

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)  
OF THE  
TONGUMA EXPLORATION PROJECT, KENEMA DISTRICT**



**ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS  
(ESMP)**

Prepared by

**CEMMATS Group Ltd**



Freetown, Sierra Leone

On Behalf of

**TONGUMA LTD**

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Signed by:



Andrew Keili

CEMMATS Group Ltd

Beyoh House

7A Cantonment Road

Off King Harman Road

Brookfields

Freetown

Sierra Leone

Email: [akeili@cemmatssl.com](mailto:akeili@cemmatssl.com)

Tel: +232 76602174

Website: [www.cemmatssl.com](http://www.cemmatssl.com)

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## ACRONYMS

<sup>0</sup> C	Degrees Celsius
%	Percentage
"	Inch
CBD	Convention on Biodiversity
CBO	community-based organisation
CDAP	Community Development Action Plan
CDMC	Community Development Management Committee
CEMMATS	Construction Engineering Maintenance, Manufacturing and Technical Services
CHO	Community Health Officer
CI	Corrugated Iron
CITES	Convention on International Trade in Endangered Species on wild flora and fauna
cm	centimetre
Cm <sup>2</sup>	Square centimetre
CRO	Community Relations Officer
dB	decibels
EPA-SL	Environment Protection Agency Sierra Leone
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ft	feet
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GoSL	Government of Sierra Leone
GPS	Global Positioning System
HDI	Human Development Index
HSSE	Health Safety Security and Environment
IFC	International Finance Corporation
IMR	Infant Mortality Rate
IUCN	International Union for Conservation of Nature
JSS	Junior Secondary School
km	kilometre
km <sup>2</sup>	Square kilometre
kV	kilovolts
Le	Leones

m	metre
MCH	Maternal and Child Health
MDA	Ministries, Departments and Agencies
MAFFS	Ministry of Agriculture, Forestry and Food Security
MLCPE	Ministry of Lands, Country Planning and the Environment
mm	millimetre
MoHS	Ministry of Health and Sanitation
m/s	Metre per second
MSDS	Material Safety Data Sheet
MWHI	The Ministry of works, Housing and Infrastructure
N	North
NE	North-east
NGO	Non-Governmental Organization
OHS	Occupational Health and Safety
PAC	Project Affected Communities
PAPs	Project Affected Persons
PCDP	Public Consultation and Disclosure Plan
PPE	Personal Protective Equipment
PRSP	Poverty reduction Strategy Paper
RAP	Resettlement Action Plan
RO	Resettlement Officer
RPF	Resettlement Policy Framework
TOR	Terms of Reference
TPL	Traditional pit latrine
Turb.	Turbidity
VRV	Village Resettlement Committee
WHO	World Health Organization
WMP	Waste Management Plan
Zn	Zinc

## ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Volume 1 of the Environmental and Social Impact Assessment (ESIA) contains the policy, legal and administrative framework under which the study was carried out and a description of the project in its geographic, ecological, social and temporal context. Mitigation measures needed to control, avoid, prevent, reduce and repair impacts to acceptable levels are presented, as well as an analysis of the cumulative impacts and feasible alternatives.

The Environmental and Social Management Plan (ESMP) outlined in this volume (Volume 2) presents the environmental management, mitigation, monitoring and institutional measures to be taken during project implementation and operation, to reduce adverse environmental and social effects to acceptable levels and enhance positive effects. This plan provides a framework and requirements/guidance for preparation of a series of sub-plans to be prepared later. It does not present all of the actual individual plans to be implemented. It specifically defines what actions must be taken and who is responsible to reduce adverse project impacts. This ESMP includes several component plans defining specific action programs for waste management, emergency response, closure and reclamation, community development, and public consultation, covering the two main phases of this project: the exploration and the mining. The ESMP highlights the issues and concerns that are presented in the ESIA and identifies reasonable and practical responses to address and mitigate potentially adverse effects. It defines the specific actions that will be required to effectively implement those responses in a timely manner and describes the methods by which management will demonstrate that those requirements have been met. It also establishes the course that the project management will follow in complying with Government of Sierra Leone environmental laws and regulations as well as international policies and guidelines.

This volume is split into the following subsections listed in Table 1.

**Table 1: List of Environmental and Social Management Plans for the Project**

Sections of Report	Plans
A.	ENVIRONMENTAL HEALTH AND SAFETY PLAN (EHSP)
B.	WASTE MANAGEMENT PLAN (WMP)
C.	EMERGENCY RESPONSE PLAN (ERP)
D.	RESETTLEMENT POLICY FRAMEWORK (RPF)
E.	COMMUNITY DEVELOPMENT ACTION PLAN (CDAP)
F.	PUBLIC CONSULTATION AND DISCLOSURE PLAN (PCDP)
G.	CLOSURE PLAN (CP)
H.	MANAGEMENT, MITIGATION, MONITORING AND IMPLEMENTATION MEASURES

### **Environmental Health and Safety Plan (EHSP)**

The Environmental Health and Safety (EHS) Plan for the Tonguma Exploration Project identifies the principles, approach, procedures and methods that will be used to control and minimize the environmental and social impacts of all construction and operational activities associated with project development.

### **Waste Management Plan (WMP)**

The Waste Management Plan describes the procedures, systems, equipment, and structures specific to waste management and disposal. Waste generation will be limited at all levels of the operation in order to decrease the volume of waste generated and make waste disposal more manageable. The plan also defines who is responsible for developing and implementing the plan, and what records and reporting will be required.

### **Emergency Response Plan (ERP)**

The Emergency Response Plan (ERP) provides employees and managers with specific instructions that will allow them to respond quickly and efficiently to any foreseeable emergencies likely to occur at the Project. It is developed using recognized and accepted methods and practices, and includes specific responses, protocols, and management contacts. The ERP essentially has the goal of protecting people, the environment, property and the operations. This document deals with typical emergency types that characterize the operation which include.

### **Resettlement Policy Framework (RPF)**

The Resettlement Policy Framework identifies objectives, principles, policies, procedures, organisational arrangements and estimated costs (where possible) for dealing with resettlement and compensation payments related to the implementation of the Project.

### **Community Development Action Plan (CDAP)**

The community development and social assistance programmes aimed at improving the living conditions of the local communities in a sustainable way are captured under the CDAP.

### **Public Consultation and Disclosure Plan (PCDP)**

The PCDP is intended to define objectives and establish the framework necessary to provide understandable information to all parties involved. This plan will be implemented to ensure timely and effective communications between Tonguma Management and the affected stakeholders. The main objective of the PCDP is to establish a program for multi-directional communication between the management and stakeholders.

### **Closure Plan (CP)**

The Closure Plan documents plans required to stabilize the site, post exploration and mining activities. Reclamation activities are implemented to re-establish a beneficial post-operation land use.

### **Management, Mitigation, Monitoring and Implementation Measures**

Management, mitigation and monitoring measures are presented in this section, which also includes a comprehensive monitoring plan.

### **Management of Plans**

The Management Plans document the systems and processes that will be implemented over time at Tonguma Project worksites to ensure compliance with local and international standards.

Tonguma Ltd will attempt to manage risks in the workplace by applying accepted and systematic risk management principles combined with routine staff training. Tonguma Ltd acknowledges recognizes the moral and ethical responsibility they hold to set the standard for workplace safety in a developing nation.

### **Occupational Health and Safety Policy**

The Tonguma Project and its Management understand that they are ultimately responsible for Health and Safety in their workplaces, and they actively empower their employees to implement safe practices in their everyday work.

As part of the process of continuous improvement, the Tonguma Project commits to involving and consulting all relevant stakeholders to ensure that they have a positive effect on the organization's safety culture. The project:

- Commits to working toward a ZERO harm policy; and
- Sets goals and objectives to determine Health and Safety progress and will endeavour to comply with or exceed all current legislative standards and requirements.

### **Environmental and Social Program Philosophy**

The company will operate on the following philosophy:

- Respect diversity and cultural differences;
- Educate the workers on health, safety, social, community and environmental issues;
- Provide safe working conditions for its employees;
- Protect the environment from undue degradation;

- Communicate with the public on its project plans and activities; and
- Invest a part of its profit into the communities, to develop skills and opportunities that can be carried forward without dependence on the economies of the Project.

### **Corporate Commitment**

The Tonguma Ltd's environmental and social programs aim to continually improve environmental and safety performance in the workplace, maintain multi-directional communication among the company, local communities and interested stakeholders.

### **Policy Implementation**

Environmental and social management of the Project is administered through a chain of command that includes corporate oversight, site management, local employees, contractors and subcontractors. The key managers will be responsible for:

- Compliance with national regulations and policies;
- Ensuring that the required environmental and social management activities are implemented and maintained; and
- Reporting on the effectiveness of such activities to executive management and the Board of Directors for review and corrective action as necessary.

The Tonguma Ltd focuses on developing the capabilities and support mechanisms necessary to administer environmental and social management. Implementation is based on raising the level of company-wide awareness of environmental and social requirements, expectations, and benefits. Health, safety, and environmental protection as well as social issues and community activities are among the highest project priorities.

# SECTION A

# 1 ENVIRONMENTAL HEALTH AND SAFETY PLAN (EHSP)

## 1.1 Introduction

The Environmental Health and Safety Plan identifies the principles, approach, procedures and methods that will be used to control and minimize the adverse environmental and social impacts of all exploration and mining activities associated with project development. It is intended to complement the project's Environmental and Social Impact Assessment (ESIA) and ensure that commitments made by the Tonguma Ltd to minimize project related adverse environmental and social impacts are upheld throughout all project phases.

### 1.1.1 Safety

Tonguma Ltd will implement various safety management strategies to minimize risk and to ensure safe working continuity. These include:

- The process of Hazard and Risk Identification, reporting, assessment and control;
- Communication of safety information;
- Provide continuous access to safety information;
- Tool Box Meetings;
- Start Up Meetings;
- Safety Alerts and Bulletins; and
- Issuing of Work Permits.

Tonguma Ltd believes that the effective management of risk is a critical aspect of its business. The Project will include general and site specific processes to ensure that risks associated with the business are identified and managed appropriately.

#### 1.1.1.1 Risk Assessment and Evaluation

All employees and contractors working for Tonguma Ltd are expected to be able to demonstrate Training and Occupational Health and Safety commitment in the workplace. To facilitate this, each contracting company is to submit a Health and Safety Management plan in line with the requirements of their contract. The plan will be approved by the relevant Safety Manager. For the Tonguma employees, each shall comply with all current Tonguma Ltd mandatory procedures and this will be reflected in their work evaluation.

#### Site Specifics

A risk assessment of the company's operations was carried out and the following issues were identified for implementation in order to minimise the risks associated with the operation. All work carried out during this phase will comply with:

➤ *Manual Handling*

Supervisors are required to identify manual handling hazards and do what is reasonably practicable to prevent injuries occurring.



➤ *PPE*

As a minimum requirement, all personal protective equipment in use at sites must comply with the appropriate ISO standard. The minimum PPE required for Tonguma Limited mine sites shall be:

- High visibility shirts (with reflective stripes or a vest with reflective strips);
- Long trousers or full overalls;
- Steel capped safety and water boots;
- Safety glasses (medium impact);
- Hearing protection;
- Dust masks and ventilators for adverse conditions; and
- Hard hat manufactured in accordance with ISO standards in designated areas.

➤ *Extra Eye Protection*

Additional eye and face protection (minimum safety glasses and side shields and full face visor) conforming to International Standards shall be provided and worn when:

- Welding, cutting, burning, chipping or scabbling;
- Operating a grinder, drill, metal cutter, masonry saw or drill or similar piece of equipment;
- Operating an explosive powered tool;
- Striking metal against metal;
- Operating compressed air-activated tools or hose lines; and
- Handling corrosive dust or chemicals.

➤ *Signage*

Each site shall ensure signage complies with ISO Standards Guidance in terms of applicability. All entry points into all confined spaces shall be sign-posted with a danger sign forbidding entry to unauthorized personnel.

➤ *First Aid Facilities*

Tonguma Ltd shall maintain adequate first aid facilities in appropriate locations to aid for the treatment of injuries.

Paramedics/Registered nurses, physiotherapist who are appointed to operate the First Aid medical facility, shall keep adequate records of all treatment and medication supplied.

➤ *Traffic Management*

Tonguma Ltd shall make good any damages to public roads used to access the mine site, provided the damage is attributable to its use of the roadway. No restrictions will be placed on traffic flowing through the area that uses the access road constructed to the mine site. However, restrictions will be imposed on traffic flows into active mining areas. Only project vehicles will be permitted into mining areas and signs will be posted along the access road indicating to road users that the company will not accept liability for accidents on the access road and also indicating that road users are responsible for providing their own insurance cover for accidents on the access road. Signs on speed limits will also be set up within the concession indicating maximum allowable speeds of 25Km/h.

➤ *Dust Management*

There are exposure standards issued by the World Health Organization (WHO). Tonguma Limited will endeavour to comply with these standards at all times. Each site shall carry out appropriate personal and positional monitoring for dust to determine their risk profile.

➤ *Hearing Conservation*

Each site subject to industrial noise shall complete a Noise Monitoring Survey to determine their level or risk exposure to noise-induced hearing loss. This should be completed once operations have commenced.

➤ *Site Inspections and Audits*

Each work area supervisor and the local senior site officer (SSO) will be responsible for ensuring all workplaces are inspected on a regular specified schedule or as required to maintain a safe work place. Each SSO will be responsible to report to the Health, Safety, Security and Environment (HSSE) officer when completing a site safety audit quarterly, who will submit results to the Operational Head.

➤ *Machinery Guarding*

No electrical, mechanical and pneumatic machinery are to be operated unless all guards and/or barricades are in good condition and secured in the correct location and the equipment is in good working order.

#### **1.1.1.2 Site Operational Procedure**

The health and safety of employees and the general public visiting the site are of paramount importance to Tonguma Ltd. A draft formal Occupational Health and Safety Program has been developed to support the company's exploration activities. This program details the roles of employer and employees as well as contractors working on the site. As required by international mines standards, a Health, Safety and Security Committee composed of employee and management representatives is in place.

All employees, contractors and visitors are required to attend safety orientation sessions conducted by qualified Tonguma Ltd employees. Visitors are always accompanied by an employee escort to the exploration fields.

All employees are given Workplace Hazardous Materials Information System (WHMIS) training upon engagement, and Material Safety Data Sheet (MSDS).

## **1.2 Effective Organisation and Management Responsibilities**

It is important to delegate Health, Safety, Security and Environment (HSSE) issues to qualified personnel who will be responsible for ensuring not only adherence, but motivating the workers to actively engage in their work in a safe manner. Assigning a member of staff or committee of workers to HSSE issues, marks the first step in managing risks inherent with

the operation of the project and creates a mechanism by which management can monitor improvements.

### **1.2.1 Mining Manager**

The Mining Manager is responsible for ensuring that they are continually working towards improved Health, Safety, Security and Environment standards across the business and that known risks are controlled as far as is practically possible.

Specific responsibilities include but are not limited to the following:

- Ensuring that there are competent personnel to fulfil senior or management roles;
- Overall Management and resourcing of safety cultures and practices within the business;
- Storage and maintenance of important documentation;
- Accreditation and licensing requirements are regularly checked;
- Internal auditing is completed in a timely manner to appropriate standards;
- Assisting staff in carrying out day to day activities on site in a safe manner;
- Providing advice and support on all matters relating to field of expertise; and
- Ensuring their department / operations complies with legal requirements.

### **1.2.2 Health, Safety, Security and Environment Officer**

The HSSE Officer is the appointed individual responsible for ensuring the ongoing improvement of health safety in the work place. He will ensure that all reasonable measures are taken to make provision for equipment and resources to be at the disposal of workers across the sites. Where resources are inadequate, he will be responsible for ensuring that senior management is made aware of this.

Specific responsibilities include but are not limited to the following:

- Ensure the ongoing improvement of health and safety standards in the work place by ensuring regular inspections are undertaken and participating in Occupational Health and Safety (OHS) meetings and training as required;
- Review OHS policies and plans as required;
- Ensure compliance with legislation, company standards and internal procedures;
- Ensure that employees and their representatives are consulted during development and review of policies and procedures or when changes to work practice may impact on their OHS
- Take action to immediately rectify any unsafe situations or acts and undertake appropriate disciplinary action against persons who fail to comply with reasonable expectations;
- Prepare a list of emergency contacts;
- Maintain the inventory of safety equipment and supplies;

- Arrange for the replacement of used or obsolete safety supplies and equipment;
- Organize and train personnel in first aid;
- Oversee first response programs;
- Inspect and maintain fire extinguishers;
- Maintain records on emergencies or fatalities; and
- Report to regulatory agencies and stakeholders.

### **1.2.3 Departmental Supervisors**

The Departmental Supervisors engaged in any form of work associated with Tonguma Limited's operations shall be responsible for and support Service Providers under their control. They shall ensure that they are familiar with and adhere to the requirements of this plan, related procedures and the expectations of their Department Head.

### **1.2.4 Medical Assistance**

Tonguma Ltd has a Paramedic and a clinic. They also have first aid kits to handle all cases of minor accidents and incidents. Referrals will be made to hospitals for severe cases needing the attention of a medical doctor. The paramedic assists with upgrading first aid programs drawn up by the HSSE Officer, training employees in basic first aid procedures and in responding in the unlikely event of a critical or life-threatening emergency.

### **1.2.5 Training and Communications**

Supervisors will be responsible for determining the overall training and information that is required for staff and Support Service Providers visiting or working on the sites. There will be, however, some mandatory requirements regardless of location. Appropriate arrangements will be made to ensure all personnel are suitably health and safety competent. These arrangements will provide training and experience in safety behaviour, risk assessment, safety procedures and methods, and use of work equipment.

Effective communication systems are critical to minimizing risks and taking a proactive lead in the event of an emergency during the operation of the project. This will include information on the site's safety plan, feedback on performance and actions taken, learning points to prevent injuries, etc. It is also crucial to display safety signs in strategic locations within the project facilities.

### **1.2.6 Hazard Recognition**

It is Tonguma Ltd's policy that staff report hazards as they present themselves. If the hazard can be rectified immediately without further risk, then the staff member should do so. Where possible, the hazard must be recorded on the site in the hazard register and the appropriate

actions completed. Where there is an ongoing risk, they shall be made safe and then reported to the area supervisor for assessment and control.

Employees will undergo formal safety training and task training by experienced personnel facilitated by Tonguma Ltd and Contractors will separately organise safety training for its employees. This training will teach employees techniques in hazard identification and recognition. The training will also identify potential hazards associated with the site and their occupations. Following training, employees will be responsible for identifying potential hazards as part of their normal job requirements. Rapid recognition of potentially hazardous situations can avert an emergency. Monthly safety meetings will be held among elected staff members to discuss a broad range of health and safety topics, but will periodically address the following:

- ✓ Specific tasks to be performed;
- ✓ Time constraints;
- ✓ Hazards that may be encountered, including their effects, how to recognize symptoms, and other danger signals; and
- ✓ Emergency procedures.

Each safety meeting will discuss a specific topic or issue. The meetings will serve as a reminder of potential occupational hazards.

### **1.2.7 Emergency Response Training**

The HSSE Officer will coordinate emergency response training. Training for all staff can take the form of tool box talks, safety and environmental inductions or first aid training programs, and will include training on transportation of hazardous materials, fire fighting, first aid, and personnel rescue techniques. Specific job safety assessments, will give guide to formulate response to any emergency on site. All staff will participate in annual training at the facility to ensure that all members are trained in equipment use and emergency response methods. Training will be directly related to their specific emergency response roles, and will include:

- Communication methods and signals;
- How to call for help;
- Emergency equipment and its use;
- Emergency evacuation while wearing protective equipment; and
- Removing injured personnel from enclosed spaces.

Personnel will receive training in first aid and Cardiopulmonary Resuscitation (CPR) and will practise hands-on rescue techniques on at least an annual basis. Training will also include recognizing and treating chemical and physical injuries and heat stress.

### **1.2.8 Employee and Contractor Responsibility**

Whether directly or indirectly employed by Tonguma Ltd, employees engaged in any form of work associated with Tonguma Ltd, shall fulfil the requirements of this plan and all related procedures as far as is reasonable practical.

All employees are obliged and empowered to identify, report and where appropriate, manage potential hazards. Also, employees are responsible for ensuring they do not adversely affect their own health or the health and safety of others through any act or omission. They are obliged to:

- Report all incidents and hazards;
- Wear and maintain provided PPE;
- Operate & maintain machinery in a safe and practical manner;
- Follow all reasonable work instructions and procedures; and
- Comply with company policies & procedures

# SECTION B

## **2 WASTE MANAGEMENT PLAN (WMP)**

### **2.1 Introduction**

The Waste Management Plan (WMP) is an essential component of the Environmental and Social Impact Assessment for the exploration of kimberlite diamond within the Tonguma Mining Ltd. concession area.

The WMP describes Tonguma Ltd's commitment to taking all necessary steps to ensure that the generation, collection, storage, transportation and disposal of all wastes generated during all phases of project operations will be conducted in a safe, efficient and environmentally responsible manner. The WMP detailed in this document considers:

- i. Proposed disposal methods; and
- ii. Equipment and staff.

### **2.2 Objectives of the Waste Management Plan**

The objectives of the WMP are to:

- i. Generate the least possible amount of waste through reduction, reuse and recycling practices, and review/approve all orders for materials, chemicals, and supplies to limit the environmental impact;
- ii. Protect the health and safety of people;
- iii. Avoid or mitigate any potential negative impacts on all elements of the environment – including, but not limited to, people, flora, fauna, air, surface and groundwater resources, and the sea;
- iv. In compliance with Good International industry practices, process the waste through treatment and disposal;
- v. Ensure due diligence is followed by all project personnel;
- vi. Track waste generation, handling and disposal to assess whether waste management is being carried out as per the WMP and its associated directives;
- vii. Avoid costly clean-up through prevention; and
- viii. Ensure a logical and efficient plan for waste collection, sorting and disposal that reduces the number of times the waste is handled and that produces income for local people through sales of recycled waste.



## **2.3 Waste Management and Disposal Facilities**

### **2.3.1 Waste Identification**

Waste streams likely to be generated during the exploration phase and in future, the mining phase of the operations include the following:

- i. Hazardous and domestic wastes
- ii. Wastes from the mining process.

Management of each waste stream is discussed in subsequent sections of this plan.

### **2.3.2 Hazardous and Domestic Wastes**

#### **2.3.2.1 Domestic Wastes**

A variety of domestic waste materials may be generated during operations and particularly at the camp site. These materials include, but are not limited to the following:

- i. Aluminium, glass, plastic, paper, cardboard etc;
- ii. Electrical items e.g. cables, old appliances or equipment;
- iii. Kitchen wastes such as leftover food and food packaging;
- iv. Old tyres, hoses and rubber; and
- v. Sanitary waste/sewage.

The domestic waste facility will handle putrescible materials and non-degradable wastes generated. Wastes going into the facility will be screened to reduce the amount of materials deposited there. Any material that can be re-used or recycled will not be allowed into the facility. The HSSE Officer will be responsible for the supervision of the domestic waste facility.

Sanitary waste will be directed to underground septic tanks within the campsite.

#### ***Housekeeping:***

- All work areas shall be maintained in a tidy state, free of debris and rubbish;
- The client's waste management plan and collection and disposal arrangements shall be used to align the project waste management program;
- In cases where an inadequate standard of housekeeping has developed and compromised safety and cleanliness, the HSSE Officer shall notify the relevant supervisor to halt work until the area has been tidied up and made safe;
- The HSSE officer, supervisors and site safety officers shall carry out regular scheduled health and safety/ housekeeping inspections to ensure maintenance of satisfactory standards; and

- All employees shall be trained in housekeeping requirements and hazard identification.

### ***Waste Handling***

The following handling procedures, developed based on IFC's guidelines for Waste Management Facilities (2007), will be adopted as part of the Project's waste management program. Waste collection, handling, and transport guidelines include, but are not necessarily limited to, the following:

- i. A routine schedule will be established for domestic waste collection and disposal;
- ii. Waste generators will be provided with appropriate waste disposal containers;
- iii. Enclosed refuse vehicles or vehicles equipped with tarps will be used for the domestic waste collection;
- iv. Waste handling will be minimized during operations; and
- v. Waste containment will be maximized during operations.

Odours and the loss of wastes will be monitored, evaluated, and reduced at all waste loading and unloading facilities. Fugitive refuse (for example, plastic bags and paper) around the waste facility will be picked up, disposed of in the waste facility, and properly covered.

### ***Reuse, Recycling and Minimization of Waste Generation***

The company will establish programs for material recycling and reuse to reduce the volume of materials generated and deposited in the waste facilities. Local communities may be interested in reusing plant debris such as scrap materials, wood and steel, used tires, used vehicle parts, and other materials, which are no longer required or capable of repair to suit the operation. These materials can be offered to local communities for reuse through public consultation meetings and interviews to identify which materials can and cannot be beneficially, as well as safely, used by the communities.

Making waste materials available to local communities is preferred over disposal if such availability does not cause conflict. When materials are determined to be suitable for reuse or salvage, a recycling program will be established to include the following:

- i. Identification of wastes to be recycled;
- ii. Provision of cleaning and treatment as needed to make wastes suitable for recycling;
- iii. Designation of a storage area for recyclable materials, segregated from other waste materials, and located for easy access; and
- iv. Identification of local residents who have been authorized to collect, recycle and salvage materials.

Recycling programs will not be run for profit. Local residents who have been authorized to collect materials from the site will be identified and their roles in the recycling program coordinated through the Community Development Program.

Waste that can be reused around the facility will also be incorporated e.g. Old tires being used as flower pots, old drums painted and used to line routes etc

### **2.3.2.2 Hazardous Wastes**

Hazardous wastes are materials considered reactive, flammable, radioactive, corrosive and/or toxic. The use of these materials should be limited to the extent possible. If use of these materials is unavoidable, Management will adopt procedures for documentation and labelling as well as the safe storage, handling, and disposal of these materials.

Hazardous wastes at the site include (but not limited to) the following:

- i. Waste oils and solvents;
- ii. Fuel and oil filters;
- iii. Batteries;
- iv. Aerosol cans;
- v. Petroleum-contaminated soils; and
- vi. Medical wastes.

#### ***Waste Oils, Fuels and Solvents***

Waste oils and spent solvents will be generated by maintenance activities performed on various machinery. Waste oils and solvents will be stored in collection tanks, and carted to Koidu Ltd for use in the fabrication for emulsion used in blasting.

#### ***Fuel and Oil Filters***

Waste fuel and oil filters from machinery and equipment will be generated throughout the Project life. Handling of these materials will be by:

- i. Puncturing the filters and allowing them to drain for 8 hours; Collecting the drained fuel or waste oil; and
- ii. Properly storing for later transfer to the Koidu Ltd facility for incineration.

#### ***Batteries***

A variety of batteries, vehicle and non-vehicle, will be used throughout the life of the Project. Used batteries will be accumulated and stored in an area that has a concrete floor with toe berms and is sheltered from the weather. If recycling is unavailable, batteries will be permanently disposed by incineration at the Koidu Ltd facility.

### ***Aerosol Cans***

Aerosol cans containing paints, cleaning agents and other sprays will be routinely generated by the Project. Aerosol cans should be properly depressurized before being disposed of to prevent harm to area personnel.

### ***Medical Wastes***

Medical items which may be generated and would need to be disposed of include the following:

- i. Needles and syringes;
- ii. Used cotton wool;
- iii. Used gauze and plasters;
- iv. Empty bottles and vials; and
- v. Test kits.

These wastes could be carefully bagged in labelled bins to be collected for disposal by incineration at the Koidu Limited site.

### ***Waste Handling***

Hazardous wastes will be properly labelled for easy identification, and stored in a designated area within the facility, protected from run-off or any external influences. It should be ensured that the containers holding the wastes are not punctured and can be securely covered.

As the site does not currently have a hazardous waste treatment facility, wastes generated are transferred to the Koidu Ltd facility where there is an incinerator. The HSSE Officer is responsible for monitoring the storage area and coordinating regular transportation to Koidu for disposal.

### **2.3.3 Mine Wastes**

The exploration method of Tonguma Ltd requires the movement of large amounts of overburden and creation of rock waste. Depending on the stripping ratio, large quantities of overburden or waste rock often need to be removed to expose the mineral to be mined and sampled. The overburden and waste rock is often disposed of in constructed waste rock dumps. Management of these dumps is important to protect human health, safety and the environment.

The issues that will be considered in the selection of waste storage and dump sites include:

- i. Storage capacity;

- ii. Haul distance and disposal costs;
- iii. Need to minimize visual impact;
- iv. Site access and preparation;
- v. Environmental issues;
- vi. The existing drainage patterns;
- vii. The geology of the prospective ground; and
- viii. The proposed infrastructure positions.

These wastes are transported to the storage areas where they are crushed and spread out over the surface of the area. Overburden materials will also be used, where possible, in carrying out road maintenance within the mine site.

#### **2.3.3.1 Waste Handling**

The Mining Manager will be responsible for the disposal of exploration wastes. He will make sure wastes generated from the Plant are disposed of in the proper manner and location. As a minimum, the duties of the Sample Processing Manager will include the following:

- i. Provide the manpower and equipment needed to construct, inspect, and maintain mine waste dump sites;
- ii. Give clear instructions to the employees on how mine wastes must be managed;
- iii. Give clear instructions on what is and is not acceptable for disposal into the waste dump

## **2.4 Management Responsibilities**

### **2.4.1 The Establishment of Environmental, Health and Safety Department**

The HSSE Officer and his/her staff will be responsible for implementing the Waste Management Plan contained in this report or that has otherwise developed as the explorations progress. This department will also ensure regular monitoring and preparation of evaluation reports most preferably by a contracted independent body and not necessarily by the Project Proponent's staff. This Department will be charged with the responsibility of putting in place all Environmental and Social issues for the Project Proponent. The Environmental Safety Officer will maintain records and report on any significant environmental matters, including monitoring data, accidents, and occupational illnesses related to waste management. The records and report will be reviewed by the managerial staff to improve the effectiveness of the Waste Management Plan.

### **2.4.2 Waste Facility Record Keeping**

The HSSE Officer will be responsible for maintaining records regarding active and inactive cells for the domestic waste facility and the hazardous waste storage area.

The HSSE Officer will be responsible to ensure daily compaction and covering activities of the domestic waste facilities.

### **2.4.3 Management Training Responsibilities**

Properly trained employees are necessary for the safe and effective operation of any facility. Training programs will reflect the level and type of expertise necessary for a given position. Safety precautions will also include protective clothing pertinent to the work activity, area, and schedule. Clothing may include such items as hard hats, hard-toe boots, gloves, safety glasses, reflective outerwear, and hearing protection. General safety rules will be posted in strategic locations in the project area to describe general safety requirements for waste disposal facilities and equipment.

New employee training programs and annual refresher courses on proper waste management and disposal will be required for employees under the direction of the HSSE Officer.

### **2.4.4 Employee Training Courses**

Employees will be trained in the following safety topics before employment commences and will also be reminded in annual refresher courses to limit the potential for accidents. These courses will be developed and implemented by the Environmental Safety Officer:

- i. Safe job practices and procedures;
- ii. Accident prevention;
- iii. Differences between waste streams and an overview of incompatible wastes;
- iv. Safe lifting practices;
- v. How to read and understand Material Safety and Data Sheets (MSDS);
- vi. Safe material and waste handling practices; and
- vii. Proper control and maintenance of equipment and waste facilities.

### **2.4.5 Requirements of Personal Protective Equipment (PPE) for waste disposal**

Waste management personnel collecting and disposing waste must wear appropriate PPEs. The minimum required PPEs are:

- i. Neoprene chemical resistant gloves or better quality gloves;
- ii. Safety boots;
- iii. Coveralls;
- iv. Respirators
- v. Hard hats; and

vi. Safety glasses.

# SECTION C



### **3 EMERGENCY RESPONSE PLAN (ERP)**

Emergency situations may arise from various activities and conditions during the course of exploration and mining, which may include plant equipment or process failures, vehicle accidents, power outages, etc. These could have potentially severe consequences for the Project if no emergency response plans have been put in place.

#### **3.1 Introduction**

The Emergency Response Plan (ERP) is an essential component of the ESMP for the Tonguma Ltd. The Emergency Management Method practiced on site for incident response, emergency and crisis management, are designed to enable all relevant parties associated with the Company to act quickly, decisively and cooperatively in any crisis or emergency situation. This ensures an appropriately measured level of response and recovery actions, depending on the nature, location and potential gravity of any given incident.

This document outlines the ERP for the project along with general Health and Safety Program components. Emergency plans, organizational responsibilities, reporting procedures, specific plans for responding to emergencies and emergency response training are also covered in detail.

For the purpose of enabling consistent response and recovery actions and responsibilities across all of Tonguma Ltd, all component plans of the framework recognize a consistent three level company Incident Classification System. The level at which an incident is declared, determines which response and recovery plans are implemented and which response and recovery teams are mobilized.

Each team performs a different but complementary function to the others. The Incident Management Teams are focused, dealing with controlling and containing the event and ensuring appropriate health and safety and environmental outcomes. The higher level teams are focused on operational support and consequence strategic management, dealing with the strategic issues arising from the incident, including HR management and stakeholder (media) communications.

The following measures will be put in place for the successful implementation of this plan:

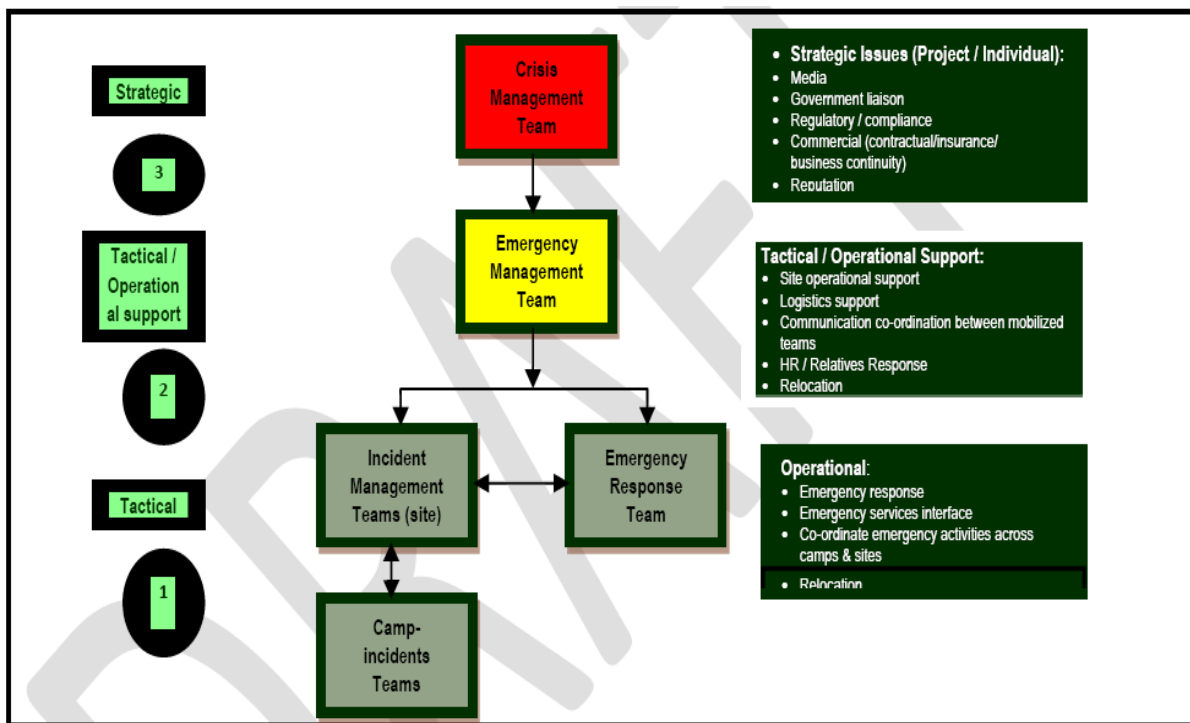
- i. Personnel will be competent and understand their roles and responsibilities during an emergency response situation;
- ii. Drills and exercises will be conducted on a quarterly basis to assess and improve upon emergency response; and
- iii. The plan will be periodically updated to incorporate lessons learned from previous incidents and exercises.

### 3.2 Emergency Response and Preparedness

The integrated framework designed as emergency response and preparedness plan for this project, reflect the needs and working relationships of the major parties to the Company and the current operational structures in place to manage the company in the field and in support offices. The integrated framework comprises three levels of response and recovery teams:

- Incident Management Team(s) with supporting Emergency Response Team and Camp Incident Teams;
- Emergency Management Team; and
- Crisis Management Team & and Stakeholders.

The integrated framework of response and recovery teams is represented as follows:



Source: Tonguma Ltd Draft HSE Plan

#### 3.2.1 Incident Management Teams

Incident Management Teams (IMT) are unit/site-based team comprising of senior Tonguma Ltd field staff responsible for managing incidents affecting Company staff, facilities and operations. Each IMT is supported by field Emergency Response Teams (personnel and equipment) for incidents such as medical emergencies, fire fighting, etc. Where applicable, Incident Management Teams are to be supported by Camp Incidents Teams (CIT's) are mandatory at any accommodation centre involving Tonguma Limited personnel.

Tonguma Limited Emergency Services and Security Manager are responsible for ensuring that a frame work template is available for each site to create their own site IMP.

### 3.2.2 Emergency Response Team (ERT)

Emergency Response Team comprises site-based personnel who have received training and are competent in emergency response procedures such as basic fire fighting, advanced first aid. Team activation and composition is directly related to the emergency response requirements. The team(s) carries out emergency response actions to control or resolve emergency incidents at or near the incident location and assist external emergency response agencies in the same manner. Only trained and competent individuals who are competent will be allowed to actively participate in any training and response activity.

### 3.3 Emergency Response Plan

Tonguma Limited site shall maintain and document operational and tactical procedures for site specific identified risks. The Emergency Response Procedures are to be managed by the site Project Manager or equivalent and are to become an Annexure in the site Incident Management Plan (IMP).

Typical emergency types, severity and responses that characterize the mining exploration include:

- Level I - Minor Incident
- Level II- Moderate Incident
- Level III- Major Incident

Incident	Severity
Slope failure of mine	
Fuel/Oil Spillage	
Fire/Explosion	
Natural Disaster (Land Slide, Flooding)	
Road Accidents	
Machinery Accidents	
Minor accidents (Scrapes, Cuts, abrasions etc)	
Medical Health Cases	
Civil unrest and disturbance	

Response to major emergency types includes:

- i. Fire or Explosion - The fire fighting system to be setup on site
- ii. Pollution or Chemical Spills – Response to include oil and chemical spill clean-up using spill kits and best practice spill containment measures.
- iii. Road Traffic Accidents – Work closely with the roads transport department and install road signs.
- iv. Accidents – Response can be in the form of risk assessment, job safety assessment and instituting safe work procedures
- v. Medical Health Cases – Have a clinic and paramedic, list of Hospitals and Doctors to consult in cases of severe injuries.
- vi. Civil Unrest & Disturbances - The Human resources manager, the Sierra Leone Sierra Leone Police and Labour Organization will be included in any response protocol.
- vii. Natural Disaster – Response include involvement of National Disaster Preparedness centres.

The employees will develop and maintain the ERP in compliance with applicable laws and industry standards to ensure a timely and appropriate response to emergencies.

### **3.4 Organization and Management Responsibilities**

Certain members of the management team will have direct responsibilities for responding to on-site emergencies and will be part of the site emergency response team (ERT). The ERT will be coordinated by the HSSE officer who will be assisted by an ERT foreman.

#### **3.4.1 Emergency Response Team**

The HSSE Officer is responsible for recruiting and training the Emergency Response Team. The ERT is comprised of site employees from all sections who are willing to submit to special training in order to assist in the case of an emergency.

Training of the ERT will be ongoing so that members will be able to respond to on-site emergencies. Refresher training will be conducted as necessary. Critical training areas include the following:

- i. Respond to emergencies involving fires or explosions;
- ii. First aid training;
- iii. Lock-out-tag-out procedures;
- iv. Respond to emergencies involving injuries or fatalities;
- v. Train staff on site safety and emergency response procedures; and

- vi. Control and mitigate spills or other accidental releases.

### **3.4.2 Camp Incident Teams (CIT)**

Where required, these are the accommodation centre teams that are located at each of the camps / accommodation villages and comprise the Camp Commander, (Tonguma Ltd supervisor or experienced nominee), together with the Chief Warden, (camp manager) and Area Wardens (camp staff).

The Camp Commander is responsible for the high level interface with the IMT Team Leader, and the Chief Warden is responsible for the comprehensive management of the camp site including the mustering and assembling of residents during times of emergency. Area Wardens assist the Chief Warden in the communication with residents and the accounting of residents and staff, should an evacuation be required.

### **3.4.3 Emergency Management Teams (EMT)**

The Tonguma Ltd Emergency Management Team comprises of competent and trained senior Tonguma Ltd management who are responsible for managing high level emergency and crisis response and recovery for the Company, in accordance with the provisions of the Emergency Management Plan. Depending on the nature and potential gravity of the incident, the EMT may undertake this role alone (Level II Incident) or work with or hand over management of components of the incident to the CMT (Level III Incident).

### **3.4.4 Crisis Management Teams (CMT)**

The Crisis Management Team comprises senior Tonguma Ltd executives who are responsible for managing crisis response and recovery for the Company, in accordance with the provisions of the Crisis Management Plan (CMP). Depending on the nature and potential gravity of the incident, the CMT may undertake this role alone as it may not involve a site incident, i.e. corporate fraud.

### **3.4.5 Manager Responsibilities**

On-site Managers will each be responsible for identifying potential safety issues and for coordinating the response to emergencies in their work areas. They will be responsible for notifying the appropriate personnel and authorities in the event of an emergency. Managers will help monitor accidental spills and releases that may occur at facilities under their supervision. Managers will also be responsible for documenting and reporting all incidents including accidental spills or releases in areas under their direct supervision.

The HSSE Officer in coordination with the Community Relations Officer will interact with the public when necessary to:

- i. Provide information to the public on project hazards and response programs;

- ii. Brief the public on emergencies; and
- iii. Arrange for evacuation and accommodation for affected people in the event of extreme emergencies.

### **3.5 Fire Protection**

The following systems have been put in place to prevent or handle a fire emergency:

- All buildings, worksites, equipment and infrastructure have installed fire detection and/or suppression systems (inclusive of fire extinguishers) installed as determined by risk assessments.
- All systems and equipment will be serviced in accordance with the relevant Tonguma Ltd standard. A routine inspection regime will be conducted by the site with a documented process capable of being audited.
- The site HSSE Manager is responsible for maintaining these records and making them available to the Tonguma Ltd Project Manager & Security Manager for auditing purposes as required.
- All Tonguma Ltd personnel over a period of working will have gain experience in using fire extinguishers. All fire wardens will have competency-based approved training in usage of fire extinguishers.

#### **3.5.1 Alarm Detection Systems and Operations**

An approved means for prompt notification of fire emergency to workers and the public shall be provided.

Those areas, including buildings, where a potential exists for a flammable liquid spill shall be monitored as appropriate. The following methods below are proposed and will be used in this project:

- i. Personnel observation or patrol;
- ii. Process-monitoring equipment that would indicate a spill or leak could have occurred;
- iii. Provision of gas detectors to continuously monitor the area where facilities are unattended.

##### **3.5.1.1 Preparedness**

The Emergency Response Team will act as first responders and will be trained in first aid, fire rescue, evacuation, and working in closed and/or oxygen deficient space. The fire rescue training will include annual training sessions comprised of the following:

- i. Activating the fire suppression system;
- ii. Performing drills to put out fires; and

- iii. Responding to practice rescue scenarios.

### 3.5.1.2 Response Procedure

In the event of a major fire or explosion, the following procedures shall be followed:

- i. Assess the location and severity of the situation;
- ii. Extinguish the fire if it can be accomplished without being exposed to potential hazards;
- iii. Activate the emergency warning system;
- iv. Restrict access to the area;
- v. Do not take health or safety risks by entering unstable or fire engulfed areas;
- vi. Notify the HSSE Officer and Emergency Response Teams according to establish protocols; and
- vii. Assist in extinguishing the fire and securing the area only under the direction of the Emergency Response Team.

### 3.5.1.3 Evacuation Procedure

Where applicable, each site is to have evacuation plans in accordance with the risk. These evacuation plans are to be practiced, documented and annexed as part of the site Incident Management Plan.

Accommodation sites are to have evacuation procedure documented and practiced.



**Figure 3-1: Emergency Assembly Point within Tonguma Camp Site (Indicated by Sign)**

Generally, the following Evacuation can be followed and tailored to suit every section of the operations. In the event of an emergency requiring employee evacuation:

1. Notify the plant office by radio
2. The office will sound the alarm and notify all employees by radio to evacuate
3. All employees will come to the plant office by company vehicle obeying posted speed limits

4. Park in the parking lot and assemble in front of the office or inside if the weather is bad and await instructions on exiting the facility if required.

## **3.6 Spills and Leakages**

### **3.6.1 Response Procedure**

In the event that a leak, spill, tank rupture, or other release occurs, the following procedures would be followed:

- i. Avoid danger to yourself and others (i.e., stop working, shut off power sources and any moving machinery and equipment as before, alert others in the area of danger);
- ii. Stay upwind of the emergency scene;
- iii. Identify the product that has been spilled, as well as immediate potential hazards (such as possible contact of the spilled material with equipment or other chemicals, or entry into a waterway);
- iv. If the identity of the substance cannot be determined, assistance should be requested and the identity of the substance should be determined by qualified personnel;
- v. If possible to do safely, prevent spill from entering waterways;
- vi. Assess spill quantity and characteristics;
- vii. Notify dispatch with as much information as possible; and
- viii. Arrange for a timely cleanup of spilled material by contacting the HSSE officer.

Depending on the nature of the spilled material, the air quality in the area of the spill could be unsuitable for breathing. Only trained personnel should enter areas that are not well ventilated. Trained personnel should only enter these areas with appropriate breathing devices and should always use the “buddy system” to provide assistance in the case of an emergency.

### **3.6.2 Reporting Procedures**

Following an accidental spill event, the following information should be reported to the HSSE Officer:

- i. Person or people involved;
- ii. Date, time, and location of discharge;
- iii. Description of the situation and site conditions;
- iv. Identification and estimated volume of discharged substance;



- v. Actions used to control the extent and severity of the discharge;
- vi. Final disposition of discharged solutions;
- vii. Documentation of clean-up actions taken and final deposition of contaminated material; and
- viii. Description of environmental effects from the discharge.

All records of spills will be documented according to Spill Reporting Procedures using the Spill Report Forms. Completed forms will be submitted to the HSSE Manager, who will be responsible to ensure that proper corrective actions have been taken, including remediation of contaminated areas and the appropriate storage and disposal of the spilled material.

### **3.6.3 Spill Clean-Up Equipment**

The following emergency spill equipment will be kept on site or other accessible area;

- i. Absorbents;
- ii. Skimmers;
- iii. Diesel engine driven drums;
- iv. Ropes;
- v. Personal Protective clothing;
- vi. Dispersant;
- vii. Scoop(Small Bowl);
- viii. Basic first aid kit;
- ix. Dry powder extinguisher;
- x. Pick axe; and
- xi. Shovels.

This equipment should only be used for emergencies and should not be used for any other purposes. When these materials become depleted, they will be restocked as soon as possible.

## **3.7 Communications**

Effective communication systems are critical to successful emergency response.

### **3.7.1 Internal Communications**

The internal communication system is used to convey safety information to workers in danger, and maintain site control. Radios are used when work teams are working away from the main communication system. The internal system consists of alarms or short signals that

can easily be conveyed by audible signals. Training on the internal communication system will be provided to all employees as part of their employee orientation program.

### **3.7.2 Communications during an Emergency**

During an emergency, the emergency response centre will be contacted immediately. Information will be transmitted from the dispatch station and the security stations to the rest of the project site. The main security stations will be equipped to handle all radio and telecommunications calls in the case of an emergency.

In the case of an emergency a prompt notification of appropriate individuals will be done immediately. In the event that there is a need for the timely and rapid notification of local communities, the first responder will immediately contact the HSSE Manager who will immediately contact the Site Manager and the key management team. This will trigger the appropriate emergency notification system that will be developed. An announcement will also be made over all radio channels stating which channel will be designated as the channel for this emergency, and stating that non-emergency communications on this channel will be discontinued. This reporting scheme will be code dated to keep control of copies and to assure that up to date revisions are in place.

### **3.7.3 Communications with the Public**

The HSSE Officer, in collaboration with the Community Relations Officer, will be responsible for all site and local communications with the public. As required, meetings will be held to disseminate information related to on-site emergencies. A Community Liaison forum could be established as part of the PCDP process and this forum used for communication regarding emergencies. The HSSE Manager will coordinate with the Site Manager on the incident and advise on what information should be released to the public, government officials and other interested parties. The Site Manager will be responsible to inform the appropriate parties at the national level.

In providing information to the public, the HSSE Manager and Community Relations Officer will provide information on the following:

- i. Description of the event;
- ii. Identification of the population that might be affected;
- iii. Description of any injuries and disposition of those involved in the accident; Identification of any existing hazards;
- iv. Description of precautions taken to limit future risks;
- v. Identification of water source contaminated (if any);
- vi. Description of mitigation measures that are proposed or have been taken to correct the problem; and

vii. Contact information.

Waiting and briefing areas for family/relatives of those involved in serious accidents will also be established. Food and a sitting/sleeping area will also be provided to members of the family and relatives as appropriate.

### **3.8 Grievances, Disputes and Security**

The Project's Public Consultation and Disclosure Plan include procedures for dissemination of information to the public, stakeholders, and non-government organizations. The plan also includes a mechanism for grievances, so that public concerns related to the project can be addressed through a formal grievance process.

Despite this proactive approach, disputes could occur, for a number of reasons outside of the project management's control, and actions by workers or non-workers could develop and may result in violent or non-violent protests, attacks on project personnel, property damage, or even hostage taking. The Security Manager will oversee an on-site security team that will be used to maintain the security of the site. This team will also work closely with local government authorities (police, military) to maintain the security of the project area. In addition, a response program to address these issues, in cooperation with the Sierra Leonean government, will be developed for the site.

In the event of a confrontation with employees and/or non-employees, the HSSE department will be immediately contacted. The security team will, under the direction of the HSSE Manager, implement response protocols based on pre-determined plans. These plans and protocols are not outlined here in order to maintain confidentiality and assure that such response protocols can be undertaken without counter-plans having been developed that would undermine the effectiveness of the response.

### **3.9 Emergency Response Training**

The HSSE department will coordinate emergency response training. The Emergency Response Team will participate in annual training at the site to ensure that all members are trained in equipment use and emergency response methods. The Emergency Response Team members will be trained in transportation of hazardous materials, fire fighting, and spill control and mitigation, first aid, and personnel rescue techniques.

On site emergency personnel, who have roles in addition to their ordinary duties, will have a thorough understanding of emergency response procedures. Training will be directly related to their specific emergency response roles, and will include:

- i. Emergency chain-of-command;
- ii. Communication methods and signals;
- iii. How to call for help;

- iv. Emergency equipment and its use;
- v. Emergency evacuation while wearing protective equipment;
- vi. Removing injured personnel from enclosed spaces; and
- vii. Offsite support and how to use it.

Emergency personnel will receive training in first aid and CPR and will practise hands-on rescue techniques on at least an annual basis. Training will also include recognizing and treating chemical and physical injuries and heat stress.

### **3.9.1 Employee and Contractor Training**

The Emergency Response Team, under the responsible charge of the HSSE Manager and Officer, will provide safety and emergency response training to all staff. The training will identify site-specific hazards and hazards associated with the project in general. The training will also review standard operating procedures, use of protective equipment, signalling an emergency (the alarm to be used, how to summon help, what information to give and who to give it to), evacuation routes and refuges, reporting protocol when an alarm sounds, and other general safety procedures. Emergency response training will also be provided to train staff on emergency response procedures, chains of command, and responsibilities of key individuals.

Safety, emergency response, and first aid training will be provided at the time of hire. All staff will also be required to attend annual refresher courses. Contractors that perform any work on site will be required to show evidence of appropriate health, safety and emergency response training. The project management will develop an orientation program to advise contractors and site visitors on basic health, safety and emergency procedures such as emergency signals and evacuation routes.

### **3.9.2 Emergency Drills**

Periodic testing of emergency procedures will be performed to ensure that the company and external emergency services can appropriately respond to emergency situations.

Testing of emergency procedures will involve external emergency services providers, where appropriate, to develop an effective working relationship. This can improve communication and cooperation during an emergency.

Emergency drills can be used to evaluate the company's emergency procedures, equipment and training, as well as increase overall awareness of emergency response protocols. Internal parties (e.g. workers) and external parties (e.g. fire department personnel) will be included in the drills to increase awareness and understanding of emergency response procedures.

Tonguma Ltd will maintain records of emergency drills. The type of information that will be recorded includes a description of the situation and scope of the drill, a timeline of events and actions and observations of any significant achievements or problems. This information will

be reviewed with the drill planners and participants to share feedback and recommendations for improvement.

# SECTION D

## **4 RESETTLEMENT POLICY FRAMEWORK (RPF)**

### **4.1 Introduction**

It is not envisaged that the project will entail large scale displacement of people and extensive damage to crops. However, it is possible that the infrastructure requirements of the project in terms of feeder road construction and other project logistical requirements may require that certain structures be removed and also result in damage to crops. Whilst it is impossible at this stage to determine and assess these, procedures should nevertheless be put in place to handle such matters if they arise. A full Resettlement Action Plan (RAP) will not be prepared at this stage but a Resettlement Policy Framework (RPF) is developed in this section. The RPF identifies objectives, principles, policies, procedures, organisational arrangements and estimated costs (where possible) for dealing with resettlement and compensation payments related to the implementation of the Project. The objectives of the RPF are to:

- Set out policies, principles and institutional arrangements;
- Articulate a compensation payment and resettlement policy for the Project;
- Describe arrangements for resolving potential conflicts involving displaced persons;
- Describe arrangements for implementing and monitoring the compensation payment and resettlement process.

The Project will avoid resettlement where possible, but where inevitable and unavoidable, the resettlement policy is to assure that every affected individual and household is moved in an expeditious manner and that after relocation every individual and household is at least as well off, if not better off than prior to resettlement. A framework for asset compensation and entitlements based on the national policy is usually developed. Compensation rates for several classes of assets, including land and crops, are established by legislation as part of national policy. Compensation rates should be agreed with the participation of the government and other stakeholders. Projects usually seek to ensure that compensation is adequate (at least equivalent to replacement cost as required in World Bank OP 4.12 on involuntary resettlement) and will provide alternative entitlements and payments where government agreed rates do not meet this requirement.

The Project is expected to cause resettlement of some communities due to the extent of the lease area; the resettlement policy is to ensure that every affected individual and household is moved in an expeditious manner and that after relocation every individual and household is at least as well off, if not better off than prior to resettlement.

Presently, the resettlement situation is largely based on the impact on settlements due to blasting activities. There is no surveyed area demarcated exclusively to resettle households but Tonguma Ltd is ready to fully support any particular household affected by the project to relocate to safe non operational areas.

Until the exploration activity is certain to become a mining establishment, a Resettlement Action Plan will not be developed and this Resettlement Policy Framework will be enforced.

The framework for asset compensation and entitlements based on the national policy is usually developed. Compensation rates for several classes of assets, including land and crops, are established by legislation as part of national policy. Compensation rates should be agreed with the participation of the government and other stakeholders. Projects usually seek to ensure that compensation is adequate (at least equivalent to replacement cost as required in World Bank OP 4.12 on involuntary resettlement) and will provide alternative entitlements and payments where government agreed rates do not meet this requirement.

## **4.2 Legislation and Regulatory Framework**

### **4.2.1 National Legislation**

#### **4.2.1.1 Constitution of Sierra Leone**

The Constitution includes some provisions to protect the right of individuals to private property, but Section 21 of the Constitution also sets principles under which citizens may be deprived of their property in the public interest. Consequently, the Constitution upholds the fundamental rights of citizens to own property and receive support from the State when that property is compulsorily acquired by the State. Furthermore, it also makes provision for the prompt payment of adequate compensation and access to the court or other impartial and independent authority for the determination of the land owner's interest or right, and the amount of any compensation to which he is entitled and for the purpose of obtaining prompt payment of that compensation.

#### **4.2.1.2 Draft National Lands Policy, 2013**

The National Lands Policy addresses many of the lapses of the dual land tenure system in Sierra Leone (freehold in the Western Area and communal in the provinces). It also provides for the compulsory acquisition of land in the public interest. The principles of the land policy include among others:

- Principle of land as a common national or communal property resource held in trust for the people and which must be used in the long term interest of the people of Sierra Leone. This principle only holds where it does not violate existing rights of private ownership;
- Compensation to be paid for lands acquired through compulsory acquisition will be fair and adequate and will be determined, among other things, through negotiations that take into consideration government investment in the area;
- No interest in or right to any land belonging to an individual or family can be disposed of without consultation with the owner or occupier of the land; and
- No interest in or right to any land belonging to an individual or family can be compulsorily acquired without payment, in reasonable time, of fair and adequate compensation.



#### **4.2.1.3 Cultural Heritage Issues**

The National Environmental Policy (1994) provides for the collection of relevant data on biological diversity and cultural heritage. It seeks to promote socio-economic and cultural development through the preservation of biological diversity for the sustainable utilisation of natural resources. There are references to the preservation and/or respectful removal (taking into consideration cultural sensitivities) of “society bushes” for mining and other purposes in various regulations.

### **4.2.2 World Bank Stipulations**

#### **4.2.2.1 Procedures for Involuntary Resettlement according to World Bank OP 4.12**

World Bank’s Operational Policy (OP) 4.12 (World Bank, 2004) is seen internationally as the global standard for involuntary resettlement guidelines. The fundamental objective of resettlement planning, as stipulated in OP 4.12, is to avoid resettlement wherever feasible, or, where resettlement is unavoidable, to minimise its extent and to explore all viable alternatives.

Where land acquisition and involuntary resettlement are unavoidable, resettlement and compensation activities are carried out in a manner that provides sufficient opportunity for the Project Affected Persons (PAPs) to participate in the planning and implementation of the operation. Furthermore, if incomes are adversely affected, adequate investment is required to give the persons displaced by the Project the opportunity to at least restore their income.

The OP 4.12 further requires particular attention to be given to the needs of vulnerable groups especially those below the poverty line, including:

- i. Landless individuals and households;
- ii. Elderly persons;
- iii. Women and children;
- iv. Indigenous groups and ethnic minorities; and
- v. Other disadvantaged persons.

## **4.3 Implementation Arrangements for Resettlement Policy Framework**

### **4.3.1 Implementing Agency**

Tonguma Ltd is the implementing agency and will ensure that the implementation of the RPF is in compliance with the existing legislation related to the expropriation of land for public purposes, payment of compensation and resettlement of affected persons. Tonguma Ltd will provide all the necessary financial resources for the implementation of the resettlement and compensation payment process and provide all managerial and technical expertise required for the implementation of the RPF in an effective and proper manner. During the preparation

and implementation of the resettlement and compensation payment process, the Tonguma Ltd will cooperate with various government agencies and other stakeholders at various levels, which are briefly described below.

#### 4.3.1.1 National Level

Various Government Agencies will act as primary support agents to Tonguma Ltd during the preparation and execution of the entire resettlement and compensation payment process. These are indicated in the table below:

**Table 4.3-1: Government Support Agents and Responsibilities**

Name of Agency	Key Responsibilities
Ministry of Local Government and Rural Development	Act as the primary Government representative; Support the project proponent in providing assistance to relocated households as and when required; Ensure compatibility of the resettlement process with overall development visions for the area; and Ensure that the Land Plan for the host resettlement area meets requisite legislative criteria.
Ministry of Agriculture, Forestry & Food Security	Support the execution of the census during the preparation of RAP, in particular the inventory of crops and economic trees.
Ministry of Lands, Country Planning and Environment	Support the execution of the census during the preparation of RAP, in particular the measuring and recording of structure dimensions, including all their features.
Sierra Leone Environmental Protection Agency	Ensure environmental standards in the Project area; and Monitor the Environmental Management Plan.

#### 4.3.1.2 Regional Level

The agencies involved in implementing the resettlement and compensation payment programme at regional level include the Regional Housing Officer and Regional Agriculture Officer, who will mainly be involved in the asset inventory during the preparation of the RAP.

#### 4.3.1.3 Local Level

##### *Village Resettlement Committees*

A Village Resettlement Committee (VRC) should be formed for each larger affected village or a few small villages together. The VRC will consist of representatives of all Project Affected Persons (PAPs), including representatives of vulnerable groups. The main tasks of

the VRC is to address issues dealing with all aspects concerning compensation payment, identification of relocation sites, contribution to development of infrastructure at relocation site, resolution of grievances from PAPs, monitoring of the implementation of RAP, and assessment of the effects of relocation on PAPs.

#### *Other Local Agencies*

In addition to the VRC, it is envisaged that the following agencies will be involved in the resettlement and compensation payment process at the local level:

- i. Chiefdom Authority Representative(s) with the following key responsibilities:
  - a. Confirmation of land ownership;
  - b. Confirmation of features of cultural/archaeological significance (e.g. shrines);  
and
  - c. Resolution of ownership disputes
- ii. Chiefdom Native Administration with the main task to assist the village leaders.

## **4.4 Eligibility Criteria**

### **4.4.1 Affected Parties**

Affected groups under the Project and in line with the definitions outlined in the national legislation and OP 4.12 can be categorised into the following groups:

**Affected Individual:** An individual refers to one who suffers loss of assets or investments, land and property and/or access to natural and/or economic resources as a result of the Project activities, and to whom compensation is due.

**Affected Household:** A household is affected if one or more of its members is affected by Project activities, either by loss of property, land, loss of access, or otherwise affected in any way by Project activities.

**Affected Local Community:** A community is affected if Project activities affect their socio-economic and/or social-cultural relationships or cohesion.

### **4.4.2 Eligibility for Compensation**

#### **4.4.2.1 Eligible Individuals and Households**

Fixing eligibility criteria for entitlement purpose is essential for the resettlement process and compensation payments. According to the World Bank OP 4.12 procedures, the following project affected persons will be eligible for compensation:

- a. Those who have formal rights to land, including customary and statutory rights of occupancy reorganised under the national laws;

- b. Those who do not have formal legal rights to land at the time the census begins but have a claim to such land or assets provided that such claims are recognised under national laws, or become recognised through a process identifies in the RAP; and
- c. Those who have no claim to land they are occupying or using.

Those covered under ‘a’ and ‘b’ above are to be provided compensation for land they lose, and other assistance in accordance with the policy. Persons covered under ‘c’ are to be provided with resettlement assistance in lieu of compensation for the land they occupy or use as well as other assistance, as necessary, to achieve the objectives set out in this policy, if they occupy or use the Project area prior to a cut-off date established by the responsible agency. Persons who encroach on the area after the cut-off date are not entitled to compensation or any other form of resettlement assistance. All persons included in ‘a’, ‘b’ or ‘c’ above are to be provided with compensation for loss of assets other than land.

Upon identification of the need for involuntary resettlement in the Project area, Tonguma Ltd will carry out a census to identify the persons to be affected by the Project, to determine who will be eligible for assistance, and to discourage inflow of people ineligible for assistance. The company will also develop a procedure for establishing the criteria by which affected persons will be deemed eligible for compensation and other resettlement assistance. The procedure will include provisions for meaningful consultations with affected persons and communities, local authorities and NGOs as well as the grievance mechanisms.

#### **4.4.2.2 Eligible Communities**

Communities permanently losing land and/or access to assets and or resources under statutory or customary rights will be eligible for compensation. Example of community compensation could be for market place, schools and health posts. The rationale for this is to ensure that the pre-Project socio-economic status of affected communities is also restored.

#### **4.4.3 Eligibility According to National Law**

In determining eligibility, the national legislation may differ from the World Bank Policy. If the World Bank OP 4.12 allows a broader range of eligibility than the national policy, this will provide the framework for resettlement for the Project.

### **4.5 Evaluation of Affected Assets**

#### **4.5.1 Types of Compensation Payments**

Individual and household compensation will be made in kind and/or in cash. For cash payments, compensation will be calculated in the national currency and adjusted for inflation. For compensation in kind, items such as land, houses, other buildings, building materials, seedlings, agricultural inputs and financial credits for equipment may be included. Assistance may include moving allowance, transportation and labour.

Making cash payments raises issues regarding inflation and security that have to be considered. Cash payments must allow for inflationary adjustments of compensation values. For payment of compensation in-kind, the time and new location will have to be decided and agreed upon by each recipient.

In kind compensation will be strongly recommended to an affected person if his or her loss amounts to more than 20% of the total loss of subsistence assets. The preference for in-kind compensation is because it offsets inflationary pressures on the costs of goods and services and hence provides better livelihood security for affected persons.

#### **4.5.2 Compensation Calculations for Assets**

Compensation for all land use and assets must be made, including for:

- i. Cultivated land and crops;
- ii. Residential buildings, structures and fixtures;
- iii. Sacred sites;
- iv. Vegetable gardens and beehives;
- v. Horticultural, floricultural and fruit trees;
- vi. Other domestic trees; and
- vii. Loss of business and employment.

#### **4.5.3 Rules for Compensation**

Households, individuals and communities deemed to be entitled to compensation will be identified. The nature of the entitlement will vary between each individual and households. For the most part the operational entity and unit of entitlement is envisaged as being the household as a whole. In some instances this may have to be re-examined and negotiated with individuals within the household. These criteria need to be defined early in the resettlement process and should be agreed to by all stakeholders.

Affected households, individuals and communities are entitled to compensation based on agreed values. Different compensation options have to be discussed with all affected parties via the consultative meetings in order to obtain agreement on the adequacy and acceptability of the compensation package. Compensation valuations should focus on the following:

- i. Compensation options in terms of replacement of homesteads, structures and replacement land for physical resettlement where this is necessary;
- ii. Options for the relocation of graves and sites of cultural, historical or religious importance; and
- iii. Relocation and replacement of any community structure (e.g. schools).

#### **4.5.3.1 Compensation for Cultivated Land and Crops**

A farmer whose land is acquired for Project purposes will be compensated not only for the land but also for his labour and crop loss. In this context, "land" is defined as an area in cultivation, or being prepared for cultivation, or cultivated during the previous agricultural season. Compensation relating to land will cover the market price of labour invested in it as well as the market price of the crops lost.

#### **4.5.3.2 Compensation for Economic Trees**

Compensation for fruit trees and other economically valuable trees will be compensated for in the same way as for crops and in accordance with the national law.

#### **4.5.3.3 Compensation for Residential Buildings, Structures and Fixtures**

Compensation will be paid by replacing structures such as huts, houses, farm outbuildings, latrines and fences. Any homes lost will be rebuilt on acquired replacement land, however cash compensation would be available as a preferred option for structures (i.e. extra buildings) lost that are not the main house or house in which someone is living. The going market prices for construction materials will be determined. Alternatively, compensation will be paid in-kind for the replacement cost without depreciation of the structure. The Project will survey these prices for administrative purposes on an ongoing basis.

Compensation will be made for structures that are:

- i. Abandoned because of relocation or resettlement of an individual or household; and
- ii. Directly damaged by exploration/mining activities.

Replacement values will be based on:

- i. Drawings of individuals' households and all its related structures and support services;
- ii. Average replacement costs of different types of household buildings and structures based on collection of information on the numbers and types of materials used to construct different types of structures (e.g. poles, bricks, rafters, bundle of straw, corrugated iron sheets, doors etc.);
- iii. Prices of these items in different local markets;
- iv. Costs of transportation and delivery of these items to acquired/replacement land or building site; and
- v. Estimates of construction of new buildings including labour required.

#### **4.5.3.4 Compensation for Sacred Sites**

Compensation for sacred sites is determined through negotiation with the appropriate parties. Sacred sites include but are not restricted to altars, initiation centres, ritual sites, tombs, and cemeteries. They include other such sites, places or features that are accepted by practice, tradition and culture as sacred.

#### **4.5.3.5 Compensation for Vegetable Gardens**

Vegetables and green leaves are essential ingredients for food in most Sierra Leonean homes. The family displaced/affected as a result of the land acquisition will have to purchase these items in the market until a replacement garden starts to bear. The compensation will, therefore, be calculated based on the average amount that an average household spends on buying these items for one year per adult from the local market.

#### **4.5.3.6 Compensation for Loss of Business or Employment**

Compensation for businesses (i.e. flour mills, kiosks, coffee houses and local eating and drinking places) will be estimated based on the daily or monthly income of the affected parties.

### **4.6 Methods of Valuation**

Compensation will be determined by taking all assets into account, including land, crops, trees, buildings and structures, sacred sites, vegetable gardens and beehives, horticultural, floricultural and fruit trees, and other domestic cash crops and fruit trees.

The valuation of assets will be carried out by certified private or public institutions or individual consultants on the basis of valuation formulae adopted at the national level and/or by the Project. This will be based according to the unit costs as provided in the national regulations, and until then, on unit costs of the asset at market rates.

### **4.7 Selection of Potential Resettlement Sites**

Resettlement requires the physical relocation of people to a new location. If resettlement of affected households and communities is required, Tonguma Ltd has to confirm and select one or more potential sites for the relocation of affected households and communities. The process of identifying and selecting potential resettlement sites should be transparent and accountable. During the entire process of selecting potential resettlement sites, the affected households and communities as well as the host communities must be informed and consulted continuously, so that their concerns and preferences are properly taken into account during the decision-making process.

During site selection process, the following issues should be considered:

- i. Location;
- ii. Access to natural resources, in particular arable land;
- iii. Maintaining community structure;
- iv. Continued access to existing economic activities;
- v. Impacts in host communities; and
- vi. Land ownership and tenure rights.

## **4.8 Implementation and Monitoring Procedures**

### **4.8.1 Notification of Expropriation Order**

Tonguma Ltd will issue a written notification to the VRC for all lands it wishes to expropriate. They will also with support of the local administration organise meetings at village level, during which all affected households will be verbally notified.

### **4.8.2 Preparation of Individual Compensation Dossiers**

Tonguma Ltd with the support of the local administration will need to prepare a compensation dossier for each individual affected household, which shall contain all necessary personal information of the affected household as well as detailed information with regard to the total landholding and the inventory of all assets that will be lost due to the land expropriation and resettlement. All information in the compensation dossier will be confirmed and witnessed by the local administration and the VRC. Each affected household will receive a copy of the completed compensation dossier.

### **4.8.3 Preparation, Approval and Signing of Compensation Contract**

Using the completed compensation dossiers, the Tonguma Ltd will prepare a compensation contract for each affected household, in which all property and land to be expropriated are listed as well as the selected options and types of compensation (cash and/or in-kind). The cash amount of compensation to be paid to the affected household is also specified in the compensation contract, including any displacement compensation to be paid. Taking into account the low literacy rates in the affected villages, the compensation contract should be read aloud in the presence of the affected party. In the presence of Tonguma Management, local administration and VRC, the compensation contract should be signed by all concerned parties.

## **4.9 Payment of Compensations**

Following the signing of the compensation contract, Tonguma Ltd will pay, or cause the payment, of compensation to holders of the expropriated land. Communities must also be paid compensation for the expropriation of communal land if it is required for the implementation of the Project and/or the resettlement of displaced households. The land and any related assets can only be taken by the company after the compensation is fully paid to the affected households and communities.

In addition to payment for the acquisition of communal land, a community will also be compensated in kind for the loss of any communal infrastructure (i.e. school buildings, health post, boreholes or wells for potable water, market structures, roads, warehouses, etc.) in the form of the reconstruction of the lost facilities to at least the same standard or better standard to serve the same function.



## **4.10 Preparation of Resettlement Sites**

Prior to the relocation of affected households, Tonguma Ltd will select the resettlement site(s) through consultation with all displaced people and host communities. Subsequently, the company will undertake the preparation of the resettlement sites, including the clearing of plots of land for the construction of houses, construction of (additional) social/public infrastructures (i.e. school/classrooms, health post, access road).

As soon as the preparation of the resettlement sites is completed, the displaced households must be given the opportunity to visit the resettlement sites before they are relocated, so that they can check if all facilities are in place.

## **4.11 Resettlement of Affected Households**

Tonguma Ltd shall only proceed with the relocation of the displaced households after the compensation has been paid fully, the preparation of the resettlement sites is completed and the displaced households had the opportunity to visit the resettlement sites.

Immediately after the arrival of the displaced households on the resettlement sites, the company will undertake the necessary measures needed to restore and develop their livelihoods and standards of living through the provision of development assistance, such as:

- i. improved seeds, chemical fertilisers and agro-chemicals in the first year following the relocation;
- ii. agricultural extension and veterinary services, including improved breeding stock;
- iii. tree seedlings; and
- iv. skill training, technical advice and/or credit facilities required for development (off-farm) job opportunities.

## **4.12 Monitoring**

The monitoring of the Project activities related to land expropriation, compensation payment and resettlement must fit in the overall monitoring framework and programme for the entire Project.

The main objective of the monitoring plan is to provide all concerned stakeholders with timely and updated information and data with regards to the execution of any RAP that may be necessary.

Internal monitoring, also called performance and/or progress monitoring, is an internal management function allowing Tonguma management and other stakeholders to measure physical progress against milestones set out in the RAP in order to:

- i. Ensure that due process has been followed with adequate public meetings being held;

- ii. Verify that there are no outstanding or unresolved land acquisition issues regarding the Project, that the census, socio-economic surveys and asset inventories of all project affected persons have been carried out, and that property valuation and resettlement have been undertaken in accordance with the provisions of the RPF;
- iii. Maintain records of any grievances that require resolution;
- iv. Oversee that all resettlement measures are implemented as approved by Tonguma management and relevant local authorities;
- v. Verify that funds for implementing resettlement activities are provided in a timely manner are sufficient for their purposes, and are spent in accordance with the provisions of the RPF.
- vi. Document timely completion of all resettlement obligations (e.g. payment of the agreed-upon sums, construction of new structures, etc) for all permanent and temporary losses, as well as unanticipated, additional construction damage, while updating the database with respect to any such changes; and
- vii. Ensure that monitoring and evaluation reports are submitted.

#### **4.13 Grievance and Redress Mechanisms**

Providing credible and accessible means for affected persons to pursue grievances allows Tonguma Ltd to address genuine issues in a timely manner and decreases the chances of resistance to their activities from disgruntled persons.

At the time that the individual RAPs are approved and individual compensation contracts are signed, affected individuals and households would have been informed of the process for expressing dissatisfaction and seeking redress. The grievance procedure will be simple and will be administered as far as possible, at local levels to facilitate access by project affected persons.

All grievances concerning non-fulfilment of contracts, levels of compensation, or seizure of assets without compensation shall be addressed to the VRC. All attempts shall be made to settle grievances amicably. Those seeking redress and wishing to state grievances will do so by notifying their VRC, who will inform and consult with the local and regional administration to determine validity of claims. If a claim is valid, the VRC will notify the complainant accordingly. If the complainant's claim is rejected, the matter shall be brought before the local and/or regional authority for settlement. The complainant may seek redress in the established national legal system.

It has to be noted that in the local communities, people take time to decide to complain when aggrieved. Therefore, the grievance procedures will ensure that the project affected persons are adequately informed of the procedure, before their assets are taken. The grievance redress mechanisms is designed with the objective of solving disputes at the earliest possible time, which will be in the interest of all parties concerned and therefore, it implicitly discourages referring such matters to a court for resolution.

All objections to land acquisition shall be made in writing, in the language that the project affected persons understand and are familiar with, to the VRC. Copies of the complaint shall be submitted to the concerned Resettlement Officer (RO) within 60 days after the issue of the Notification of Expropriation Order. Channelling complaints through the VRC is aimed at addressing the problem of distance and cost the project affected persons may have to face. The VRC shall maintain records of grievances and complaints, including minutes of discussions, recommendations and resolutions made.

The procedure for handling grievances will be as follows:

- i. The affected person must file his/her grievance in writing to the VRC with a copy submitted to the concerned RO. The grievance note should be signed and dated by the aggrieved person, where the affected person is unable to write, he/she should obtain assistance to write the note and endorse the letter with his/her thumbprint;
- ii. The VRC must respond within 14 days during which any meetings and discussions to be held with the aggrieved persons must be conducted. If the grievance relates to valuation of assets, experts may need to be requested to revalue the assets, and this may necessitate a longer period of time. In this case, the aggrieved person will be notified by the VRC that his/her complaint is being considered;
- iii. If the aggrieved person does not receive a response or is not satisfied with the outcome within the agree time, he/she must lodge his grievance to the district administration and the concerned RO; and
- iv. The district administration and concerned RO will then attempt to resolve the problem (through dialogue and negotiation) within 14 days of the complaint being lodged. If no agreement is reached at this stage, then the complaint is taken to court.

# SECTION E

## **5 COMMUNITY DEVELOPMENT ACTION PLAN (CDAP)**

### **5.1 Introduction**

This Community Development Action Plan (CDAP) has been developed to manage the activities associated with the exploration activities of Tonguma Ltd, which may lead to the occurrence of the issues and impacts discussed. The plan consists of a management strategy, broken up into recommendations that attempt to maximise benefits and minimise adverse impacts on the local communities.

### **5.2 Purpose and Objectives**

The following management measures will be implemented to ensure that the issues and concerns expressed about the project are properly mitigated and avoided where possible:

- i. The project will be planned and carried out strictly in accordance with the provisions of the Environment Protection Act 2008 as amended in 2010;
- ii. Tonguma will ensure that direct benefits from the exploration are focused on the affected and any host communities; and
- iii. This CDAP will focus on establishing sustainable livelihood projects and capacity building within the affected communities as detailed in SIA study.

The management measures in this report will attempt to mitigate any negative impacts that may result from the project and enhance any positive consequences that may occur.

The key objectives of the CDAP are:

- i. To provide opportunities for long-term community and economic development programmes for the affected communities;
- ii. To identify appropriate mitigation measures to address socio-economic issues and impacts identified in the ESIA;
- iii. To identify appropriate mitigation measures to address induced population growth resulting from a possible influx of newcomers into the area, attracted by the project development;
- iv. To seek ways of building mutually beneficial linkages between the affected people and other developments;
- v. To develop initiatives in the seven affected communities.

### **5.3 Need for Community Development Action Plan (CDAP)**

Carrying out an Environmental and Social Impact Assessment for a large scale project such as the Tonguma exploration project involves the formulation of a Community Development Action Plan (CDAP). This CDAP document of the Tonguma Exploration Project has been

developed after consultations and discussions with the project affected communities (*Kpandebu, Sandeyima, Mavehun, Palima, Tongola Tokpumbu I, Tokpumbu II*) and other stakeholders to address broader community requirements.

## **5.4 Socio-Economic Survey**

### **5.4.1 Approach and Methodology**

Residents in the area under study voluntarily offered their services to assist CEMMATS' field staff to carry out the ESIA and baseline survey in the project affected community. During this exercise, discussions were held and interviews conducted with the project affected people in the seven communities.

### **5.4.2 Findings from Social Assessment Survey**

The activities associated with the Exploration Project in the study area will have positive and negative impacts on the lives of the communities and their environment. These impacts have been assessed through a Social Impact Assessment (SIA) Study. The SIA Study aids in drawing analyses of how the proposed operations will impact the socio-economic profile of the residents and the community as a whole. The potential positive impacts of the operation of the project include:

- Job opportunities for local residents;
- Enhanced infrastructural development;
- Boom in business activities;
- Improvement in community development activities;
- Improved health and education facilities; and
- Enhanced water and sanitation facilities.

Some of the potential negative impacts of the operations include:

- Loss of farm land;
- Population Influx;
- Loss of access to rich alluvial deposits within the Tonguma Lease area resulting in miners having to travel far distances to mine less productive deposits outside the lease area;
- Dug out exploration pits provide breeding grounds for mosquitoes which are a serious threat to the health of residents of affected communities;
- Destruction of houses from blasting exercises;

- Destruction of crops; and
- Possibility for Resettlement.

### **5.4.3 Social Amenities**

Social and economic amenities such as markets, community centers, court *barries*<sup>1</sup>, entertainment centers are situated within and around some of the communities in the study area. Mosques can be found in all the communities and a few churches in others.

The focus group discussion meetings for this survey were held at the Kpandebu Community Hall, (for Kpandebu, Palima, Tokpombu I and Tongola) and at the Tokpombu II Court *barrie* (for Tokpombu II Mavehun and Sandeyeima communities).

### **5.4.4 Housing and Household Effects**

The majority of the respondents can be categorized as low income earners while a few are middle income earners. The majority of the household in the community own simple and basic household assets such as beds, chairs, tables, radios, tape recorders, motor cycles, and generators

### **5.4.5 Type of Dwelling Unit**

The type of house in which households dwell is worth analysing as, just like other social indicators we have examined, this is also a measure of socio-economic status. The most common type of dwelling house is mud house plastered with cement and corrugated iron (CI) sheet roofing. Structures with more expensive material such as cement/concrete blocks and CI sheets account for less than 20% of households. Thus if the standard of houses in the study communities were used as proxy measure, one could safely conclude that most households fall in the middle socio-economic status.

### **5.4.6 Credit Facility**

The Tongo Community Bank is the only financial institution operating within the study area. Only very few people confirmed ever having received loans from this bank. Participants in the focus group discussion meeting confirmed that the high interest rate charged by the bank is a principal reason more loans are not sought from the bank.

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<sup>1</sup> Local court house where meetings are held by local authorities and where disputes are settled

## **5.5 Some Planned Initiatives by Tonguma Ltd**

In order to address the above negative impacts, Tonguma Ltd has developed a Community Development Action Plan (CDAP) which will implement initiatives aimed at improving the living conditions of the project affected communities. The plan consists of a management strategy, broken down into recommendations that attempt to maximize benefits and minimize adverse impacts on local communities.

Some of the intended initiatives are:

- Support to Education;
- Support to Agriculture;
- Support to Technical Vocation Skills Development; and
- Support to Health and sanitation.

## **5.6 Views from Project Affected Persons (PAPs)**

From discussions with affected households, local and traditional authorities, and various stakeholders (youth, women and NGOs) in June, 2014, the following development projects have been identified by residents of affected communities for consideration:

- Provision of additional sources of safe drinking water;
- Provision of good toilet facilities;
- Support to agricultural development;
- Provision of educational materials – teaching and learning materials;
- Provision of scholarships for deserving school going children; and
- Provision of Technical Vocation Skills Development.

## **5.7 Implementation Plan**

### **5.7.1 Organizational Responsibility and Function**

The overall implementation of the CDAP will be funded by Tonguma Ltd. The project will be managed by a Community Development Management Committee (CDMC) which will be responsible for disbursement and management of funds during implementation of the proposed projects.

#### **5.7.1.1 Proposed Membership of the CDMC**

The proposed membership for this committee will comprise but not limited to the following:



- The Member of Parliament for the project area;
- The Paramount Chief of Lower Bambara Chiefdom;
- Members of the Chiefdom Development Committee;
- Town chiefs of the seven affected communities;
- Leaders of the youth groups;
- Women’s leaders;
- Representative of the tribal groups;
- The Councilors of Wards 41, 42 and 43; and
- Tonguma Community Relations Officer (CRO);

The final composition of the committee will be determined jointly by Tonguma Limited and the Chiefdom authorities.

#### 5.7.1.2 Responsibilities

The Committee will be responsible for finalizing guidelines included in this CDAP document and coordinating the implementation of the CDAP (including disbursement and management of funds). Meetings will be held at least every second month in order to discuss relevant community development related matters and monitor the progress of the CDAP relative to targets.

#### 5.7.1.3 Budget

The total budget (Table 5.7-1) for the implementation of the recommended projects in this CDAP is estimated at \$800,000 eight hundred thousand Dollars) - \$160,000 (one hundred and sixty thousand Dollars) per annum over a 5 year period. This budget covers the indicated developmental projects for the concerned community.

The implementation of the first year development projects is expected to commence in 2014.

**Table 5.7-1: Estimated First 5 Years of the CDAP**

PROJECT	RESOURCES	BUDGET 000 (US\$)					
		Yr 1 - 2014	Yr 2 - 2015	Yr 3 - 2016	Yr 4 - 2017	Yr 5 - 2018	Total
Support to Education	Funds and learning materials	35,000	35,000	35,000	35,000	35,000	<b>175,000</b>

PROJECT	RESOURCES	BUDGET 000 (US\$)					
		Yr 1 - 2014	Yr 2 - 2015	Yr 3 - 2016	Yr 4 - 2017	Yr 5 - 2018	Total
Support to Agriculture	Funds and materials	20,000	20,000	20,000	20,000	20,000	<b>100,000</b>
Provision of Solar Electricity	Materials and Service	35,000	35,000	35,000	35,000	35,000	<b>175,000</b>
Support to Health	Funds and materials	35,000	35,000	35,000	35,000	35,000	<b>175,000</b>
Support for provision of safe drinking water facilities	Funds and materials	35,000	35,000	35,000	35,000	35,000	<b>175,000</b>
Total		<b>160,000</b>	<b>160,000</b>	<b>160,000</b>	<b>160,000</b>	<b>160,000</b>	<b>800,000</b>

## 5.8 Monitoring and Evaluation

There is need to appoint an independent agency to undertake the monitoring and evaluation of the implementation of the CDAP. Monitoring will be undertaken annually till the end of the Project. The monitoring programme will address both the short term and long term impacts of the project on the affected community. Monitoring activities will include:

- Ensuring the satisfactory implementation of the CDAP; and
- Environmental degradation is limited so that the economic and resource base upon which the community depends is not destroyed.

# SECTION F

## **6 PUBLIC CONSULTATION AND DISCLOSURE PLAN (PCDP)**

A PCDP is designed to provide local residents, non-government organizations (NGOs), government and other interested parties with project information and to allow those stakeholders to participate in the planning process. Stakeholder participation encourages sustainable growth by accounting for community needs as they relate to the proposed project. Development of sustainable programs will help to maintain long-term project viability. A PCDP incorporates public meetings for stakeholders to air project concerns and to ensure that during different phases of the project benefit stakeholders by allowing them to voice their opinions, make suggestions, meaningfully influence the process of project development, and keep them (stakeholders) informed of current updates on project information.

### **6.1 Objectives of PCDP**

The objectives of a PCDP are:

- To disseminate relevant project information to stakeholders/affected communities and to document any concerns/issues from such stakeholders;
- To improve communication between project management and affected communities;
- To document public consultation events; and
- To disclose selected project documents to affected communities/stakeholders.

The main objective of the PCDP is to establish a program for multi-directional communication between Tonguma Limited and stakeholders. To meet this objective, this plan provides the following:

- Outline of IFC requirements for public consultation and disclosure;
- Identification of key stakeholders in the Tonguma Project;
- Description of the resources and the responsibilities of PCDP implementation, including receipt and response to grievances; and
- Descriptions of how data will be collected and maintained, in order to adequately monitor and report the effectiveness of the PCDP.

### **6.2 Resources and Responsibilities**

The Community Relations Officer reports directly to the Project Manager and will be responsible for the public consultation and disclosure program. He/She will also be

responsible for coordinating with Tonguma's Community Relations Officer on all community relations, public consultation programs and dispute resolutions.

Other responsibilities and duties of the HSSE Officer may include the following:

- Identifying when meetings are necessary and scheduling them;
- Circulating or publicizing agendas and local advertising;
- Inviting specific individuals to meetings;
- Attending and documenting meetings;
- Directing any required follow up; and
- Working with NGOs, the Community Development Management Committee to develop, plan and implement sustainable development projects as shown in the CDAP.

Follow-up work on the above may include additional meetings, arranging for specialized consultants, or bringing specific issues to the Project Manager and ensuring that appropriate actions are taken.

### **6.2.1 Stakeholders**

Public consultation and disclosure initiatives need to target all stakeholders listed in the CDAP to keep them informed of project plans and of any substantial changes that may be made to its design or operations.

### **6.2.2 Consultation and Disclosure Program**

The consultation and disclosure program is aimed at informing the stakeholders of project plans and activities in a manner that promotes open dialogue among all interested parties, but particularly those that are or will be affected by the Project. The program allows directly affected parties to have meaningful input in the decision-making process regarding the development of the Project and the mitigation of impacts that will affect them. Meetings will be scheduled and informational materials disseminated as needed to keep people informed and to maintain project transparency in the public eye. It is the responsibility of the HSSE Officer, along with the Community Relations Officer, to ensure that the program objectives are accomplished.

### **6.2.3 Notification for Meetings**

Stakeholders will be informed about the Tonguma Project updates through some or all of the following methods:

- mass media (newspapers, posters, radio, television);
- direct communication in local languages;
- direct mail;

- open-houses (field offices, Project site);
- illustrated pamphlets;
- public meetings; and
- informing appropriate community leaders.

A two-week notice, followed by a three-day reminder notice will be provided for such meetings.

Minutes of consultation meetings will be made available to the meeting participants and other identified interested parties within two weeks from the meeting date. Minutes will be written in an understandable manner and can be obtained from the Project office or other location agreed.

#### **6.2.4 Grievance Mechanisms**

Despite the best public consultation and community relations efforts, inevitably there will be circumstances that arise where the company and stakeholders disagree. The following mechanisms will ensure that grievances can be properly filed, and that fair and appropriate consideration will be given to those issues.

- The HSSE Manager, with the Community Relations Officer and the Community Development Management Committee will be responsible to build relationships with the surrounding population and communities and to collect and disseminate information.
- Public and individual meetings will be held on a regular basis to provide a forum for open communications.
- Relationships will be built with government offices (local, regional, and national levels), affected Community Authorities and the Community Development Management Committee and their participation in consultation meetings will be encouraged to facilitate communications.
- Formal meetings with individual stakeholders and Tonguma personnel will be held as needed to assure follow up and confidentiality on identified issues and concerns.
- A formal process or plan for receiving and responding to grievances will be developed and implemented by the Community Development Management Committee and approved by the Community Relations Officer and HSSE Manager. This plan will address the following requirements:
  - All grievances will be documented into a central registry or filing system at Tonguma Ltd office.
  - Receipt of all grievances will be acknowledged, by letter or other means, as soon as possible, and no later than 7 days after receipt.
  - The grievance will be reviewed by the Community Development Management Committee and appropriate action taken or implemented.

- Multiple grievances by the same person, or different persons which address the same or similar issue, will be considered together and will warrant additional attention.
- The Community Development Management Committee will provide a report through the Community Relations Officer to the HSSE Manager on a bi-monthly basis summarizing grievances received, actions taken, and any outstanding issues to be addressed.
- Relevant (non-confidential) information will be disclosed to the public.
- If necessary, the relevant Government authorities will be notified to share information and address Sierra Leone policy or regulation issues.

### **6.2.5 Reporting**

The Project Manager, through his/her HSSE Officer and Community Relations Officer, has the primary responsibility for all public consultation and disclosure monitoring and reporting. The Community Relations Officer will report on the monitoring of Community Development Projects as listed in the CDAP. This will be reported periodically as part of the regular health, safety and environmental monitoring programs.

Additional reports may be developed and provided to the local communities and identified stakeholders on a case-by-case basis. This will primarily be through the feedback at regularly scheduled meetings. Copies of these reports will also be provided to the relevant government agencies of Sierra Leone such as the EPA-SL.

Information sheets and posters may be appropriate for reporting on some items and issues. Radio broadcasting and/or direct communication may be used for Project updating in the affected communities which have a low literacy rate.

## **6.3 Public Consultation During ESIA Study**

Some amount of Public Consultation has already started during the execution of the Social Impact Assessment aspect of the ESIA. CEMMATS undertook a socio-economic survey of the project area in 2008, in the form of questionnaires administered to households in the concession area. Field investigations were also carried out in June 2014 which included the conduct of focus group discussions with various categories of people within the project area including, artisanal miners, farmers and members of the general public.

To commence the Focus Group Discussions and meetings, the Social Assessment team leader disclosed the project to the participants by informing them of the activities and plans of Tonguma Ltd, and explaining the role of CEMMATS in carrying out the Environmental and Social Impact Assessment Study.

During these meetings, participants were asked about their perceptions of Tonguma Limited exploration activities; their responses were quite mixed. While the majority felt positive about the project, a sizeable proportion of the participants felt some apprehension about the

project activities. Those who expressed optimism about the project gave reasons such as creation of jobs and enhancement of community development in areas of education, health and sanitation, agriculture, community infrastructure such as roads, markets, schools, etc. Those who had negative perceptions regarding the project activities gave reasons such as resettlement of community members, loss of farm lands, environmental degradation and influx of people into communities with its attendant problems of increased crime rate, overcrowding, encroachment on limited socio-economic facilities, and increase in Sexually Transmitted Infections (STIs).

The minutes of all meetings and discussion held as part of the PCDDP process during the ESIA study can be found in the Appendices of Volume 1 of this report (The Main ESIA Report)



# SECTION G

## 7 CLOSURE PLAN

### 7.1 Decommissioning

Once it is determined that no further mining operations are feasible, buildings, equipment and materials would be removed, sold for scrap or demolished and buried on site after removal of all industrial wastes. No industrial wastes would be left on site. Any contaminated soil on site at decommissioning would either be remediated on site or containerized and shipped off site as hazardous waste. Concrete foundations would be broken to below ground level, the footings buried and the waste material landfilled on site. From preliminary exploration results, it is likely that mining will continue but however, all is dependent on the final exploration results.

### 7.2 Reclamation and Closure Plan

#### 7.2.1 Approach

This plan details actions to be taken to ensure the site is chemically and physically stable in the event that the exploration phase ends in closure of operations. It aims to ensure that the land is returned, to the extent feasible, to an appropriate end land use as determined through the ESIA.

Progressive reclamation is being implemented, where possible, where facilities or disturbed areas are no longer active in order to minimize the project footprint. Figure 7-1 shows ongoing progressive reclamation efforts by the company, through the revegetation of a former waste dump site.



**Figure 7-1: Progressive Reclamation Efforts (Revegetation of Closed Waste Dump Site)**

For final closure and reclamation, where feasible, slopes created during mining would be graded to blend into the natural surroundings as much as possible, compacted surfaces would be scarified, top dressing of overburden would be applied where erosion of top dressing is not problematic and the prepared surfaces planted with native species. Excavated pits with ponds

would be breached or removed and re-vegetated. These would be reclaimed to a dry cover and vegetated.

During operations, reclamation trials will be carried out in areas targeted for progressive reclamation to determine which treatments and vegetation successfully return areas to a productive state. Experience gained during the project operating life will be applied on final closure. Post closure monitoring will be carried out for a number of years in conjunction with other post closure environmental monitoring to ensure the land is returned to productivity, as determined by the end land use, without further intervention.

### **7.3 Objectives**

The objective of the reclamation and closure program is to convert the concession area to an income generating end use closest to its natural use. Following cessation of operations, disturbed areas will be stabilized and reclaimed to a number of alternative land and marine uses that will provide income opportunities for local communities.

An inventory of all the areas of the facility will be carried out to identify which will need to be addressed for closure. The following areas are expected to be included:

- Mine pits;
- Mine ponds;
- Process facilities;
- Waste management facilities;
- Exploration, access and haul roads;
- Topsoil stockpiles.

### **7.4 Closure and Reclamation Methods**

General closure and reclamation activities relevant to the operation are discussed in this section as follows:

- Facility Salvage, Demolition and Disposal;
- Surface Grading;
- Sediment and Erosion Control;
- Soil Stockpiling and Redistribution;
- Seed and Plant Propagation; and
- Re-vegetation Monitoring.

#### **7.4.1 Facility Salvage, Demolition and Disposal**

After the operation has been completed, buildings, equipment and infrastructure will be managed for closure. Stakeholder input will be used to determine the final disposition of facilities. Following salvage, demolition and disposal activities, the area will be graded to create a natural final topographic relief. The only material to be included in re-grading the facilities will be inert material such as concrete, stone, and brick used for foundations. Compacted surfaces will be ripped to relieve compaction and reduce surface run-off and sediment transport.

During facility closure, confirmation sampling and testing of the soils will be completed as needed to verify that areas have not been impacted by hydrocarbons or other potentially hazardous substances. In the case where hazardous substances are identified, the contaminated areas will be remediated in accordance with the Emergency Response Plan.

#### **7.4.2 Surface Grading**

All excavated and mined-out areas will be graded as near as possible to original contours, and as necessary to obtain free drainage conditions. Material used for backfill will be determined by evaluation of spoil piles and water quality monitoring results.

All buildings and other structures and equipment used in mining and processing will be removed. Concrete footings and pads will be removed and used as backfill, and topsoil areas will be graded and re-vegetated.

Haulage and access roads will be graded and closed except for agreed upon access roads. To match adjacent slopes, roads and berm, materials will be pulled from the fill portion to aid in grading. Exploration roads at the mine site will be regarded in a similar manner to haul and access roads. This will include all areas outside the active mining area.

#### **7.4.3 Sediment and Erosion Control**

All pits will be graded to obtain free draining conditions to avoid soil erosion. Reclamation materials will be classified and their present and future potential impacts to water quality evaluated and prioritized for use in reclamation as backfill. The reclamation plans will also optimize usage of the available materials to maximize the effectiveness of the reclamation plan.

The closure plans will make extensive use of impervious soils and will ensure that all slopes in reclaimed areas are flatter than 6:1 slopes to reduce and potentially eliminate soil erosion.

#### **7.4.4 Soil Stockpiling and Redistribution**

The primary reclamation materials to be used are cover soil, subsoil, gravels and selected waste overburden. Impervious ground covers will be installed using clays excavated from the

mine pits.

#### **7.4.5 Seed and Plant Propagation**

The closure plan will re-establish grassland and/or forest settings on the areas previously disturbed by mining. The permanent seed mixtures will include native species appropriate for the area. Vegetation will consist of tree and shrub types, and a grass seed mix that is native to the area. Introduced vegetation species will be considered to add for their benefits to add organic matter to soils (Acacia and Cashew).

### **7.5 Monitoring**

Closure and post-closure monitoring will document the progress of the closure effort. The elements of the closure and post-closure monitoring programs will include the following:

- Confirm the long-term stability of reclaimed surfaces, high walls, and embankments;
- Evaluate the success of re-vegetated areas using ground cover, species diversity, and productivity (in reclaimed areas) as measurement tools; and
- Evaluate the success of natural re-establishment and migration of marine biodiversity to demonstrate that water quality objectives are met.

### **7.6 Implementation Schedule and Costs**

#### **7.6.1 Closure and Reclamation Schedule**

Once operations are completed in an area, final closure activities will begin. Upon completion of final closure, areas will also be monitored for a two-year period to evaluate program performance.

#### **7.6.2 Financial provision**

A life of project closure assumes effective rehabilitation or remediation of relevant impacts on the environment and the surrounding community. The assessment of closure costs involves the quantification of infrastructure components and applying rates to rehabilitate each component.

The mitigation costs for environmental management will depend on many factors including the following:

- The type of ore mined;
- The type of technology employed;
- The scale and extent of operations;

- The life of the mine operations (years spent mining)

The company is theoretically budgeting a sum of \$5 million for closure and reclamation of the exploration phase, based on the closure costs for similar operations. However it is certain that the project will be progressing to the mining phase; if for any reason the project operations are shut down, a full estimate of the closure costs will be made closer to that time.

### **7.6.3 Stakeholder Consultation**

The consultation process will involve discussions on closure options and will provide local communities with an opportunity to become involved in the various stages of the planning. Local communities will be consulted to determine the use of post-operation structures constructed for the benefit of the communities.

# SECTION H

## **8 MANAGEMENT, MITIGATION, MONITORING AND IMPLEMENTATION MEASURES**

### **8.1 MANAGEMENT PLANS**

The management plans will be further refined and detailed for each phase of the project closer to the time the phase is initiated. Plans for monitoring are also proposed and key personnel with responsibilities identified. An attempt has also been made to cost the monitoring programme.

The overall accountability for the implementation of this plan lies with the Company management though various parties will remain responsible for certain activities. The management will remain accountable for ensuring that the mitigation measures, monitoring and corrective actions are implemented. The tables below do not indicate responsible parties but rather who is responsible for a particular aspect.

The following Tables outline the plans for the stages in the project life.



## OPERATIONAL STAGE

**Table 8.1-1: Management Plans for the Operational Stage**

Issue	Objective	Mitigation measure	Performance target	Responsible party/Parties	Cost US\$
<b>NOISE MANAGEMENT</b>					
Noise management	Minimize noise impact	<ul style="list-style-type: none"> <li>• Limit blasting operations to daylight hours</li> <li>• Use millisecond delays between rows of blast holes to reduce the amount of explosive charge detonated at any given instant.</li> <li>• Reduce the powder factor, that is, use less explosive per unit volume of overburden</li> <li>• Maintain good public relations with the surrounding communities and put in a good advance warning system before blasts.</li> </ul>	For every blast	HSSE Manager	N/A
		<ul style="list-style-type: none"> <li>• Vehicles to be switched off when not in use</li> <li>• Regular maintenance of vehicles to ensure silencing equipment are effective i.e. exhaust mufflers</li> <li>• Noise producing sources such as generators and crushers and other machinery to be either</li> </ul>	Vehicles and machinery to be serviced according to their respective handbooks;		N/A

Issue	Objective	Mitigation measure	Performance target	Responsible party/Parties	Cost US\$
		housed in enclosures or barriers put up around the noise source. The barriers should be installed between the noise source and sensitive noise receptor, as close to the noise source as possible. Regular maintenance to ensure noise levels are normal.			
		Noise monitoring programme	Programme to be drawn up and followed	HSSE Manager	\$15,000
<b>AIR QUALITY</b>					
Air Quality	To reduce the negative impacts of dust emitted from material transport, crushing and dust fumes.	<ul style="list-style-type: none"> <li>• Introduce road spaying program based on rainfall, evaporation rate, and traffic frequency to reduce dust being emitted from road transport.</li> <li>• Material will be transported in closed vehicles to reduce dust emission. Material crushing will be scheduled to reduce frequency.</li> <li>• Initiate dust fallout monitoring program to monitor efficiency of dust management measures.</li> </ul>	Reduce emissions from unpaved roads and exposed materials.	HSSE Manager/Engineering Manager	\$15,000
	To reduce the negative impacts	Regular maintenance of vehicles and machines.	Good vehicle and machine	Engineering	N/A

Issue	Objective	Mitigation measure	Performance target	Responsible party/Parties	Cost US\$
	of vehicle and machine exhaust fumes.		maintenance records	Manager	
<b>SURFACE WATER AND GROUNDWATER</b>					
Surface water	Impact of pollution on water resources and Impact of excess water discharged to environment	<ul style="list-style-type: none"> <li>Implement a detailed Plant Stormwater Management Plan. This plan details the construction of stormwater canals within the plant area.</li> <li>Understand the impacts of discharge from the various areas and identify what water can be used in what process and what waters can be discharged from the mine.</li> </ul>	The separation of clean and dirty water and prevention of excess water discharge to impact on the environment		\$20,000
Geohydrology	Pit infilling and drawdown of Water Table	<ul style="list-style-type: none"> <li>Monitoring of borehole levels</li> <li>Evaluation of impacts on water supply wells for the camp, office, and resettlement areas.</li> </ul>	Preventing impact on water levels of boreholes and drawdown of underground water levels		\$10,000
<b>SOILS</b>					
	To minimise the loss of topsoil and the risk of spillage of fuel	<ul style="list-style-type: none"> <li>Minimize areas stripped and maintain soil structure, stripping soil materials and stockpiling appropriately.</li> </ul>	Only clear essential areas and maintain soil structure and fertility for use in		N/A

Issue	Objective	Mitigation measure	Performance target	Responsible party/Parties	Cost US\$
	and oil on site.	<ul style="list-style-type: none"> <li>Limit the movement of vehicles on site as much as is practical;</li> </ul>	rehabilitation and finally mine closure.		
<b>FLORA AND FAUNA</b>					
	To minimize clearance, loss and disturbance to the natural environment, in particular plants	<ul style="list-style-type: none"> <li>Avoid sensitive areas such as ridges and wetlands.</li> <li>Avoid access in areas not earmarked for operation.</li> <li>Carry out an ecological audit to minimise loss of fauna species.</li> </ul>	Restriction or limitation of development in sensitive areas.	HSSE Manager/External Consultant	17000
	To minimize disturbance to the natural environment and to maintain sensitive areas and other habitat possibilities	<ul style="list-style-type: none"> <li>Avoid areas not earmarked for exploration.</li> <li>Removal should only occur in demarcated areas and where possible the natural environment should be rehabilitated to ensure ecological functioning.</li> <li>Carry out an ecological audit</li> </ul>	An ecological audit	HSSE Manager/External Consultant	\$8,000
<b>TOPOGRAPHY</b>					
Topography	To maintain the integrity of the	<ul style="list-style-type: none"> <li>All activities should be restricted to defined work areas</li> </ul>	No excessive erosion, and		

Issue	Objective	Mitigation measure	Performance target	Responsible party/Parties	Cost US\$
	landscape and to minimise disturbance to the natural topography	<ul style="list-style-type: none"> <li>• Capture erosion from stockpiled materials</li> <li>• Place waste rock in a location where it will not disturb drainage lines</li> </ul>	drainage lines avoided		
<b>SOCIO-ECONOMIC/CULTURAL</b>					
Social & cultural impacts	To optimise employment creation by the project	<ul style="list-style-type: none"> <li>• Encourage and invest in alternative livelihoods development such that the local area is not reliant to any significant degree on the project for employment and economic opportunities</li> <li>• Optimise recruitment of people from affected communities, the surrounding settlements and nationally.</li> <li>• Develop a project specific protocol for the fair treatment and employment of citizens.</li> <li>• Optimise labour intensive methods to increase local employment opportunities.</li> <li>• Carry out a skills audit in surrounding villages and maintain a detailed register for use by the Project and its contractors.</li> <li>• Create and maintain a register of casual employees from the surrounding villages for</li> </ul>	Successful implementation of the RAP and CDP	HSSE Manager/Environmental consultant	Costed in RAP and CDP programmes

Issue	Objective	Mitigation measure	Performance target	Responsible party/Parties	Cost US\$
		use when casual labour is required by project contractors. <ul style="list-style-type: none"> <li>• Work in partnership with existing government and related organisations already well-established to promote local economic development</li> </ul>			

## DECOMMISSIONING STAGE

Table 8.1-2: Management Plans for the Decommissioning Stage

Issue	Objective	Mitigation measure	Performance target	Responsible party/parties	Cost US\$
<b>NOISE MANAGEMENT</b>					
Noise and Vibration	Minimise noise impact	<ul style="list-style-type: none"> <li>• Vehicles to be switched off when not in use;</li> <li>• Regular maintenance of vehicles to insure silencing equipment is still effective i.e. exhaust mufflers; and</li> <li>• Fixed noise producing sources such as generators, pump stations and crushers to be to be either housed in enclosures or barriers put up around the noise source.</li> </ul>	Vehicles to be serviced according to vehicle services handbook.	HSSE Manager	N/A

Issue	Objective	Mitigation measure	Performance target	Responsible party/parties	Cost US\$
<b>AGRICULTURE/LIVELIHOODS</b>					
Agriculture, soil and land use (on the exposed land)	Exposure of a large area of land for farming and other land use practices in concession area. Quality of the loose sediments may not provide for an arable land area.	<ul style="list-style-type: none"> <li>Maintenance of alternative livelihood strategy for the newly unemployed; provision of improved seed varieties</li> </ul>	Success of LIAR programme	HSSE Manager/Environmental Consultant	N/A
<b>FLORA AND FAUNA</b>					
Forest and Terrestrial flora	The use of exposed land for farming would however lengthen fallow periods and reduce pressure on forest or flora species of conservation importance	Post operation Forest conservation programs; community awareness; Detailed survey and monitoring of tree species as part of an on-going ecological survey	Success of decommissioning programme	HSSE Manager/Environmental Consultant	Costed in decommissioning plan

<b>Issue</b>	<b>Objective</b>	<b>Mitigation measure</b>	<b>Performance target</b>	<b>Responsible party/parties</b>	<b>Cost US\$</b>
<b>SOCIO-ECONOMIC</b>					
Socio-economic life	To decrease dependence of national economy on mining	Strive to ensure that sustainable economic development in the broader project area takes place with a focus on diversifying the local economy.	Success of decommissioning programme	HSSE Manager/Environmental Consultant	Costed in decommissioning plan



## **8.2 MONITORING PLANS**

Environmental monitoring is an essential tool in relation to environmental management as it provides the basis for rational management decisions regarding impact control. The monitoring program for the project will be undertaken to meet the following objectives:

- To check on whether mitigation and benefit enhancement measures have actually been adopted, and are proving effective in practice;
- To provide a means whereby any impacts which were subject to uncertainty at the time of preparation of the EIA, or which were unforeseen, can be identified, and to provide a basis for formulating appropriate additional impact control measures; and
- To provide information on the actual nature and extent of key impacts and the effectiveness of mitigation and benefit enhancement measures which, through a feedback mechanism, can improve the planning and execution of future, similar projects.

The following monitoring plans are proposed:

### **8.2.1 Climate**

Climate monitoring should be carried out on site in order to detect changes in weather patterns throughout the operation.

### **8.2.2 Fauna and flora Monitoring Plan**

The monitoring of the flora environment is conducted by investigating the constituent components. A monitoring program needs to evaluate the management actions of each of these components.

### **8.2.3 Noise Monitoring Plan**

Noise monitoring should be undertaken by a qualified person and depending on the intervals of the monitoring programme, reports be compiled and submitted to management to ascertain compliance with the required standards. Management should be advised of any significant increase in the ambient sound level as operations continue.

### **8.2.4 Groundwater Monitoring Plan**

A groundwater monitoring plan is proposed throughout the operation and closure phases of the project. Monitoring is carried out to assess whether changes are occurring to the ambient (baseline) water quality of local surface water and aquifers, either as a result of operations, or contamination from surrounding activities, and to make recommendations for mitigation or remediation of any significant sources of contamination, if identified.

### 8.2.5 Air Quality Monitoring Plan

Based on the predicted impacts on the surrounding environment it is recommended that ambient PM10 monitoring be done and a dust fallout monitoring network established on a continuous basis.

### 8.2.6 Surface Water Monitoring Plan

The surface water management plan including monitoring should be implemented to prevent (and through mitigation reduce) negative impacts on the surface water resources. The plan should be reviewed regularly as the operation progresses in order to address any deviations arising from the project description.

## 8.3 Environmental Management, Monitoring and Training Costs

Costs related to environmental benefit enhancement and mitigation measures, etc. include costs for environmental management, monitoring, training and capacity building. Costs of certain items associated with environmental management and monitoring will be an integral part of specific items incorporated in overall project budgets, and no separate budget is necessary to cover these aspects.

The HSSE Officer will manage a Department, appropriately structured to address environmental health and safety issues. A Community Relations Officer will be used in the job scope. The operating cost of this Department would have been included in the normal budget. There will however be need for periodic independent environmental audits. All the costs associated with implementing the ESMP are included in the overall budget of the project for operations. Other costs for Environmental management have already been alluded to in the section on Environmental management Plans.

**Table 8.3-1: Costs for monitoring and Training**

Work/cost area	Initial cost \$	Annual recurrent costs \$	Comments
Independent Environmental audit during operational stage		10,000	Once a year
Environmental monitoring equipment	30,000	5,000	Specialist equipment necessary for monitoring should be provided.
Environmental and	10,000	8,000	Comprehensive

safety training			training necessary initially with manuals prepared. Annual training updates should be effected
<b>TOTAL</b>	40,000	23,000	

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**CEMMATS Group Ltd**



Beyoh House  
7<sup>A</sup> Cantonment Road  
Off King Harman Road  
Brookfields  
Freetown  
Sierra Leone

[www.cemmatssl.com](http://www.cemmatssl.com)