TMGO

Environmental and Social Management System Manual

Issue No.: 4

TMGO-ESMS-01

Date: 27–06 –2018

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Revision History

Revision Date	Description	Sections Affected	Revised By	Approved By
13/03/2020	The revision required to update the document based on the project progress	All sections	Aynalem	Darrell
22/09/2020	Lenders indicated management of change requirements.	Management of change added	Aynalem	Darrell
13/06/2022	Regular updates and incorporating the SLIP	Section 1 and 5	Aynalem	Maxence

Contents

List of Acronyms

AED	Automated External Defibrillator
ACGIH	Association Advancing Occupational and Environmental Health
CPR	Cardiopulmonary Resuscitation
CTO	Chief Technical Officer
CEO	Chief Executive Officer
dBA	A-weighted decibels
EEP	Ethiopian Electric Power
EPC	Engineering, Procurement and Construction
EPRP	Emergency Preparedness and Response Plan
ESMF	Environment and Social management Function
ESIA	Environment and Social Impact Assessment
E&S	Environment and Social
ESF	Environment and Social Function
ESMP	Environment and Social Management Plan
ESMS	Environment and Social Management System
TMGO	Tulu Moye Geothermal
H&S	Health and Safety
HSP	Health and Safety Plan
H2S	Hydrogen Sulfide
IFC	International Finance Cooperation
ISO	International Organization for Standardization
MoWIE	Ministry of Water Irrigation and Electricity

MW	Megawatt
OE	Owners Engineer
PPE	Personal Protective Equipment
PS	Performance Standard
RAP	Resettlement Action Plan
RPF	Resettlement Policy Frameworks
REQI	Request for Expression of Interest
RFPs	Request For Proposals
SEP	Stakeholder Engagement Plan
WHO	World Health Organization

1. INTRODUCTION

1.1 Introduction

This document describes the framework for the development of an Environmental and Social Management System (ESMS) for the Tulu Moye Project (the "Project") for Tulu Moye Geothermal PLC. ("the Company"). It also provides an outline of the various environmental and social management plans, policies, and procedures comprising the ESMS and describes their implementation schedule and responsibilities.

1.2 Project overview

The Project Company, Tulu Moye Geothermal Operations PLC ("TMGO") was established in December 2017. The company signed the Power Purchase Agreement and the Implementation Agreement with Ethiopia Electric Power and the Government of Ethiopia on the 19th of December 2017 making it one of the first independent power projects in Ethiopia.

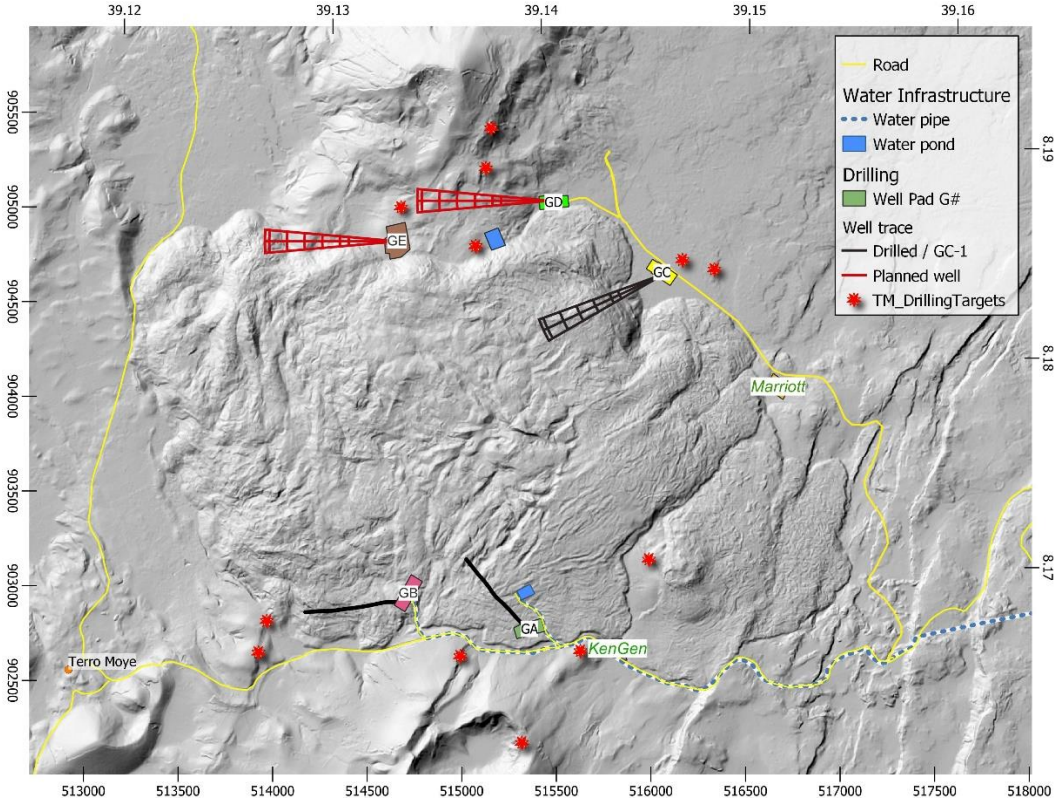
The objective of the proposed Tulu Moye Geothermal Development Project (the Project) is to provide up to 150 MW of clean electric power from a renewable source. The Project will be implemented in two phases with the first phase of 50 MW capacity, followed by 100. It is currently planned that the first 50 MW is expected to be operational by 2024 and the full 150 MW be online by the first quarter of 2027.

The proposed project includes drilling full-size geothermal exploration wells to evaluate the feasibility of commercial geothermal development in Tulu Moye. Directional drilling is planned for initial wells. Directional drilling will decrease the cost of civil works by having more wells per well pad, minimizing work on roads, and the well pad location chosen where minimal local disturbance and civil work are required. When the wells are turned into production wells, the wells can be connected at the well pad and share well testing equipment and therefore decreasing the cost of the steam gathering system.

Many of the drilling targets within Tulu Moye are also located beneath environmentally difficult areas, such as mountains and canyons. Utilizing mud motor can help reach these otherwise unattainable targets as well as improve the rate of penetration.

The project would include the following activities and components:
- Civil works and site development at two potential drilling areas
- Drilling up three exploration wells
- Well testing
- Well abandonment and site reclamation, if applicable.

Figure 1: Potential drilling area



1.3 Purpose

This document describes the system and associated plans that TMGO put in place for the life of the Project for implementation of the commitments and mitigation strategies identified in the Environmental and Social Impact Assessment (ESIA/ESMP) and Supplementary Lenders Information Package(SLIP) report, otherwise needed to meet TMGO Principles of Responsible Energy Development.

The ESIA report identifies Project-related environmental impacts and mitigation that serve as the initial basis for social and environmental management planning. The ESMS takes over where the ESIA report leaves off and focuses on the processes and plans necessary to ensure social and environmental commitments and mitigation measures are implemented and re-evaluated throughout the life of the Project, from Construction through to Closure and Post-Closure. The Supplementary Lenders

Information Package (SLIP) report and recommendation are designed to address the identified gap by the lenders' group in some parts of the 2018 ESIA: Human Rights Risk Assessment, GHG and Climate Change Assessment, Expanded Biodiversity Assessment, Assessment of water use on other water users and ecosystems, Expanded assessment of community health, safety and security impacts, Demonstration that there are no indigenous groups in the Project Area and Details on the impacts of the power plant.

The ESMS ensures issues continue to be identified and managed throughout the life of the project regardless of whether or not there are changes in physical or regulatory conditions. The ESMS commits TMGO to meet national and international regulatory requirements and other best practices identified for the management of the Project. As an adaptive management strategy, the ESMS and its attendant plans are living documents that will be reviewed and updated regularly during all phases of the Project.

Together, the TMGO Project Environmental and Social Management System and its supporting plans and procedures are designed to provide an appropriate level of detail and control that addresses the Tulu Moye project's environmental and social impacts, regulatory compliance requirements, stakeholder interests, and other practical environmental and social management issues associated with Tulu Moye project.

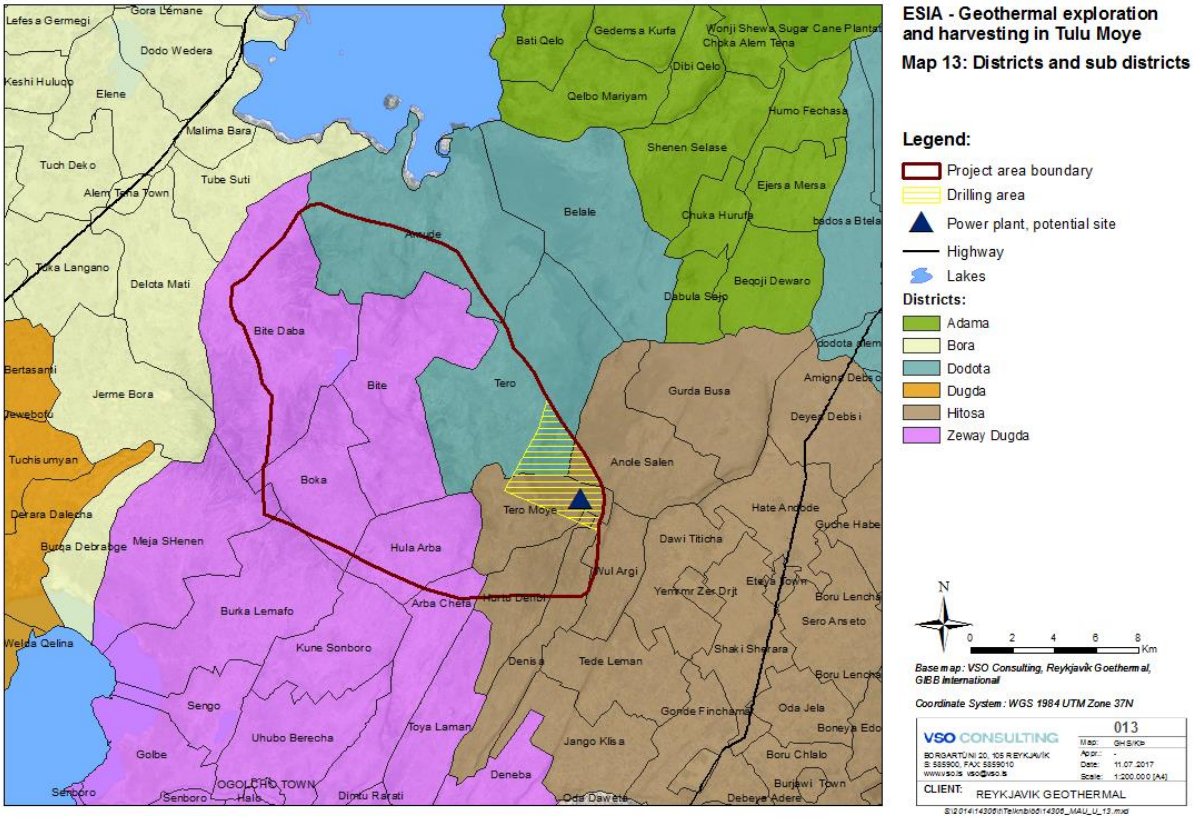
1.4 Scope of ESMS

TMGO Project Environmental and Social Management System applies to the full scope of the exploration, construction, operation of up to 150 MW of clean electric power from a renewable source, and closure activities that will be conducted by Tulu Moye Geothermal (TMGO) or Contractor at Tulu Moye Project site. This document considers World Bank Group – International Finance Corporation guidelines, ISO 14001, and appropriate elements of other internationally recognized standards and best management practices as the basis for management system development and implementation.

This ESMS applies to,

- Internal TMGO operations,
- Parties associated with the Tulu Moye project, including:
  - ✓ Parties to works contracts, including the engineer, and contractor.
  - ✓ Implementing entities
  - ✓ Consultants and contractors will be engaged by TMGO within the life of the Tulu Moye project.

Figure: 2 Project area map



1.5 Environmental and Social Impact Assessment

On behalf of TMGO, VSO Consulting an international consulting and TS Environmental Technology PLC, a local consulting, developed the first phase of the ESIA/ESMP report. The extensive information on the current state of environmental and social factors is based on a baseline survey carried out by GIBB International in 2014-2015 and reviewed by TS in 2017. The ESIA report describes the first phase of the project, which includes exploration drilling, production drilling, well pads, access roads, water supply, quarries, pipelines, and up to a 100 MW power station. Indicative results of the surface explorations suggest that the potential of the Tulu Moye area will probably support up to 500 MW without adversely affecting the geothermal resource.

The nature of geothermal projects is dynamic in the sense that they are continuously evolving during the entire life span of the resource harnessed; surface studies may indicate the wide-area that gets narrowed down and with more measurements, additional areas may be indicated as further potential.

The geothermal model may change with each well drilled as more information accumulate and locations and plans will continue to change.

The ESIA report will be updated and amended with a new version to include updates of studies and additional information to the extent feasible to cover up to 100 MW. Phase one ESIA report identifies potential Project environmental impacts, risks, and opportunities through a comparison of Project plans with baseline conditions, regulatory standards, and scientific evaluations, as informed by public consultation. These social and environmental impacts and opportunities will be identified for each Project phase and will form the basis for the plans outlined in the ESMS.

Environmental and Social Management Plan developed that outlined the mitigation measures to be adopted, the responsible party for mitigation and monitoring, frequency and timing of monitoring, and verifiable indicators. TMGO is committed to implementing the ESMS to ensure the Tulu Moye project is implemented according to the company's values and Principles.

An Environmental and Social Due Diligence (ESDD) review was undertaken in May 2020 (hereafter referred to as ESDD Review 2020) and identified areas where additional assessments or information was required to be provided to meet the requirements of all proposed lenders (African Development Bank (AfdB), Deutsche Investitions-und Entwicklungsgesellschaft GmbH (DEG), Development Finance Corporation (DFC), European Investment Bank (EIB), Emerging Africa Infrastructure Fund (EAIF), Entrepreneurial Development Bank (FMO), PROPARCO and to enable TMGO to secure additional financing to support the design, construction, operation, and maintenance of the Project. The main topics where additional information has been requested in relation to human rights, greenhouse gases, climate change, biodiversity, indigenous people, water use, ecosystems and community health, safety, and security. Thus Supplementary Lenders Information Package (SLIP) has been prepared to ensure the gaps in the 2018 ESIA are filled to fully meet the requirements of all proposed Lenders of the Project. The SLIP includes additional mitigation measures which need to be read and implemented with the 2018 ESIA/ESMP and other project documents listed in these documents.

1.5 ESMS Document Control

The Tulu Moye Project Environmental and Social Management System is documented in several tiers or levels of detail. Each level is further described as follows:

Level 1 - consists of the Tulu Moye Project Environmental and Social Policies and Commitments documents.

- TMGO Environmental and Social Policy Framework
- TMGO Human Resource Policy

- TMGO Resettlement Policy Framework
- TMGO Workplace HIV and AIDS Policy
- TMGO Security Policy
- TMGO Health and Safety Policy

Level 2 - consists of a suite of environmental management plans, which are invoked to support the continuing management and mitigation of the potential environmental and social impacts associated with Tulu Moye Project operations. Originally developed to support the ESIA process, these documents also play an active and continuing role as components of the Tulu Moye Project Environmental and Social Management System.

TMGO developed detailed Environmental Management Plans and/or procedures to address those areas of geothermal power generation for which the ESIA process has indicated that potentially significant environmental and social impacts are known to exist or could potentially occur in one or more phases of the geothermal power generation life cycle.

The following key environmental management plans have been developed:

- Water Management Plan/ - Supplementary Water Resources Assessment and mitigation measures.
- Air Quality Management Plan/ Supplementary Air Quality Assessment and mitigation measures.
- Noise Management Plan/ Supplementary Noise Assessment and mitigation measures.
- Soil Erosion and Sediment Control Management Plan
- Water Resource Management Plan/ Supplementary Water Resources Assessment and mitigation measures.
- Spill Prevention Control and Countermeasures Plan
- Biodiversity and Soil Management Plan/ Supplementary Biodiversity Assessment and Mitigation Measures.
- Waste Management Plan/ Supplementary Waste and Norms Assessment and Management measures.
- Drill Mud and Cuttings Management Plan
- H2S Management Plan

- EHS Management Plan
- GHG and Climate Change Assessment and mitigation measures
- Decommissioning and Restoration Management Plan

During the life cycle of the project, there are likely to be a range of social impacts that can affect the community. To manage these impacts TMGO developed a number of social management plans, frameworks, and/or procedures to avoid these social impacts where possible and mitigate them through open and transparent community engagement; supporting the local economy; generating employment, and supporting local businesses and fair compensation of economic losses. The following management plans have been developed:

- Stakeholder Engagement Plan(2021)
- Community Health, Safety, and Security Management Plan/ Supplementary Community Health, Safety and Security Assessment and mitigation measures.
- Cultural Heritage Management Plan
- Transportation and Traffic Management Plan
- Human Rights Assessment and Mitigation Measures
- Seismic Hazard Assessment and Mitigation measures.

Level 3: The third tier of support documents includes lower-tier standard operating procedures and other operational practices that are established to support the Level 1 and 2 documents previously described, with emphasis on the management of those areas in which the ESIA process indicates that potentially significant environmental or social impacts are known to exist or are likely to occur in later phases of project life.

The standard operating procedures are maintained separately in the TMGO Standard Operating Procedures and are grouped to correspond to the planning area that they are primarily designed to support. These are:

- TMGO-ES-OB-001:E&S Objectives
- TMGO-E-PRO-001: Site clearance Procedure
- TMGO-ESNCP:002**:** Non-conformance Procedure
- TMGO-ESMA-Pro-004; Environmental and Social Monitoring Audit Procedure
- TMGO-EHSH-PRO 003**:** Hazardous Substance Handling Procedure

- TMGO-EHS_PROG-001: Contractor E&S Management Program
- TMGO-SP-PLN-001: Community Investment Guideline
- TMGO-EHST-PRO 004: Environment, Health, and Safety Training Procedure
- Training matrix
- Grievance log
- Grievance register
- Training attendance sheet

Level 4 - consists of internal memoranda, correspondence, environmental aspects specifications, regulatory requirements lists, monitoring data, reports, regulatory submittals, and other ***completed*** documents or records developed in response to regulatory requirements or resulting from the implementation of the Tulu Moye Project Environmental and Social Management Plan and its Level 2 and 3 support documents.

2. ENVIRONMENTAL AND SOCIAL POLICY OF TMGO

TMGO Environmental and Social Policy Statement define the company's environmental and social commitments, the policy underlines the principles that the project and its contractors need to follow in the construction and operations of the project.

TMGO is committed to avoiding or, where this is not possible, minimizing our impacts while contributing to lasting environmental and Social benefits where we operate. Where unacceptable impacts remain, we focus on implementing compensatory actions to address residual impacts on the environment.

TMGO is committed to operating in compliance with all relevant environmental legislation and we will strive to use pollution prevention and environmental best practices in all we do.

TMGO will support the UN Human Right Principle and will not engage or be complicit in any activity that solicits or encourages human rights abuse.

TMGO is committed to engaging with affected, potentially affected, and interested stakeholders in a transparent manner to ensure that they can express their views on positive opportunities, risks, adverse impacts as well as prevention and mitigation measures.

TMGO is committed to providing equal opportunity in all aspects of employment and will not engage in or tolerate unlawful workplace conduct, including discrimination, intimidation, or harassment.

We acknowledge the potential influence and impacts associated with our suppliers and contractors. We, therefore, include appropriate social performance requirements as part of our contractual agreements when the contracted activity could have potentially significant adverse impacts and/or an ability to deliver significant positive development opportunities.

TMGO is committed to meeting internationally accepted best practices and, where necessary, exceeding local regulatory standards.

TMGO is committed to regularly monitoring, auditing, and reviewing environmental and social performance compliance to ensure continual improvement.

TMGO recognizes the potential environmental, social, and human health and safety risks and impacts that its operation and project activities could pose. This section describes the various processes, tools, and approaches to be deployed by TMGO as it identifies, evaluates, and manages risks in its internal operations as well as project activities; thus, ensuring good environmental and social performance standards and sustainability of its interventions.

3.1 Risks Identification at the Operational Level

Within TMGO's internal operations, key risks and impacts include accidents and driver safety, occupational health and safety of its staff and contractors involved in minor works and repairs; outbreak of fire; accidents resulting from slips, trips, and electrical shocks; and health and emergency in the office including but not limited to heart attack, stroke, etc. TMGO staff responsible for project monitoring and visits could be exposed to accidents, health and safety, and threats from unresolved grievances from project-affected communities and persons. TMGO's approach to addressing these risks includes the following:

- Developing a health and safety policy and procedures manual, ensuring staff and partners are aware of key risks, and actions to take in such cases.
- Developing a stakeholder engagement plan taking on board the views of all stakeholders including project-affected persons and establishing a grievance redress mechanism for addressing all grievances.
- Developing an emergency preparedness and response plan to handle emergencies within offices and project locations when they arise.
- Developing continuous training and refreshers for all staff and partners on good environmental and social, health, and safety management best practice at the workplace**.**

3.2 Risks Identification at Project Level

Involuntary resettlement and health and safety present the largest risks to the successful implementation of activities and sub-activities. Additional risks and impacts including waste generation and erosion could also adversely affect project implementation. Key risks include:

- Involuntary resettlement has the potential to delay and interrupt project implementation. It also has the potential to impact negatively the livelihood of individuals and groups within project intervention areas. Proper planning and effective collaboration between stakeholders are key to ensuring resettlement planning is properly addressed within the project life cycle. This will be done by taking into account the needs of women, men, youth, the elderly, and other vulnerable groups who are at risk of income loss and employment opportunities, and marginalization. TMGO Environment and Social Function (ESF) will collaborate effectively with TMGO, Chief Technical Officer (CTO) Team, Drilling Contractor, EPC Contractor, and

relevant state institutions to ensure proper resettlement planning considers during land acquisition processes.

- Health and Safety risks can affect the implementation, operation, and maintenance of pipelines. Risks include electric shocks, slips, trips and falls from height, fire outbreaks, noise, heat, poor accident reporting and data, lack of or poor use of personal protective equipment (PPE), use of hazardous chemicals, geothermal gases, improper management of heavy equipment and machinery, hand and power tools, poor control of traffic, poor maintenance of equipment and vehicles, poor housekeeping, security, and poor use of signage. A culture encouraging and emphasizing health and safety can help reduce risk here.
- Air Emissions, particularly hydrogen sulfide and mercury are the main potential air pollutants associated with project activities. The emission may occur during well drilling and flow testing activities. Employing technology that fits the geological resource and ongoing monitoring can help reduce the risk of pollution.

TMGO developed a Resettlement Policy Framework (RPF) that outlines the resettlement action and livelihood restoration implementation plan and is part of this ESMS. The RPF highlights key resettlement planning actions from design through the implementation of infrastructure activities. It spells out roles and responsibilities within TMGO and partners, including Project Management Consultants, to ensure proper coordination while considering project design, resettlement action plan, construction, and implementation timelines. In addition, TMGO developed the health and safety policy and procedures manual, as well as the Emergency Preparedness and Response Plan (EPRP) as stand-alone documents to provide the framework for managing health, safety, and emergencies at the operations and project levels.

The following table outlines key project risks and impacts on planned activities

Project	Health and safety	Resettlement	Waste Management	Cultural Heritage	Retrenchment	Biodiversity/ Erosion	Air quality /Greenhouse gases
Relevant IFC performance Standard (PS)	2,4	5	4	8	2	6	3
Site preparation	Moderate	Moderate	Minor	Negligible		Moderate	Minor
Test drilling	Moderate	Moderate	Minor	Negligible	Minor	Minor/Moderate	Moderate
Field Development	Moderate	Moderate	Minor	Negligible		Moderate	Moderate
Power plant construction	Moderate	Moderate	Minor	Negligible		Moderate	Minor/Moderate
Commissioning	Minor	Minor	Minor	Negligible	Minor/Moderate	Minor	Minor
Operation	Minor	Negligible	Minor	Negligible		Minor	Minor
Decommissioning	Minor	Negligible	Minor	Negligible	Moderate	Negligible	Minor

3.3 Labor and Working Conditions

Labor and working conditions possess a major risk to TMGO project implementation. IFC PS2 recognizes that the pursuit of economic growth through employment creation and income generation should be accompanied by the protection of the fundamental rights of workers. TMGO recognizes that the sustainability of the Tulu Moye geothermal project hinges on a sound worker-management relationship. To this end, TMGO will ensure provisions of PS2 do apply to all categories of workers within the life of the Tulu Moye project including direct workers, contracted workers, and supply chain workers (to the extent possible).

Potential risks associated with the lack or absence of sound worker-management relationships and guiding principles could include labor agitations and strikes, lack of mutual trust, and delays in the completion of assigned tasks. These risks have the potential to derail the benefits that the Tulu Moye project seeks to achieve.

TMGO developed labor and employment policies and procedures that address issues related to non-discrimination, personal rights, a respectful workplace, sexual harassment, and equal opportunity for employees. Conditions relating to these issues will be imposed on contractors and major suppliers in the contract terms. For recruitment and hiring, applicants and candidates will be selected on the merit of their qualifications, experience, and skills. The company developed additional recruitment, procurement, and training strategies to ensure local hire opportunities are maximized. TMGO has developed communication programs to ensure that employees are aware of their rights according to labor, health, and safety laws and membership rights to labor associations. The Human Resources Department will ensure that a grievance mechanism is established, communicated, and maintained to address employee and/or contractor concerns. The employment policy includes termination of employees as a result of closure or temporary shutdowns**.**

Related document
TMGO-HR-PA-008: Employment Policy and Manual
TMGO-S-PLN-001:Local Resource Development Plan

4. MANAGEMENT PROGRAM

The principal objective of TMGO's ESMS is to implement efficient and effective environmental, social, health, and safety management plans to protect human life and the natural environment and to ensure the sustainability of our interventions. TMGO Environment and Social Management Function (ESMF) will provide oversight of all environmental and social management programs to assure adequate and ongoing implementation, a requirement for success.

4.1 Role of Key Actors

- **Works Contractors:**

Contractors will be responsible for executing the contracted works according to the designs and specifications developed by the project, within the prices and schedule requirements allocated within their contract. The key responsibilities of the contractor include, among others: Design execution, and completion of works in accordance with the contract and remedy any defects thereof; be responsible to inform self of risks and conditions; develop quality assurance system; comply with all applicable health and safety regulations and take care of the safety of persons on the site; take all reasonable steps to protect the environment and combat the trafficking in persons, and be responsible for staff and labor.

This ESMS applies to internal TMGO operations and project activities. It applies to all TMGO staff, implementing entities, consultants, and contractors who will be engaged by TMGO within the life of the Tulu Moye project. This document also spells out how TMGO will engage and collaborate with the actors described above, their partners, and other key stakeholders to ensure good environmental, social, health, and safety best practices on the ground. As part of its procurement processes for works contracts and activities that have the potential to adversely affect the environment, and Social Management. The Project Environmental and Social Management Function(ESMF) shall collaborate effectively with the Project Engineering, Procurement, and Construction or, contractor, and others to develop incentives into works contracts by drafting specifications and requirements for works and structuring bills of quantities or activity schedules for good environmental and Social implementation.

TMGO shall require all its contractors directly involved in infrastructure works to develop and successfully implement site-specific ESMPs for approval by TMGO ESMF prior to the commencement of works. Proposals for works contracts shall be evaluated based on contractors' approach and management program including essential staffing for developing and implementing site-specific ESMPs.

4.2 Relationship between Key Tools and Approaches of the ESMS

TMGO as an employer has developed an Environmental and Social Management System (ESMS) to provide the overall framework for good E&S implementation of the Tulu Moye project. This is a living document that will be updated at least once a year to reflect changing implementation issues,

challenges and successes. TMGO procured the services of Owners Engineering, /OE/ contracted to provide overall design for works and goods. The OE will be required to have Environmental, Health, and Safety specialists on board to provide oversight during the design of works. This specialist will be the eye of the OE for good environmental, health, and safety design**.** TMGO has also an ESMF together with the Drilling and construction Supervision under the Project Chief Technical Officer(CFO) to assist in reviewing site-specific ESMP and as well as developing and delivering training programs for contractors**.** Works contractors will be required by TMGO to develop site-specific ESMP and EHSS for good on-the-ground implementation.

During design, TMGO ESMF will effectively collaborate with OE/CFO to ensure effective environmental and social sound design. This will be done to ensure design avoids (if possible) or minimizes the potential for resettlement as well as ensuring RAPs are developed and implemented on time to avoid construction delays. During the implementation of works contracts, the Drilling/EPC contractor will be expected to provide the ground day-to-day supervision of works including environmental, social, health and safety issues as well as gender consideration, and report to TMGO. Joint field visits involving TMGO, ESMF, and the contractor will be facilitated to ascertain E&S issues on the ground and assist works contractors to develop corrective measures to address instances of non-compliance with good E&S standards**.**

4.3 Programs by Project Cycle

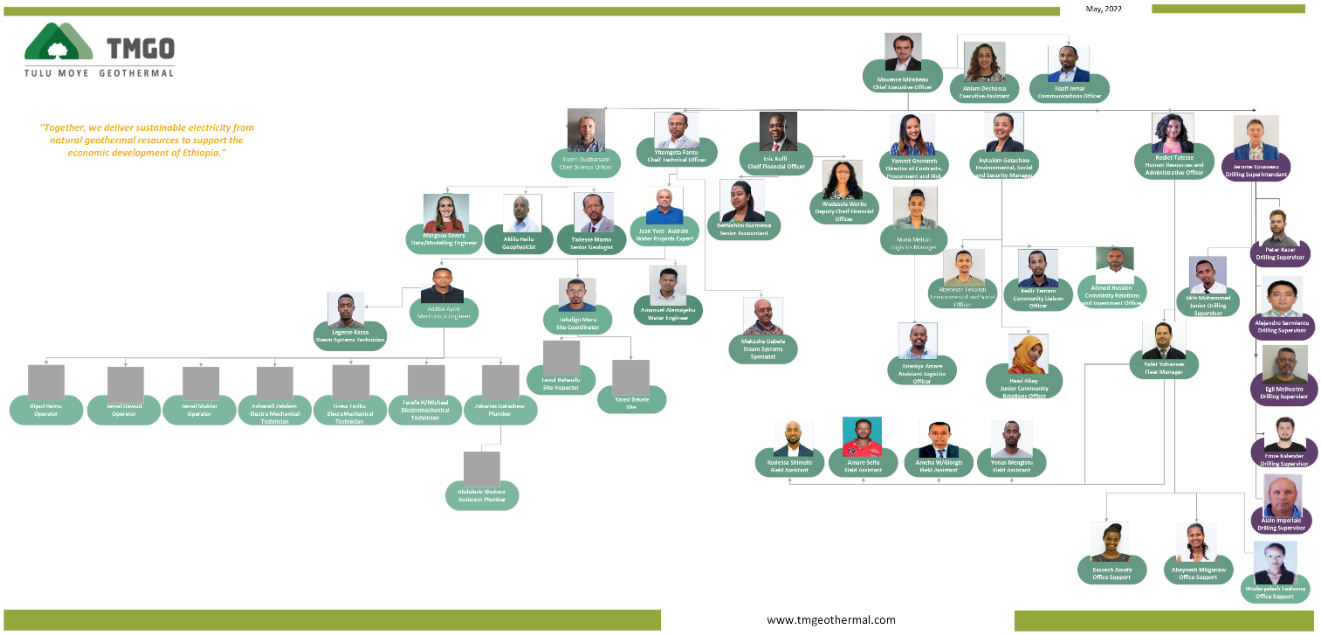
Project phase	**Risk Management**
Design and preparation	Collaborate with contractors and consultants to ensure the design is environmentally and socially sound as well as gender-responsive. Designing to minimize the potential for both economic and social displacement either temporary or permanent of project-affected persons. Designing to avoid environmentally and culturally sensitive areas Designing to ensure high environmental and safety standards during implementation, operation, and maintenance of infrastructure thus ensuring sustainability; and Designing that involves continuous engagement with key stakeholders including project-affected persons.
Project Procurement	The ESMF and CTO and DRILLING AND CONSTRUCTION SUPERVISORS team shall work closely to ensure all procurement documents including Request for Proposals RFPs, Request for Expression of Interest REOI, and Invitation for Bids, etc. contain the

	appropriate environmental, social, health, and safety provisions and are properly structured in works contracts. Relevant environmental and social assessments and reports including the ESIA, ESMP, and health and safety plans shall be included in the tender documents to support good environmental and social performance on the ground. During the technical evaluation of bids especially for projects and activities with potential for environmental and social impacts, DRILLING AND CONSTRUCTION SUPERVISORS, and ESMF shall collaborate with CTO to assess bidders' approach to; ✓ Address and manage environmental, social, health and safety risks associated with project activities ✓ Team composition with respect to capacity for managing environmental, social and health, and safety issues. Capacity will be assessed based on required experience and relevant educational qualifications ✓ Estimated budget for managing environmental and social impacts. To the extent possible, health and safety and other higher risks impacts shall be required to have budget line items as part of the overall project budget.
Project implementation	Prior to the start of construction, the CTO, and ESMF shall request contractors were relevant and appropriate site-specific ESMPs including health and safety plans, a training program for staff directly involved in construction, local procurement, and recruitment plan, and a designated point of contact persons responsible for leading efforts to mitigate risks and impacts associated with implementation. TMGO requires a contractor to provide environmental and social performance, and milestones for mitigating key risks and impacts in their monthly, quarterly, semi-annual, and annual reports. A standardized framework template for reporting environmental, social, health and safety risks shall be developed by TMGO and shared with contractors. TMGO will ensure monthly or regular Works Contracts Payment Approval Form submitted by contractors for payment has a clearance

	line from TMGO E&S manager. This will be done to ensure payment for works deemed to have significant adverse environmental and social impacts have satisfied, the E&S requirements for the said works including contractors' ESMP and EHSPs implementation. To this end, and to ensure its effective operationalization, TMGO ESMF will require the work contractors to provide a monthly Environmental Compliance Certificate confirming that the contractor(s) have been complying with their approved E&S plans. TMGO (ESMF, CTO team) shall undertake regular planned site visits to project locations to access the effectiveness or otherwise of mitigation measures. CTO and Drilling/construction supervisors shall collaborate to ensure project regular reporting provides updates on their risk mitigation approaches, successes, and challenges. Monitoring of project activities concerning E&S will also include monitoring for gender and social impacts. ESMF team shall lead efforts in collaboration with DRILLING AND CONSTRUCTION SUPERVISORS and CTO team to recommend approaches for addressing gaps in environmental and social performance. To ensure sustainability and to resolve any outstanding environmental, social, health, and safety issues related to project implementation, a site-specific closure plan will be required of contractors. This will be developed prior to the completion of all project activities.

5. ORGANIZATIONAL CAPACITY AND COMPETENCY

5.1 Organization Chart



5.2 Role and Responsibility

TMGO management will ensure the availability of resources essential to establish, implement, maintain and improve the ESMS. Resources include human resources and specialized skills, organizational infrastructure, technology, and financial resources. Roles and responsibilities will be defined, documented, and communicated to facilitate effective environmental and social management.

TMGO Senior Management will appoint specific management staff who, irrespective of other responsibilities, will have defined roles, responsibilities, and authority for:

- ensuring that the ESMS is established, implemented, and maintained; and
- reporting to Senior Management on the performance of the ESMS for review including recommendations for improvement.

The success of the ESMS will depend on a clear definition of respective roles and responsibilities for environmental and social performance. Throughout the company organization and Project activities, many individuals will influence the environmental and social performance of the Project. TMGO will establish, communicate and reinforce lines of authority, responsibility, and accountability throughout the organization. Lines of authority, responsibility, and accountability will be established by specifying and documenting the scope of the area or activity under the control of each functional area or

individual. These responsibilities will be identified in functional area descriptions (e.g., engineering, process plant, warehouse, and administrative areas), job descriptions, operating procedures, and contracts. Where responsibilities overlap, the ESMS will facilitate the identification of shared roles and responsibilities. ESMS roles and responsibilities for key personnel are identified below.

5.2.1. Chief Executive Officer (CEO)

The CEO will have overall responsibility for the implementation and effectiveness of the ESMS in managing environmental social impacts and opportunities. He/ She will be responsible for ensuring that adequate resources, both personnel and financial, are available to implement the ESMS and related social and environmental plans and programs. He/she communicates responsibilities and expectations and ensures that the ESMS is fully integrated into Project plans and activities. The CEO will track and report performance to TMGO management.

5.2.2 Chief Technical Officer (CTO)

CTO will be directly responsible for ensuring the implementation of the ESMS and related commitments, plans, and programs within respective functional areas and associated activities. He/she will also be responsible for ensuring site personnel are carrying out their responsibilities to the Company's policies, expectations, and commitments. He will be responsible for waste rock, road dust, and noise and vibration management. He will be responsible for the warehouse and water management for meeting discharge water quality standards and air quality emission standards, and the on-site laboratory.

5.2.3 Environmental and Social Manager

The environment and Social Manager will be responsible for overseeing ESMS's overall implementation. He/she will be responsible for implementing TMGO's environmental and social policy, and for ensuring TMGO meets its regulatory obligations and environmental and social performance commitments to governments and the public. He/she will provide regulatory information and technical assistance to the CEO and other operational line managers on environmental protection and management programs. He/she will have overall responsibility for ensuring effective implementation of the ESMS and attendant plans for the Project in conjunction with the CTO, under the direction of the CEO. The Environmental and Social Manager will have overall responsibility to develop, implement and maintain the ESMS.

- ensuring that ESMS requirements are established, implemented, and maintained in accordance with the ISO 14001 standard.
- ensuring that enough resources are allocated for the proper implementation of the environmental policy and the ESMS

- regularly reviewing the policy and the effectiveness of the ESMS, and ensuring that the necessary changes are made
- coordinating internal ESMS audits to ensure the ESMS has been properly implemented and maintained
- handling and investigating nonconformity and ensuring corrective and preventive action has been taken to mitigate any impacts caused
- reporting on the performance of the ESMS to the top management for review and as a basis for improvement of the ESMS.
- the internal communication of environmental matters between management and employees; and promoting environmental awareness among company staff
- ensuring the effective implementation of environmentally related operational controls and programs

5.2.4. Drilling/Construction Superintendent

The drilling/Construction superintendent will oversee all health and safety aspects of the project to ensure continuing compliance with the ESMS.

Responsibilities include:

- Providing overall coordination of the ESMS on site.
- Ensuring the Risk Register is up to date
- Ensure that significant Health and Safety risks are identified, correctly managed, and communicated to all staff.
- Ensuring the promotion of health and safety awareness of all who work for and on behalf of TMGO.
- Ensuring that all who work for and on behalf of TMGO are aware of the relevant legal obligations and other requirements the site is required to comply with for all activities and operations conducted.
- Assisting with the implementation of programs required to meet objectives and targets.
- Ensuring that all relevant registers, records, and other documentation are kept up to date.
- Ensuring that all who work for and on behalf of TMGO are aware of all procedures.
- Liaising with the E&S Manager and Project CEO
- Ensuring incidents and complaints are suitably addressed
- Identifying applicable environmental training requirements for all staff and ensuring that training is undertaken.
- Review monthly stakeholder engagement reports assessing issues related to the environment, health, and safety performance.

- Inform the E&S manager of any activity or change that will impact stakeholders.

5.2.5. Community Liaison Officer

The Community Liaison Officer will be responsible for TMGO Community and Local government engagement activities.

- To proactively maintain regular contact with affected communities through regular community visits (at least monthly).
- To produce daily and monthly stakeholder engagement reports.
- Ensure communication with vulnerable groups by meeting women, youth, and as well as community, community leaders, and Kebele leaders.
- Courtesy visits to Hitosa, Dodota, Zeway Dugeda, and Bora Woredas (at least monthly) to monitor opinions and provide updates on Project activities.
- To report grievances to the Environmental and Social Manager

5.2.6. Human Resource Officer

- Ensure staff orientation includes a section on elements of TMGO's environment, social, health, and safety policy and procedures
- Ensure staff orientation includes a section on guiding principles for effective worker-management relationships in accordance with the provision of PS2
- Develop and update TMGO's human resource policy and procedure to capture provisions of labor and working conditions per PS2
- Coordinates with ESMF team in planning for training on the ESMS for staff and partner

5.2.7. All Employees

All employees are responsible for working following the documented environmental procedures and instructions, specific responsibilities defined in individual job descriptions and instructions. All employees are individually and collectively responsible for:

- Working safely, within the guidelines provided by workplace health and safety procedures, the TMGO Occupational Health and Safety policy, and the TMGO Emergency Preparedness and Spill Contingency Plan.
- Supporting the environmental and social policy goals set for the TMGO Project in the daily performance of their work.
- Complying with the specific requirements of the TMGO Project Environmental and Social Management Plan and its supporting documents.

- Notifying their immediate manager, supervisor, or Environmental and Social Manager regarding any spills, equipment malfunctions, or unsafe situations that could have a negative environmental or social impact; and
- Notifying the Manager, Environmental and Social Manager, and Community Liaison Officer, of any conditions or weaknesses in practice that could represent a non-conformance with the requirements of this TMGO Project Environmental and Social Management System.

5.2.8 EPC/Other Contractors

All contractors working for TMGO will adhere to pertinent obligations presented in any of the plans included in the ESMS. Relevant obligations and performance expectations will be incorporated into contracts and monitored in the same manner as all other functional areas and activities. Each primary contractor will appoint a designated person to oversee environmental and social performance and to liaise and report to the E&S Manager. Specifically, where relevant, each contractor will be required to develop an environmental and social management plan prior to contract finalization, addressing at least the following topic areas:

- environmental protection procedures and spill mitigation plans.
- management of hazardous materials procedures.
- procedures for handling and disposing of non-hazardous waste.
- environmental monitoring procedures.
- health and safety plan.
- detailed worker accommodation arrangements and code of conduct for employees, if not provided by the Company.
- transportation arrangements, if not provided by the Company.
- enforcement of traffic safety rules, including speed limits; and
- control of sub-contractors

Contractors' responsibility includes:

- Ensuring their staff is familiar with the TMGO requirements, including the environmental, health and safety, and social policies, plans, and procedures.
- Reporting incidents and accidents and non-conformances to TMGO
- Providing data related to performance/monitoring (e.g. water consumption)
- Conducting Risk Assessments for all activities.
- Complying with relevant national, local, and international legal requirements.
- Attend meetings established to discuss environmental, health and safety, and social issues.

5.3 Competency, Training, and Awareness

TMGO will ensure that any persons performing tasks that have the potential to cause a significant environmental effect have appropriate education, training, or experience, and retain associated records of such. TMGO will identify training needs associated with its environmental and social aspects and the ESMS and will provide training or take other action to meet these needs and retain associated records.

TMGO will establish, implement, and maintain procedures to make persons working for it or on its behalf aware of:

- the importance of conformity with the environmental and social policy and procedures and with the requirements of the ESMS.
- the significant environmental and social aspects and related potential environmental and social effects associated with their work, and the benefits of improved personal performance.
- their roles and responsibilities in achieving conformity with the requirements of the ESMS; and
- the potential consequences of departure from specified procedures. Site inductions for all new employees and contractors will address environmental and community relations issues and responsibilities. The site inductions will address:
- obligations under TMGO environmental and social policy.
- site safety, environmental, and community relations guidelines.
- specific procedures concerning key environmental and social aspects.
- workforce management and social code of conduct requirements; and
- procedures for engaging environmental and community relations personnel in support roles.

Additional specific training and standard operating procedures will be provided to personnel involved in, among other things:

- operating equipment and conducting activities that may affect the environment or local communities.
- maintaining and operating pollution control equipment.
- storing and handling hazardous materials, and
- responding to environmental incidents (e.g., fuel spills).

Records will be retained of all persons being inducted, with all employees being required to undertake a re-induction periodically, as needed. Regular staff meetings will be held to provide personnel with updates on the information received at induction. These meetings will:

- emphasize the importance of conforming with Project environmental and social policy and its associated procedures.

- focus on topical environmental management issues and significant environmental and/or community relations issues, either actual or potential.
- include reporting on regular components of the ESMS environmental management and community relations program (such as water quality results or issues of concern to residents), other relevant issues, or updating of changes to site environmental requirements; and
- maximize face-to-face contact frequently between senior management and employees and promote internal communication.

Related document:
• Training Needs Matrix
• Training Programme
• Training Attendance Template
• Induction Material for Staff
• Induction Material for Contractors
• Induction Material for Visitors

6. EMERGENCY PREPAREDNESS AND RESPONSE PLAN

While TMGO recognizes that majority of accidents and emergencies are associated with project implementation and are site-specific; it also is aware that accidents and emergencies can occur within its internal operations. These could include traffic accidents involving TMGO staff, fire in the TMGO office building, and health emergencies in the office including but not limited to heart attack, stroke, fall, electric shock, etc. The Emergency Preparedness and Response Plan (EPRP) which is a stand-alone document and forms part of the ESMS family of instruments for TMGO is designed to focus on internal TMGO operations and all phases of project activities within the life of the Tulu Moye project.

It is designed to avoid (if possible) and minimize the potential for accidents and emergencies and to provide corrective actions or measures to address such incidents when they happen. All TMGO staff, consultants, contractors, and implementing entities that work with TMGO are responsible for ensuring compliance with the approved EPRP. The main contractor will have the responsibility for developing and implementing site-specific EPRP. TMGO E&S manager and drilling s will have the responsibility of reviewing and approving the contractor EPRP.

An emergency preparedness and response team comprising of health and safety personnel and environment officers from TMGO, contractors, and consultants and headed by the Chief Technical Officer, and TMGO E&S Manager will be set up. This team will be ultimately responsible for ensuring incidents or accidents and emergencies are identified early on, prepared for, and mitigated appropriately. Staff and stakeholder capacity, competence, and awareness for complying with the EPRP will be facilitated and led by this team. Review and revision of the plan will be done every year to reflect changing conditions.

An Emergency Preparedness and Response team will be trained to activate and implement the Project EPRP in reaction to on-site and off-site accidental releases or other environmental emergencies that may occur. Additionally, contractors performing work for the Project will be required to be appropriately trained and have ready access to equipment and supplies that would allow them to contain and control any accidental release until the arrival of the Emergency Preparedness and Response Team.

Related Documents
• Emergency Preparedness and Response Plan
• Training Programme
• Training Attendance Template
• Induction Material for Staff
• Induction Materials for visitors
• Incident Reporting forms

7. COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN

This section of the ESMS provides an overview of TMGO plans and commitments to provide ongoing opportunities for community and stakeholder engagement with the Tulu Moye Project, as well as with plans to advance sustainability initiatives during Project exploration, Construction, Operation, and through to Decommissioning phases. These plans and commitments are consistent with TMGO Environmental and Social Policy and commitments to working shoulder to shoulder with the community and stakeholder groups to achieve the responsible development of the Tulu Moye geothermal project and to contribute to the sustainable development of the communities around it.

The stakeholder Engagement Plan (SEP) is a critical element of the TMGO Environmental and Social Management System ESMS to ensure smooth implementation and sustainability of Tulu Moye project activities. TMGO acknowledges the importance of engaging with all stakeholders involved in its Tulu Moye project on an ongoing basis to ensure the smooth running of the project, buy-in from potential project beneficiaries and affected persons, and sustainability of its interventions. TMGO's stakeholder engagement plan is developed on the sound principles of transparency, fairness, equity, consensus building, continuous dialogue, and feedback.

The stakeholder engagement plan encompasses the following key elements, stakeholder mapping, engagement strategies, awareness creation among vulnerable groups, grievance redress mechanisms for affected communities, and disclosure of relevant project information.

7.1 Stakeholders Mapping

This will involve the identification of relevant stakeholders at all levels of the TMGO project including design, awards, and implementation. This will help access their level of interest or concerns on operations and projects, influence the outcome of project interventions, roles and responsibilities, and ways of engaging and managing expectations.

7.2 Stakeholders Consultation

Having buy-in and inputs from key stakeholders including beneficiaries and project-affected persons and communities early on in project design and implementation is key to ensuring the sustainability of the Tulu Moye project. TMGO will ensure all stakeholders are properly consulted, engaged, and involved were necessary at all stages of its operations and projects. Mechanisms for the ongoing process of engagement, information disclosure, and dissemination will be promoted within the life of the Tulu Moye project

7.3 External Communication and ongoing Reporting of Affected Communities

Communication with the community and other stakeholders shall be conducted following the Stakeholder Engagement Plan (SEP). The SEP sets out and defines a framework of standardized measures to be undertaken for proactively engaging and communicating with external Project stakeholders and to guide the strategies to engage with them according to their respective needs and interests. It is designed to demonstrate that TMGO will undertake consultation and participation that is meaningful, consistent, comprehensive, coordinated, and culturally appropriate in line with all the relevant legal and regulatory commitments including international good practice, and national and TMGO corporate requirements.

7.4 Grievance Redress Mechanism

The mechanism for receiving, documenting, addressing, and communicating to project-affected persons and communities will be established to guide operations and projects. TMGO will develop, publicize, and implement a Grievance Procedure that is described in the Stakeholder Engagement Plan (SEP). The Grievance Procedure describes how project-affected communities and persons can raise grievances regarding the project's activities. The Grievance Procedure addresses verbal or written grievances, which must include sufficient information about the complaint or claim so that a proper and informed evaluation of the grievance can be made. The grievance procedure also ensures that women and other vulnerable groups are consulted, and their grievances captured. When a grievance is filed, it will be logged and evaluated using the process outlined in the SEP. All grievances will be tracked for monitoring and reporting purposes and to ensure timely and proper resolution.

Related Document
Stakeholders Engagement Plan
Grievance/Concern forms
Grievance log

8. MANAGEMENT OF CHANGE

The Management of Change process provides the project team with an early warning of conditions that might affect one or more of the project activities.

All changes in legislation, scope and design, technology, operational procedure, Personnel, and suppliers' service offering could result in changes in EHSS risks. These risks need to be identified and assessed as part of the change management process. Also, the potential changes should be efficiently circulated throughout the project so that a positive and prompt response can be issued to the initiator of the change.

The early identification, communication, and management of change are the responsibility of all members of the project management team, Contractors, and Suppliers.

Each MOC shall include communication of changes to affected parties of the workforce. Affected Parties are those individuals (TMGO and contractor, sponsors, and lenders) who will have a role or responsibility or are otherwise impacted by the proposed change. The type of communication should be based on both the risk involved and the complexity of the change.

Related document
TMGO-ESMC-Pro-005: TMGO Management of Change Procedure

9. MONITORING AND REVIEW

Monitoring, reporting, and review of environmental and social management plans is a key component of TMGO ESMS. Environmental and social monitoring will be a normal component of project monitoring and evaluation. Project monitoring will be carried out to ensure mitigation measures as contained in approved project environmental and social management plans, health and safety plans, and resettlement policy framework are adequate, effective, and working.

Environmental and social performance monitoring will be mainstreamed in TMGO operations and all phases of the project cycle. To this end, environmental and social performance working groups comprising personnel from DRILLING AND CONSTRUCTION SUPERVISORS and work contractors will be established to provide Environmental and Social Performance oversight within the life of the Tulu Moye project. Templates and checklists are developed to monitor the effectiveness of the ESMS within the life of the project. Corrective actions will be developed to address instances of noncompliance.

Responsibility for monitoring project activities will be shared between contractors and their subcontractors, DRILLING AND CONSTRUCTION SUPERVISORS, H&S consultant, and TMGO Environmental and Social Management team. For infrastructure-type interventions, contractors and their sub-contractors will develop an internal monitoring and auditing system to monitor the

implementation of all approved environmental, social, health, and safety management plans and report to TMGO Environmental and Social Manager. The EPC/DRILLING AND CONSTRUCTION SUPERVISORS and contractors will complement the TMGO Environmental and Social team's effort in carrying out planned monitoring and site visits to verify the effectiveness of mitigation measures and together with the Environmental and Social team prescribe corrective measures for non-compliance situations.

Related document
TMGO-ESMA-Pro-004: TMGO E&S Monitoring and Audit Procedure

9.1 Non-Conformance Reporting

TMGO established, implemented, and maintain procedures for dealing with actual and potential non-conformities and for taking corrective action and preventive action. TMGO non-conformance procedure defines requirements for:

- identifying and correcting non-conformities and taking actions to mitigate their environmental effects.
- investigating non-conformities, determining their cause, and taking actions to avoid their recurrence.
- evaluating the need for actions to prevent non-conformities and implementing appropriate actions designed to avoid their occurrence.
- recording the results of corrective actions and preventive actions taken, and
- reviewing the effectiveness of corrective and preventive actions taken.

Actions taken will be appropriate to the magnitude of the problems and environmental and social effects encountered.

Related document
TMGO-ESNCP-002: TMGO E&S Non-Conformance Reporting and Corrective Action Procedure
TMGO-ESC-01: TMGO E&S Site Inspection Checklist

9.2 Reporting

Regular monthly reporting will be required of all contractors and their subs working on the Tulu Moye project. Reports will provide an auditable record of compliance with approved environmental and social management plans. Regular project reports will include separate sections on environmental and social performance. These sections will provide enough information on the status of the ESMP implementation for TMGO to effectively fulfill its oversight and performance monitoring role.

Related documents
TMGO-ESNCP-002: TMGO E&S Non-Conformance Reporting and Corrective Action Procedure

MONTHLY HS&E PERFORMANCE, Version 2.

9.3 Review of ESMS

The performance and effectiveness of TMGO ESMS will be measured against a set of indicators. Annual review and updates of the ESMS will be carried out by TMGO Environmental and Social staff based on experiences and lessons learned from the field of implementation.

9.4. Control of Records

TMGO will establish and maintain records as necessary to demonstrate conformity to the requirements of the ESMS and will establish, implement and maintain procedures for the identification, storage, protection, retrieval, retention, and disposal of records.

Appendixes

Action	Responsible Party	Timeline
Environment and Social Management System	TMGO	In Place
Policies Plans and Procedures		
Environmental and Social Policy	TMGO	In Place
Labor and working condition policy	TMGO	In place
Code of Conduct	TMGO	In Place
Health and Safety Procedure	TMGO	In Place
Local Resource Development Plan	TMGO	In Place
Community Investment Guideline	TMGO	In Place
Resettlement and livelihood restoration Plan	TMGO	In Place
Contractors Environmental and Social Performance Management Plan	TMGO	In Place
Labor grievance Management Procedure	TMGO	In Place
Labor and working condition procedure	TMGO	In Place
Site Health and Safety Plan	CONTRACTORS	In place for drilling. Prior to the start of the Construction
Site-Specific Environmental and Social Management Plans/ESMS/	CONTRACTORS	In place for drilling. Prior to the start of the Construction
Site-specific Traffic Safety Management Plan	CONTRACTORS	Drilling phase plan completed. Prior to the start of the EPC construction work.

Site-specific Emergency Preparedness and Response plan	CONTRACTOR	In place for drilling. Prior to the start of the EPC construction
Site-specific Hazardous Material and Waste Management Plan	CONTRACTORS	Plan completed for drilling. Prior to the start of the EPC Construction
Code of Conduct for site operation	DRILLING AND CONSTRUCTION SUPERVISORS & CONTRACTORS	Code in place for drilling. Prior to the start of Construction
Environmental Training and Induction tools	DRILLING AND CONSTRUCTION SUPERVISORS & CONTRACTORS Contractors/TMGO	In place for drilling. Prior to the start of the EPC contraction.
Employment and Training Plan	Contractor /TMGO	In place for drilling. Prior to the start of the EPC Construction
Local Procurement and Recruitment Plan	CONTRACTORS	In place for the drilling. Prior to the start of the Construction
Spill Prevention and containment Procedure	CONTRACTORS	In place for the drilling. Prior to the start of the Construction
Monitoring and Reporting Checklists	TMGO	In place for the drilling. Prior to the start of the Construction
Internal Monitoring and Auditing System	DRILLING AND CONSTRUCTION SUPERVISORS & CONTRACTORS, TMHO	In place for drilling. Prior to the start of the Construction

Site-Specific Closure Plan	DRILLING AND CONSTRUCTION SUPERVISORS & CONTRACTORS	Prior to work completion

Appendix 1: ESMS Implementation Plan

Appendix 2: Environnemental& Social Monitoring Action Plan

Environmental and Social Components	Parameters	KPI	Location or Number of Monitoring Sites	Monitoring Frequency	Sampling Technique	Report Type and Frequency	Reporting Responsibilities	Submitted
Air Quality	H2S	ACGIH Guidelines	At each site and the closest down gradient residence	Continuous (real-time)	Electrochemical sensor in a monitoring instrument	Monthly E&S Performance Report	TMGO E&S Manager Drilling, EPC/DRILLING AND CONSTRUCTION SUPERVISORS Contractor	TMGO/Regulatory body (MOWIE)
Noise	Leq dBA	IFC standards	Closest noise-sensitive receptors (e.g., residence), one location in nearby wildlife habitat and another in the nearest community	Initial one-week monitoring when drilling is at full operation and when steam flow testing is at full operation.	Calibrated sound level	Monthly E&S Performance Report	TMGO E&S Manager Drilling, Civil contractors, EPC/DRILLING AND CONSTRUCTION SUPERVISORS Contractors	TMGO/Regulatory body (MOWIE)
Soil	Soil Erosion and Contamination	No visible evidence of sediment leaving the Project site	Within construction area	Daily site inspection and audit reports	Inspection	Monthly E&S Performance Report	E&S Manager Civil /EPC/DRILLING AND CONSTRUCTION	TMGO/Regulatory body (MOWIE)

		Number and volume of spills					SUPERVISORS Contractors	
Wastes (drill mud and cuttings)	The volume of wastes spilled or improperly managed	The volume of drill mud spilled	Waste tracking and reporting on all waste amounts	Daily site inspections Audit reports	Daily site inspection and audit reports	Monthly E&S Performance Report	TMGO E&S Manager Drilling, EPC/DRILLING AND CONSTRUCTION SUPERVISORS Contractors	TMGO/Regulatory body (MOWIE)
Water resources	Surface water quality - pH, turbidity, conductivity, TDS, TSS, the principal elements found in the geothermal fluids, sulfate, and coliforms	No deterioration in water quality from present drinking water resources. WHO drinking water guidelines	Sampling from each water source used for community drinking water	Sample before starting construction activities to establish a baseline. Monthly throughout construction.	Hand-dipped sample	Monthly E&S Performance Report	TMGO E&S Manager Drilling, EPC/DRILLING, AND CONSTRUCTION SUPERVISORS Contractor	TMGO/Regulatory body (MOWIE)
	Surface water quantity	Maintain the minimum environmental flow required by the Government	Regular or continuous water level recordings at existing water resources	Continuous or days before and throughout construction	Water level recorder	Monthly E&S Performance Report	TMGO E&S Manager Drilling, EPC/DRILLING AND CONSTRUCTION	TMGO/Regulatory body (MOWIE)

							SUPERVISORS Contractors	
	Groundwater quality	WHO drinking water guidelines	The closest downgradient well or borehole drilled for Project water consumption	Before construction to establish a baseline and in response to any groundwater-related complaints	Monitoring wells	Monthly E&S Performance Report	TMGO E&S Manager Drilling, EPC/DRILLING AND CONSTRUCTION SUPERVISORS Contractor	TMGO/Regulatory body (MOWIE)
Biodiversity	Terrestrial Flora and fauna	100% Survival of translocated plants. Same for animals where feasible to monitor translocated individuals.	Translocation sites (to be determined based on species and habitat requirements)	Monthly for three months following translocation	Qualified biodiversity specialist	Monthly E&S Performance Report	TMGO E&S Manager Civil works contractors Drilling contractor EPC/DRILLING AND CONSTRUCTION SUPERVISORS	TMGO/Regulatory body (MOWIE)
	Red Listed bird breeds	No nest abandonment	Forest surrounding the pad sites	Monthly during the breeding season	Qualified biodiversity specialist	Monthly E&S Performance Report	TMGO E&S Manager	TMGO/Regulatory body (MOWIE)
	If surface water, then include Aquatic flora and fauna	No entrainment of aquatic organisms	Water intake	Monthly during water extraction	Visual inspection	Monthly E&S Performance Report	TMGO E&S Manager Civil works, DRILLING AND CONSTRUCTION	TMGO/Regulatory body (MOWIE)

							SUPERVISORS Contractor	
Displacement	Physical resettlement	Number and type of grievances regarding physical resettlement	NA	Ongoing throughout the resettlement process	Monthly meetings with physically resettled people	Monthly Environmental and Social Performance Report Annual summary report on the RAP progress Resettlement completion report	TMGO E&S Manager and Community Liaison Officer	TMGO/Regulatory body (MOWIE)
	Economic displacement	Income levels before and after displacement and performance of livelihood restoration strategies Number and type of grievances, regarding economic displacement	N/A	Formal quarterly engagement with and survey of local farmers impacted by economic displacement	Meetings /interviews with local farmers Submissions to the grievance mechanism	See monitoring for physical displacement above Quarterly report based on analysis of engagement with local farmers	TMGO E&S Manager and Community Liaison Officer	

Drilling and construction supervisors	Economic benefits	Number of local full time equivalent hires	N/A	Monthly	Track in payroll	Monthly Environmental and Social Performance Report	TMGDRILLING AND CONSTRUCTION SUPERVISOR SHS Manager Drilling Contractor	
	Impact	Number and type of grievances received from recreational users or guides	To be determined during the stakeholder engagement process	Monthly	Grievance Reports and CLO coordination with communities	Monthly Environmental and Social Performance Report	TMGO E&S Manager and Community Liaison Officer	TMGO/Regulatory body (MOWIE)