of such positions;
 - Provide managerial support and resources (financial, material, time and personnel) toward implementation of ESHS requirements;
 - Provide for communicable diseases service provider which includes HTC, awareness raising and screening;
 - Subject site equipment, plant and machines to regular maintenance and adherence to National Regulations
 - Provide necessary training (needs based, inductions, toolboxes and tasks specific) to workers in order to safely execute their tasks and allow all workers to attend various project scribed trainings including induction, toolbox talks, trainings and awareness raising relating to OHS, GBV/SEA/SH and communicable diseases;
 - Provide emergency preparedness and response procedures and equipment;
 - Provide for workers welfare with regard to working hours, portable water, resting places and change rooms
- b) Zero tolerance to GBV/SEA/SH/VAC: All forms of social risks including grooming are unacceptable be it on the work site, the work site surroundings, or at worker's camps of those who commit GBV or VAC will be pursued;
- a) Discriminatory Free Site: Treat women, children (persons under the age of 18) and people with disabilities with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic, cultural beliefs/practices, or other status;
- b) Corruption Free Site: Exchange of employment/services for money, goods or services (including sexual favours) is prohibited.
- c) Provide platforms for grievance redress mechanisms and redress of safety, health and wellbeing issues
 - Ensure there is an independent and effective Grievance Redress Mechanism and Safety Committees;
 - Provide measures to ensure confidentiality and protection of whistle blowers;

d) Make provisions for preservation of community properties and health and safety by securing of sites, stakeholder engagement and following good practice in acquisition of land/sand/water/quarry;

e) Labour Management:

- Inform workers of the site hazards and risks associated with the works;
- Inform potential workers of conditions of work;
- Have signed contracts with all workers;
- Have all workers sign code of conduct;
- Source 70% of workforce locally and reach a 30% gender representation;
- Not employ children;
- Ensure the work site is safe and free of SH and any forms of abuse

B. Code of Conduct Provisions for Contractors Personnel

This Code of Conduct template identifies the behavior that is required from contractors' personnel and it applies to all staff, laborers and other employees (including subcontractors) at the Works Site or other places where the Works are being carried out. The written code of conduct will be in language(s) understood by every employee depending on their primary language.

SATCP sites are expected to be safe work environments free from OHS hazards as well as free from offensive, abusive or violent behaviors. All persons will be feeling comfortable raising issues or concerns without fear of retaliation through the GRM which includes GRCs and Safety Committees.

2. REQUIRED CONDUCT

SATCP will require contractors' personnel to:

- i. Carry out his/her duties competently and diligently;
- ii. Comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other site personnel and any other person;
- iii. Maintain a safe working environment including by:
 - Ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
 - Adhering to 'No PPE, No Work' policy and wearing required personal protective equipment;

- Using appropriate measures relating to chemical, physical and biological substances and agents;
- Following applicable emergency operating procedures.
- Report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
- iv. Do not use and consume illegal substances;
- v. Treat other people with respect, including to their culture and traditions and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
- vi. Do not discriminate when dealing with the local community (including vulnerable and disadvantaged groups), the Employer's Personnel, and the Contractor's Personnel (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status);
- vii. Not engage in Sexual Harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature with other site Personnel;
- viii. Not engage in violence, including sexual and/ or gender-based violence (for example acts that inflict physical, mental or sexual harm or suffering, threats of such acts, coercion, and deprivation of liberty);
- ix. Not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another;
- x. Not engage in Sexual Abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;
- xi. Not engage in any form of sexual activity or abuse with individuals under the age of 18, except in case of pre-existing marriage;
- xii. Maintain behavior respect for the community, especially in relation to children and avoid interacting with them during the course of the project;
- xiii. Complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety

matters, and Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH).

- xiv. Use portable chemical toilets in strategic specific places provided by the employer or engage with the local community and make arrangements;
- xv. Avoidance of conflicts of interest (such that benefits, contracts, or employment, or any sort of preferential treatment or favors, are not provided to any person with whom there is a financial, family, or personal connection);
- xvi. Respecting reasonable work instructions (including regarding environmental and social norms);
- xvii. Not engage in theft and assaults and respect the properties of the community, not leaving waste and other materials in them.
- xviii. Report violations of this Code of Conduct; and
- xix. Not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the grievance mechanism for site personnel or the project's Grievance Redress Mechanism.

3. REPORTING PROCEDURE

If any person observes behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly. This can be done in either of the following ways:

Contact the Social and Gender Officer or GBV Service Provider in writing at this address _____ or by telephone at _____ or in person _____; or Call _____ to reach the _____ (Contractors' Name) hotline (if any) and leave a message.

The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. All reports of possible misconduct will be followed and investigated with appropriate action taken. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.

4. CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT

Any violation of this Code of Conduct by JIANGXI Personnel may result in serious consequences, up to and including termination and possible referral to legal authorities.

4.1 Rewards and Punishment System:

Correcting or reporting of this code of conduct will protect the rights of employees, shareholders, and the company. Once found to be true, suitable rewards will be given to the reporter. Appropriate disciplinary measures will also be administered when an employee violates this code of conduct.

The matrix below specifies the penalties for violating this code:

SN	Act of violation of code of conduct	Penalty
1	Stealing, assaults, excessive absenteeism.	IMMEDIATE DISMISSAL but an employee will be given the right to be heard Reporting to Police
2	Use or possession of illegal drugs or alcoholic beverages at all times during the working hours.	IMMEDIATE DISMISSAL but an employee will be given the right to be heard Reporting to Police
3	Not respecting other employees, their rights including their right to privacy especially when handling private and personal information.	Disciplinary action would include the following according to the nature of act of violation: Verbal or Written warning Fine Dismissal
4	Sexual Harassment: having sexual relationships at the workplace; all types of conduct which may constitute sexual harassment such as rape, sexual assault, offering or receiving preferential treatment, promises or rewards and offering or submitting to	Disciplinary action would include the following according to the nature of act of violation: Reporting to Police Suspension

	sexual favors, intentional physical contact which is sexual in nature such as unwelcome touching.	Immediate dismissal
5	Discrimination or harassment of other employees (local or foreigner) or any other person concerned with the project on grounds of sex, tribe, religion, nationality, ethnicity, marital status, disability or any other grounds.	Disciplinary action would include the following according to the nature of act of violation: Verbal or Written warning Suspension Immediate dismissal
6	Failure to maintain personal hygiene, failure to use Personal Protective equipment (PPE) according to the nature of the work and failure to dress in respectable attire in accordance with the acceptable norms of the company and not leaving job-site clean and secured at the end of each work day	Disciplinary action would include the following according to the nature of act of violation: Verbal or Written warning Suspension Dismissal
7	Disobeying transport management guideline for drivers and Operators.	Following according to the nature of act of violation: Verbal or Written warning Fine Suspension Dismissal
8.	Disclosing secret and confidential or official information whose secrecy or confidentiality has been communicated to or has been availed while discharging official duties without due permission of the authorized person of the company.	Disciplinary action would include the following according to the nature of act of violation: Verbal or Written warning Suspension Dismissal

In the case of a group violation of the integrity rules, the first one making the confession may be waived from his/her punishment.

6.0 DEALING WITH SITUATIONS NOT COVERED BY THIS COC

For situations not covered under this Code of Conduct, workers are expected to deliberate on their actions/behavior and those of others:

Is the action or behavior in-line with the Code of Conduct or not?

Is the action I am undertaking or asked to partake legal or illegal?

Could the action expose the company, Government, Roads Authority or the World Bank to reputational risk?

5. UNDERTAKING FOR CONTRACTOR PERSONNEL:

I have received a copy of this Code of Conduct written in a language that I comprehend. I understand that if I have any questions about this Code of Conduct, I can contact _____ requesting an explanation.

Name of site personnel: _____

Signature: _____ Date: (day/month/year): _____

Counter signature of authorized representative of contractor:

Signature: _____ Date: (day/month/year): _____

Attachment: Behaviors Constituting Sexual Exploitation and Abuse (SEA) and Behaviors Constituting Sexual Harassment (SH)

The following non-exhaustive list is intended to illustrate types of prohibited behaviors:

Examples of sexual exploitation and abuse (SEA):

A contractor employee tells a member of the community that he/she can get them jobs related to the work site (e.g. cooking and cleaning) in exchange for sex.

A contractor employee rapes, or otherwise sexually assaults a member of the community.

A contractor employee denies a person access to the Site unless he/she performs a sexual favor.

A contractor employee tells a person applying for employment under the Contract that he/she will only hire him/her if he/she has sex with him/her.

Examples of Sexual Harassment (SH):

Contractor employee comment on the appearance of another employee (either positive or negative) and sexual desirability.

When a contractor personnel complains about comments made by other personnel on his/her appearance, the other personnel comment that he/she is “asking for it” because of how he/she dresses.

Unwelcome touching of a site personnel by another employee.

A contractor employee tells another employee that he/she will get him/her a salary raise, or promotion if he/she sends him/her naked photographs of himself/herself.