

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA



ETHIOPIAN ELECTRIC POWER (EEP)



ETHIOPIA RENEWABLE ENERGY GUARANTEE PROGRAM (REGREP)

Environmental and Social Management Framework (ESMF)

FINAL DRAFT



Environmental, Health, Safety and Quality (EHS&Q)

Ethiopian Electric Power (EEP)

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EXECUTIVE SUMMARY

The Federal Democratic Republic of Ethiopia (FDRE) has asked the World Bank to support Ethiopian Electric Power (EEP) in view of promoting private-sector development of power generation to increase the energy production and enhance capacity to deliver the additional power to the national grid and to regional customers.

The main reason, that makes the public sector turn to renewable energy projects through Independent Power Producers (IPP), is that the Government cannot afford the costs of such a large-scale project, and so it chooses to take advantage of the innovation, the know-how, the flexibility of private sector funding. The promotion of projects based on renewable energy has contributed not only to sustainable development, but also for economic growth, job creation; increased competitiveness of industry, rural development, reduction of imports and enhancement of gender equality.

Therefore, the development and construction of Ethiopia Renewable Energy Guarantee Program (REGREP) is through a coordinated, packaged, and largely standardized World Bank solution based on a template Public Private Partnership (PPP) transaction. At the core of the initiative is a set of standard documents (including a Power Purchase Agreement (PPA) and Government Support Agreement) that represent a balanced risk allocation which should be acceptable to all major stakeholders (i.e. government, the power purchaser, / grid operator, project sponsors, and lenders).

Currently, in consideration of exploitation the relatively abundant source of energy available to the country, EEP as a main counterpart institution is responsible to implement several programs of a power system development. Therefore, as a national multipurpose approach program EEP took Renewable Energy Guarantee Program (REGREP) that has been taken through a coordinated, packaged, and largely standardized joint World Bank solution based on a templated Public Private Partnership (PPP) transaction.

Since the specific projects under the program are not known with certainty during this time the project is being prepared for presentation to the Bank's Board of Executive Directors, Bank environmental assessment policy requires the borrower to prepare an Environmental and Social Management Framework (ESMF) that is to establish a mechanism for assessment of the environmental and social impacts of all projects under REGREP, and to set out in general the mitigation, monitoring and institutional measures to be taken during implementation and operation of the program to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. This ESMF therefore provides the expected guidelines and defines the procedures whereby environmental and social impact assessments (ESIAs) and eventually environmental and social management plans (ESMPs) will be prepared and implemented for each transaction under REGREP as may be required. This document follows Bank safeguards policies and the relevant Ethiopian environmental policies, laws, and regulations.

The rationale for preparing this ESMF

This ESMF is prepared to serve as a safeguard instrument to ensure that the environmental and social impacts of the REGREP are properly considered during project design and implementation. The ESMF guides designing of appropriate measures and plans to reduce; mitigate and/or offset adverse impacts and enhance positive outcomes including benefits for project beneficiaries and the environment.

Objective of the ESMF

The overall objective of producing the ESMF is to depict the general procedures and methodologies as a framework for the environmental and social impact consideration and management of the program components. The specific objectives of this framework are to:

- Identify generic potentially adverse environmental and social impacts and risks that may be encountered in the Project intervention and indicate the possible measures to avoid or minimize the predicted adverse



impacts in the project areas. Show the Client the types of interventions required (in general) so that the former can work towards capacity building to cope up with the upcoming work load

- Develop Environmental and Social Management and Monitoring Plan which, among others, constitutes the specific likely negative impacts, mitigation measure along with indicators to be monitored, specific responsible institutions and the required budget;
- To determine the capacity building components (including training and technical assistance) for the successful realization of the provisions stated in the Environmental and Social Management Framework; and, to indicate implementation strategies of the major issues outlined in the Environmental and Social Management Plan.

Program Location and Scope of ESMF

The proposed national program covers regions of Ethiopia which are studied to have immense power potential areas. The specific locations will be decided later, in consultation with the Regions/City Administrations and Ministry of Water, Irrigation and Energy. For this ESMF study, however, 9 major potential areas in five National Regional States of Ethiopia namely: Somali, Tigray, Oromia, Afar and Amhara as well as in one Federal City Administration i.e., Dire Dawa.

- | | |
|---------------------------------------|--|
| 1. Scaling solar project areas | Welenchiti, Gad, Metehara, Dichatu, Hurso, Mekele, Humera, Weranso, Metema |
| 2. Scaling Wind project areas | Hadigala, Tulu-guled, Gode, Dideya, Diredawa, Ayisha I, Iteya, Ayisha II, Debre Birhan |

Methodology

The ESMF is prepared in accordance with applicable Ethiopian Legislations and World Bank safeguard policies. Preparation of this ESMF utilizes both primary and secondary sources of data collection. The distinct methodologies adopted for the preparation of this ESMF include literature review, consultations and focal group discussions with key institutions, stakeholders, and beneficiaries; and site visits at the proposed project locations in the selected potential regions, zones and woredas.

Existing Policy, Legal and Administrative Frameworks

The ESMF deliberates both the Ethiopian and the World Bank (WB) legal documents and guidelines. The Constitution of the Federal Democratic Republic of Ethiopia (FDRE) has adequate provisions on environmental, social and aspects. Based on the Constitution, the Environmental Policy of Ethiopia, Energy policy of Ethiopia, National Social Protection of Ethiopia, Proclamations on Environmental Impact Assessment (EIA), Pollution Control, Land Expropriation and Compensation and others have been issued to strengthen the sporadic efforts of environmental protection in a coordinated and standardized manner.

The OP/BP 4.03 World Bank Performance Standards (PS) for Private Sector activities will be applied to each of the IPPs supported under REGREP. Based on the experience of similar IPPs, it is anticipated that each of the IPPs would be a Category 'B'. The proposed IPPs are expected to have limited environmental and social impacts, which are site-specific, temporary, and manageable. Those impacts can be avoided or mitigated by adhering to applicable performance standards, procedures, guidelines, and design criteria. The categorization is consistent with categorization of other similar projects within the energy sector.

AllPS's are assumed relevant i.e., PS1 Assessment and Management of Environmental and Social Risks and Impacts, PS 2 - Labor and working conditions, PS3- Resource Efficiency and Pollution Prevention PS 4 - Community Health, Safety, and Security, PS 5 - Land Acquisition and Involuntary Resettlement, PS6 – Biodiversity Conservation and Sustainable Management of living natural resources, PS7 – Indigenous people and PS8 - Cultural Heritage. Detailed assessment of PSs that may be relevant to specific site would be



determined during preparation. As relevant under Ethiopian laws and WB PSs, the IPPs will conduct Environmental and Social Impact Assessment (ESIA). The ESIA would cover relevant environmental and social regulations and the key aspects of the WB PS relevant to the project design, construction, operation, and decommissioning. IPPs will design and implement an Environmental and Social Management System (ESMS) for the construction and operations phase consistent with WB PS requirements. The System will define roles and responsibilities, and other necessary elements (manual of procedures) to enable all operations to comply with Ethiopian laws and WB PS. All IPPs to be engaged in the proposed Scaling Solar and Wind energy development, will be subject to thorough WB due diligence.

Baseline Environment

Ethiopia is sub-divided into nine Regional Administrations and two Metropolitan City Administrations under the Federal Government. However, the Regions do not have the same biophysical environment. The country has topographic and altitudinal diversity, different climate, vegetation, wildlife, geology, human settlement and occupation in different parts.

The target cities, towns, and project implementation sites where the project activities are planned to be undertaken have different topography and climatic conditions. An account of the existing biophysical and social environment conditions was gathered and discussed under the baseline information section of this ESMF and used to assess the potential environmental and social impacts that could be generated from the proposed projects activities under the program.

Description of Program Components

Scaling Solar Projects

Although, the scope of such projects in terms of capacity and land use is not defined yet in this ESMF the developers are allowed to offer crystalline (mono or poly) or thin film PV modules (amorphous silicon, CdTe or CIS/CIGS), centralized or decentralized inverter solutions and fixed tilt or tracking systems (single-axis or dual-axis). However, it must be noted that the power production technology is defined as conventional photovoltaics and will then not imply any sort of solar concentration technology such as CSP (Concentrated Solar Power) or CPV (Concentrator Photovoltaics). A photovoltaic system is designed to supply usable solar power by means of photovoltaics.

Wind Energy Development Project

Wind energy competes with other energy sources in terms of price, environmental effects and usability. With the exception of hydro power, wind energy is closer to commercial profitability than any of the other renewable sources, though improved project economy is a vital challenge for wind power.

Wind turbines convert the kinetic energy in the wind into mechanical power. This mechanical power can be used for specific tasks (such as grinding grain or pumping water) or a generator can convert this mechanical power into electricity to power homes, businesses, schools, and the like.

Anticipated Environmental and Social Impacts

The proposed national program (scaling solar and wind energy development) is envisaged to contribute for sustainable provision of renewable energy in the country. The actual implementation sites of various projects under this program are not yet known. In this regard, the potential impacts described in the ESMF document are those anticipated and indicative to serve as a guideline for a thorough assessment of environmental and social issues, and to develop broader relevant safeguards instrument (s) (such as Environmental and Social Management Plan (ESMP), Environmental and Social Impact Assessment (ESIA), Resettlement Policy Framework (RPF), Resettlement Action Plan/Abbreviated Resettlement Action Plan (RAP/ARAP), etc.

Given the nature and scale of the proposed projects under the REGREP and the respective activities over the



construction and operation phases, there will be both positive and negative impacts.

Overall, REGREP could bring benefits to community members residing nearby, industries and the environment by contributing to reduction of GHGs and pollutants, increases energy savings, and encourages the promotion of good environmental practices at all sectors. There may also be opportunities for enhancing employment opportunities for both women and men in communities living within and around the program areas. The program activities may involve the small construction for installation or replacement of energy efficient technologies and equipment that potentially contribute for environmental and social benefits. Therefore, the anticipated positive Environmental and Social impacts resulting from the implementation of REGREP will be paramount.

Conversely, adverse environmental and social impacts that could be generated to the nearby biophysical and social environment are expected to be limited. These may stem from ground disturbance due to installation of wind turbines and solar panels; noise, air and water pollution during installation storage, transportation, and distribution of solar panel and wind turbines, and aesthetic disturbance to the nearby community, acquisition of lands at various locations for the implementation of project related activities which can create resettlement issues. Moreover, other potential impacts during construction and operation period of new equipment and facilities may include health and safety issues; air emission, solid and liquid waste; of course, considered as at a lower amount or lesser pollution than those could be arisen from old technologies and equipment.

The potential environmental and social impacts of Solar and Wind Energy Program components were identified through reviewing relevant documents, comprehensive stakeholder consultation process, field investigations in selected regions/localities and similar project experiences.

Public consultation and Disclosure

During the preparation of this ESMF, different stakeholders were consulted, including beneficiaries, officials, and experts from different bureaus. The process was pertinent to gather their views on the implementation of the proposed program components and the associated benefits and impacts.

A series of stakeholder consultations were conducted during the preparation of ESMF. The consultations were round table and one-to-one discussions. Some of the stakeholders consulted during the period of ESMF preparation were:

- Somali regional state, Sity zone, Hdigala Woreda, Ayisha Woreda, Hurso Woreda, Gad Woreda
- Afar regional state, Didaya Woreda, Dichatu Woreda, Idar Woreda (Weranso Woreda)
- Oromia Regional State, Arusi zone, Hetosa Woreda (Iteya town)
- Tigray Regional State, KaftaHumora Woreda,
- Dire dawa City Administration,
- Semen Shewa Zone, Debre birhan town

It was also found out those key aspects of beneficiaries and experts on the day-to-day collaboration and networking for sound implementation of the program activities. The various meetings that were held with stakeholders and project beneficiaries provided prevailing program implementation challenges, capacity needs, and potential impacts of the program activities during implementation of solar and wind energy projects.

The government officials attending in the public consultation at various levels was very encouraging. The participants expressed their hope that the project will solve the electricity problem.

The World Bank performance standard 1 requires that the GoE and the World Bank disclose the ESMF and all the safeguard reports under this framework i.e., ESIA, RAP and ESMS, ESMP reports as a separate and stand-alone document. The ESMF is required to be approved and disclosed prior to appraisal according to Bank policies and normal procedures. The disclosure should be both in GoE where it can be accessed by the public, including affected groups and NGOs, the World Bank external website and EEP website.



Environmental and Social Management and Monitoring Plan

The general objective of the ESMP is to develop procedures and plans to ensure that the mitigation measures will be carried out during the preconstruction, construction, operation and decommissioning phases of the proposed REGREP.

The general objective of the ESMP is to develop procedures and plans to ensure that the mitigation measures will be carried out during the preconstruction, construction, operation and decommissioning phases of the proposed REGREP. Therefore, the ESMP should be prepared and adopted in the following approach:

- Examine the project in terms of its major activities and identify the aspects associated with the project construction which generate environmental impacts;
- Identify the environmental issues associated and develop mitigation measures with the major activities;
- Incorporate environmental mitigation measures into construction/installation and operation schedules and activities, develop corrective actions and ensure monitoring and develop site specific Environmental and Social Management Plans and procedures;
- Define the specific actions required, roles and responsibilities for these actions, timetable for implementation, and associated costs;
- Describe capacity building and training requirements for the implementation of the ESMP; and Define a proposed institutional structure to govern the implementation of the ESMP.

ESMP shall deal with the construction, operations, and decommissioning stage of the project.

Monitoring of ESMF could be continuous during project implementations or periodic review as annual monitoring/auditing to determine and guarantee the effectiveness of ESMF measures and procedures. Its purpose is to establish benchmarks so that the nature and magnitude of anticipated environmental and social impacts can be continually assessed ensuring the achievement of ESMF objectives.

The ESMF monitoring indicators that are used as a tool to monitor the program implementation include the following, but not limited to: Number of field appraisals conducted; Number of ESIA/ESMPs, A/RAPs and other instruments developed; Number of written warnings of violations of ESMPs issued to IPPs, and Contractors in case of non-compliances; Number of recommendations provided from the WB missions, annual review and monitoring and those recommendation that have been successfully implemented by the beginning of the following year; Number of chance find procedures for physical cultural resources invoked, if applicable; Number of IPP staffs, by sex, trained regarding the implementation of this ESMF and other safeguards instruments; and, Number of staff, by sex, drawn from different institutions at federal, regional and Woreda levels attending training course in ESMF, RPF, A/RAP, ESMP, ESIA, and other safeguards instruments.

Projects Screening, Appraisal, Approval and Implementation

The Government of Ethiopia (GOE) wishes to involve the private sector in the development, design, finance, procurement, construction, installation, ownership, operation, maintenance and insurance (together "Develop", and "Development" shall be construed accordingly) of solar and wind energy generation facilities.

The proposed program components (Scaling Solar and Wind energy development projects) are categorized as category 'B' according to the World Bank Safeguard screening criteria the Program activities/projects will most likely not require a full scale ESIA. However, Environmental and Social Assessment (ESA) is necessary for identification and development of measures aimed at avoiding, offsetting, and/or minimizing environmental and social impacts to levels that are acceptable during preparation, implementation, and operation of the proposed IPP transactions under REGREP.

The summary of steps identified with specific procedures to be followed and the responsible agencies for undertaking the requirement in this ESMF are;

After the preliminary project identification and or site potential study, EEP will secure land from the respective



regional government. Subsequently, IPP with the support from the EEP, National and Regional levels environmental and energy offices or woreda level administrations, as required undertake screening of proposed project activities. Depending on the type of projects and to ensure that all pertinent environmental and social issues are identified, desk appraisal will be conducted by the IPP.

IPP's will require submitting a report for safeguards screening/Initial Environmental Examination (IEE) results, and recommendations to MoWIE for further review, clearance, and approval. EEP review the screening report and facilitate the process to support IPPs to get in touch and linked with MoWIE. The World Bank will also review and provide comments and inputs to IPPs on the draft site-specific safeguards instruments (ESMP/ESIA). Incorporating the comments, IPPs will make recommendations and submit the ESIA/ESMP to MoWIE for final clearance and approval. After receiving the decision report from the MoWIE or Regional level environmental offices, IPP will compile the documentation comprises of the decisions on environmental and social safeguards screening for further processing of grant/loan effectiveness. Once the documentation is finalized, EEP will communicate with the Private Investors/IPPs/ to notify the effectiveness of the project implementation with all requirements during project implementations.

The EEP, MoWIE and Regional relevant offices (Energy and Environment) will carry out supervision and monitoring, in consultation with and support from the World Bank. Annual auditing and End-of-program evaluation is the responsibility of IPPs will be done by independent consultants or a joint team of experts from EEP and MoWIE, as required.

Roles and Responsibilities of Major Actors

Different institutions and stakeholders are responsible and play a role during the design and implementation of the solar and wind projects under the proposed REGREP.

- Ministry of Water, Irrigation, and Energy (MoWIE) is responsible to check and oversee the program activities compliance with the environmental and social safeguards policies of the country. In addition, the ministry will review the project ESIA, ESMP and other safeguards documents provide their comments and recommendations to be included in the final document before approval of the project.
- EEP would be responsible for ensuring that the IPPs adhere to the WB guidelines regarding fiduciary and safeguards management, results monitoring, sustainability, etc. and the office environment also ensures whether the IPP comply with the approved environmental and social management plan and undertaking the appropriate mitigation measures accordingly.
- Independent Power Producer (IPP) is the main responsible entity for the overall implementation of the project including preparation, construction, and operation activities. During preparation phase, IPP is also required to prepare the necessitated safeguards instruments, including ESIA, RAP and the corresponding implementation of mitigation and enhancement measures recommended in these safeguards documents (ESMS, ESIA, RAP and any other related tools).
- The Contractor and S/RE is responsible to incorporate environmental and social safeguards management measures stated under the project ESMP and implement them. In addition, the responsibility of Regional Governments and City Administration energy and environment offices, Woreda Administration, Authority for Research and Conservation of Cultural Heritage (ARCCH), the Community, Local NGOs working around the program implementation location are also discussed in the main document.

Monitoring, Annual Audit, Reporting, Public consultation plan and Submission of ESMF

ESMF monitoring will be a continuing process. Ministry of Water, Irrigation, and Energy (MoWIE) and EEP are responsible to check and oversee the program activities compliance with the environmental and social safeguards policies of the Program.

An independently commissioned environmental and social audit will be carried out on annually, as required and will be undertaken by external consultants. The reviews amongst other things will assess the performance of the



program activities against the procedures described in the ESMF document, the need for future training, and the implementation of environmental and social impacts of the scaling solar and wind energy development Projects under REGREP.

During the implementation of the program, reports mainly originate from the Supervision Engineer who is taking care of the day-to-day progress of the works. The Supervision Engineer will submit reports to the project office and the Environment and Social Office for their follow-up and review and comments. IPP will submit copies of reports to the EEP and MoWIE. The feedback of reports from project office and EHS & Q should be provided to the Supervision Engineer within the time stipulated in the contract document. EEP will also submit copies of reports to the WB.

Moreover, the World Bank performance standard requires that the GoE and the World Bank disclose the all the safeguard reports i.e., ESIA, RAP and ESMS, ESMP reports to make available for the affected communities and interested stakeholders. Therefore, they required to be approved and disclosed priority to appraisal according to Bank policies and normal procedures. The disclosure should be both in IPP, EEP and if necessary MoWIE's website and other relevant site where it can be accessed by the public, including affected groups and NGOs and the World Bank external website.

Capacity Building

The suggestions on training and capacity development requirements are based on the recent observations on similar power projects e.g., Adama wind II, and consultations during the field visits, which was conducted as part of the preparation of this ESMF. The document sets out training and capacity building program that is required to support the implementation of this ESMF. It states the detail training and capacity development requirements for EEP and MoWIE staffs and other regional and Woreda level implementing parties, who will be directly or indirectly engaged in the proposed REGREP.

Feedback and Grievance Mechanism

Grievance redressing mechanism is designed in view of the fact that REGREP activities may upset the existing balance in society. The resettlement operation will touch upon property issues, means of livelihood, and organization of social and spatial aspects that influence proximity to a set of environmental, economic, social, and spiritual assets. Therefore, the grievance redressing system has been designed in such a way that it functions in a flexible manner and the implementing agency must incline to a pro-poor approach in all its decisions. The GRM will have a working place and adequate budget for implementation.

A local Grievance Redress Committee (GRC) will be established, consisting of representatives from PAPs, EEP representative, representative of the IPP, representative from City Municipality/ Woreda/ Kebele Administration, Woreda Justice Office, elders or influential personalities other than the displaced persons, and the Church/Mosque Administration. The Committee will be headed by City/Woreda Administrator.

Budget Requirement for ESMF Implementation

A total amount of USD **250,740.00**(Two Hundred fifty Thousand Seven Hundred forty) is budgeted for the implementation of this ESMF. EEP will cover the implementation budget of this ESMF.



1 INTRODUCTION

1.1. General Background

Ethiopia is one of the largest country in East Africa, which the country's economy is based on traditional agriculture that represented the overall economic base is considerably weak. In recent years, the country has implemented a development strategy centring on economic construction with agricultural and infrastructure construction as driving force for the purposes of transition to market economy and speedup the economic restoration. In this regard, the country become one of the fastest growing registered in the world. Despite this progress, Ethiopia still has some of the lowest gender equality indicators in Sub-Saharan Africa.

The process of decentralized development is likely to generate new and widely dispersed economic hot-spots with aggressive demand for power leading to the inevitable limitations of the available energy supply pattern particularly electric power energy generation, transmission and distribution systems.

Although the installed capacity of the Ethiopian power network relying on hydroelectric resources has witnessed a dramatic growth i.e., 1,939 MW from the existing hydro power plants, 324 MW of wind power plants, 7.3 MW of geothermal power plants and 88 MW from standby diesel power plants, the demand for electricity is believed to grow sharply as a result of exercising several policies and strategies in increasing the wellbeing of the nation including Agricultural led Economic Growth Policy, Rural Development strategies, Industrial Development Strategies Water Harvest and Resettlement Programs.

Today, Ethiopia relies on hydroelectric power to provide approximately 90 percent of its electrical energy. In recent decades, Ethiopia has experienced more frequent climatic extremes, which has had a direct impact on power production from its hydro plants. As water levels fluctuate due to changes in rainfall level and increased silting of and evaporation from reservoirs, the electricity generated from hydro resources fluctuates which leads to power shortages, particularly in the dry season. Also, the resulting variations in energy output lead to unwanted uncertainty. Consequently, the above facts call for the commitment of the GoE to expand and diversify its electric power generation resource mix as the establishment of mitigations to address these risks, and this is in the process of adding wind, geothermal and solar resources.

Since, under GTP II about 17,000MW of power is expected to be generated by the end of 2020 to address the growing electricity demand in the country. More than 13,000 of 17,000 MW are planned to be developed through public private partnership modality. This is comprised of, 3,820 MW hydro, 500 MW geothermal, 3,600MW wind and 5,200MW solar energy. Therefore, based on GTP II national Plan, EEP has planned to start development of solar projects on the PPP based initiative with Metehara Solar Project. Later, with the involvement of the WBG, additional initiatives has been observed to scale up other potential sites that are identified by the GOE to enhance and develop renewable energy projects i.e., Wind and Solar in case of REGREP.

The GoE requested a support the World Bank to promote the private-sector in power generation that contributes to improve the energy production in the country and enhance capacity to deliver the additional power to the national grid and to regional customers.

Therefore, the development and construction of projects under REGREP is through a coordinated, packaged, and largely standardized World Bank solution based on a template Public Private Partnership (PPP) transaction. At the core of the initiative is a set of standard documents (including a Power Purchase Agreement (PPA) and Government Support Agreement) that represent a balanced risk allocation which should be acceptable to all major stakeholders (i.e. government, the power purchaser, / grid operator, project sponsors, and lenders).

Currently, in consideration of exploitation the relatively abundant source of energy available to the country, Ethiopian Electric Power (EEP) as power Development Company is responsible to implement several power system development programs. Therefore, as a national program EEP initiated the REGREP that has been taken through a coordinated, packaged, and largely standardized joint World Bank solution based on a templated



Public Private Partnership (PPP) transaction.

Since the specific projects under the program are not known with certainty during this time the project is being prepared for presentation to the Bank's Board of Executive Directors, Bank environmental assessment policy requires the borrower to prepare an Environmental and Social Management Framework (ESMF) that is to establish a mechanism for assessment of the environmental and social impacts of all projects under REGREP, and to set out in general the mitigation, monitoring and institutional measures to be taken during implementation and operation of the program to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. This ESMF therefore provides the expected guidelines and defines the procedures whereby environmental and social impact assessments (ESIAs) and eventually environmental and social management plans (ESMPs) will be prepared and implemented for each project of the REGREP as may be required. This document is in compliance with Bank safeguards policies and the relevant Ethiopian environmental policies, laws, and regulations.

Furthermore, the EEP has also prepared a Resettlement Policy Framework (RPF) to address the needs of those who might be affected when the program is supported by the Bank causes the involuntary taking of land and other assets resulting in: (a) relocation or loss of shelter, (b) loss of assets or access to assets (c) loss of income sources or means of livelihoods, whether or not the affected person must move to another location. The RPF has been prepared as a separate, stand-alone document.

The EEP is further required to disclose both documents (the ESMF and the RPF) in-country as two separate draft documents so that they are accessible by the public, local communities, potential program-affected groups, local NGOs and all other stakeholders. They will also be disclosed in the World Bank's external web site. The date for the disclosure of these documents will precede the date for appraisal of the investment program. Stakeholders have been consulted during preparation of the ESMF and RPF and will have an opportunity to review and comment on the drafts. The final versions of both documents will be disclosed at the same locations and will include summaries of the consultations, the comments and suggestions received, and their disposition.

1.2. The Rationale for ESMF

The construction and operation of the proposed projects under this program are expected to bring several significant positive environmental and socio-economic benefits to the Project area of influence as well as to the nation at large. The Program will enhance economic and social developments along the corridor of the Project area and these developments will likely to lead to a much-improved quality of life for local communities.

This ESMF is prepared to serve as a guideline to ensure that the environmental and social impacts of the REGREP are properly considered during program design and implementation. The ESMF guides designing of appropriate measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive outcomes including benefits for program beneficiaries and the environment. This ESMF thus provides a comprehensive framework on how to address potential adverse social and environmental impacts associated with the energy sector projects under the REGREP.

After undertaking appropriate assessments into the likely social and environmental impacts of the REGREP, the ESMF has proposed relevant mitigation and enhancement measures and strategies to be considered during the program activity design and implementation. Additionally, the framework stipulates mechanisms for screening, management and monitoring of the likely environmental and social impacts that may emanate from the program activities at the implementation phase.

The overall goal of the ESMF is to ensure that decision making in subsequent stages of the program is informed and influenced by environmental and social considerations for the implementation of each projects under the program. It aims also to integrate environmental and social concerns into the project's design and implementation and to exclude any Category A (high impact) project investment under this program. The main purposes of the ESMF are to:



- establish clear procedures and methodologies for the environmental and social planning, review, approval and implementation of projects to be financed under the Program;
- Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to programs;
- determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF;
- Establish the Program funding required to implement the ESMF requirements; and
- Provide practical information resources for implementing the ESMF.

1.3. Objective of the ESMF

The general objective of producing the ESMF is to depict the common procedures and methodologies as a framework for environmental and social impact consideration and management of the project components under the program. The specific objectives of this framework are to:

- Identify generic potentially adverse environmental and social impacts and risks that may be encountered in the Program intervention and indicate the possible mitigation measures to avoid or minimize the predicted adverse impacts in the program areas.
- Develop Environmental and Social Management and Monitoring Plan which, among others, constitutes the specific likely negative impacts, mitigation measure along with indicators to be monitored, specific responsible institutions and the required budget;
- To determine the capacity building components (including training and technical assistance) and indicate implementation strategies for the successful realization of the provisions stated in the Environmental and Social Management Framework;
- Ensure equitable benefits and mitigation measures to ensure gaps between women and men are not aggravated through the development of the program interventions.

1.4. Scope of the ESMF

The REGREP covers the nine regions of Ethiopia as well as Dire Dawa city administrations in which the specific locations will be decided later in consultation with the Regions/City Administrations and Ministry of Water, Irrigation and Energy. Cognizant of the proposed program activities, the respective adverse impacts, and the need for safeguards instruments to enhance positive impacts and avoid/minimize/mitigate the anticipated adverse impacts, the assignment is to prepare Environmental and Social Management Framework (ESMF).

As stated above, the purpose of the Environmental and Social Management Framework (ESMF) is to clarify the policies, principles, and procedures that will govern the mitigation of adverse environmental and social impacts caused by both scaling solar and wind energy projects/

Therefore, this ESMF first set out the principles, laws, regulations, guidelines, and procedures to assess the environmental and social impacts related to the Scaling Solar and wind energy development project. It analyses the environmental and social policies and legal requirements of the Government of Ethiopia and safeguard policies of the World Bank and ensures that environmental and social issues are dealt with in a proper and efficient manner meeting all the compliance requirements of the Government of the Ethiopia and the World Bank.

1.5. Program Components

The umbrella program incorporates two major components. These are

- Scaling Solar project and
- Scaling Wind project.

The national Scaling Solar project under the program aims to enable rapid roll out of competitively priced,



utility-scale solar photovoltaic (PV) power as a national country program. In addition, the “Growth and Transformation Plan” incorporates the development of renewable energy inclusive of wind energy into national energy strategy. Wind energy development is essential for guaranteeing energy security and realizing energy diversification; and help effectively optimizing grid structure and power source distribution.

1.6. Program Location

This national program will cover regions of Ethiopia which are studied to have immense power potential areas. Although the specific locations will be decided later in consultation with the Regions/City Administrations and Ministry of Water, Irrigation and Energy, for this specific task, however, 9 major potential areas for each program components i.e., wind and solar projects are mentioned below as an indicative sample based potential implementation locations. These are:

Table 1-1: Major potential areas for each program

| No | Scaling solar project areas | Wind energy development program areas |
|----|-----------------------------|---------------------------------------|
| 1 | Metehara | Hdigala |
| 2 | Welenchiti | Tulu-guled |
| 3 | Gad | Gode |
| 4 | Dichatu | Dideya |
| 5 | Hurso | Diredawa |
| 6 | Mekele | Ayisha I |
| 7 | Humera | Iteya |
| 8 | Weranso | Ayisha II |
| 9 | Metema | Debrebirhan |

The above mentioned potential projects implementation locations are found in five regional states of Ethiopia i.e., Somali, Afar, Oromia, Amhara, Tigray Regional States and one Federal City Administration i.e., Dire Dawa.

1.7. Methodology

The ESMF is prepared in accordance with applicable Ethiopian Legislations and World Bank safeguard policies. During the preparation of this ESMF both primary and secondary sources were collected, collated, analyzed, and discussed. The distinct methodologies adopted for the preparation of this ESMF include literature review; consultations and focal group discussions with key institutions, stakeholders, and beneficiaries; and site visits at the proposed program locations in the selected potential regions, zones, and woredas. An account of the existing biophysical and social environment conditions was gathered and discussed under the baseline information section of this ESMF and used to assess the potential environmental and social impacts that generated from the



proposed programs activities. Consultations with various stakeholders have been conducted and the outcomes of the consultations are discussed under public consultation section (Section 5) and list of participants and minutes of meeting are attached in annexes 12 and 13.

- **Literature Review**

The Review of the existing baseline information sources and relevant literatures were carried out for deeper understanding of the proposed program components and/or program activities. Among others, the GoE's policies and legal framework and World Bank environmental and social safeguards policies and procedures, similar project ESMF documents and Bank's Project Appraisal Documents (PAD) and other relevant published and unpublished literatures were reviewed.

- **Field visit**

The Environment and Social office of EEP has deployed six teams, each with two experts, to carry out site survey and data collection. This was done between 3rd to 15th of May 2018 at five Regional State and one City Administration (see table 1.2) where the future potential sites for proposed Renewable Energy Guarantee Program (REGREP) implementation identified.

Table 1-2: List of visited sites for the proposed projects under the program

| No. | Regional State | List of zones and woredas |
|-----|-------------------------------|---|
| 1 | Somali Regional State | Silty Zone, and Hdigala, Ayisha, Hurso, Gad Woredas |
| 2 | Afar Regional State | Didaya, Dichatu, Idar (Weranso) Woredas |
| 3 | Oromia Regional State | Arisi Zone, and Hetosa Woreda (Iteya town) |
| 4 | Tigray Regional State | Kafta Humora Woreda, |
| 5 | Amhara Regional State | Semen Shewa Zone, Debrebirhan town |
| 6 | Dire-dawa City Administration | |

The field surveys enabled the team to identify the environmental and social settings of the proposed projects area under the REGREP and identify some of the existing conditions and potential bottlenecks at the time of the implementation of the program components (Scaling Solar and scaling wind). In addition, the site visits allowed EEP E&S experts to conduct consultations with various regional, zonal and woreda levels stakeholders, program beneficiaries and affected people. During the consultation process, the team obtained an opportunity to hear stakeholders' views and opinions about the proposed program's positive and adverse impacts during construction and operation phases of the program components.

- **Stakeholder Consultations**

A series of stakeholder consultations have been carried out with key resource persons, beneficiaries, institutions at the national, regional, and local level between 3rd of April to 15th of May 2018. The discussions were conducted and facilitated by E&S experts from EEP. A total of 154 people i.e., 37 from Somali regional state (Hadigala 14, Erer 14, Ayisha 6 woredas; and 3 city zone) 7 from Dire dawa, 25 from Amhara regional state (Semen Shewa Zone 17 and Debre Birhan city administration 8) 33 from Afar Regional State (Regional administration 8, Weranso Wereda 9 and Elidar kebele 16) 18 from Oromia (from City administration 7 and Hitosa Woreda 12) and 34 from Tigray Region (Kafta Humora 12 and Hintalo Wejirat woreda 22) were consulted.



A list of consulted stakeholders is depicted in annex 12. The summary concerns and views raised by participants are depicted in section 5 of this ESMF. Some of the consultations were round table and focus group discussions. During these sessions, the major objectives of the program have been presented by the team and various information including the likely positive and negative impacts and the respective mitigation measures thoroughly discuss by the participants.

2. DESCRIPTION OF THE PROGRAMS

2.1 Multiphase Programmatic Approach

2.1.1 Rationale for using MPA come to an understanding

The Ethiopia renewable IPP guarantee program and similar cases provided part of the rationale for the World Bank’s Board approval of the MPA, offering a more efficient and agile solution for approval and documentation.¹ The MPA aims to offer a clearly understood procedure for approving subsequent phases for cases such as these, with streamlined documentation and approval, allowing a much more efficient and agile response to private sector investors.

Given the long list of IPP transactions (see Table 3-1) that are being considered for Guarantee support, the MPA is the optimal mechanism for channeling World Bank support to the IPP Program.

2.1.2 Program Results Chain

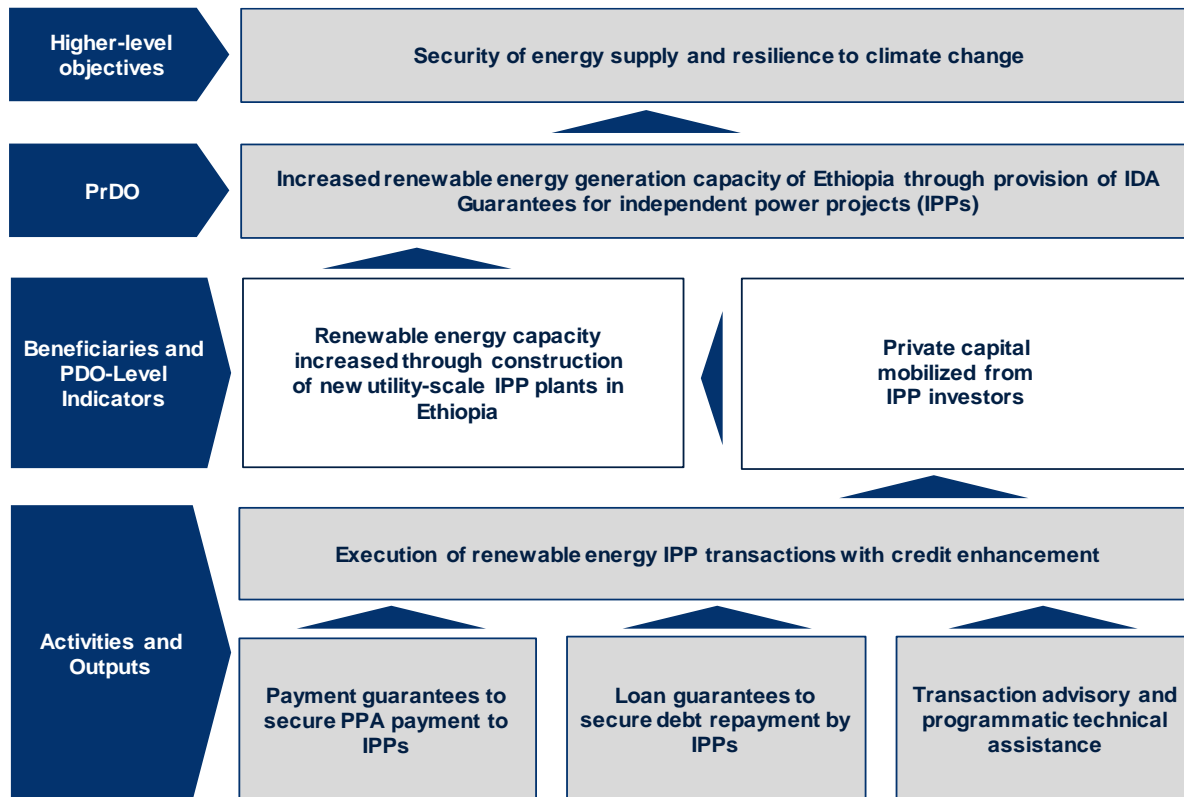


Figure 2-1: Results chain of REGREP program

2.1.3 Program Development Objective (PrDO)

¹ The World Bank, Multiphase Programmatic Approach; OPCS Board Paper; July 2017 (p. 16).



The proposed program will support increased renewable energy generation capacity of Ethiopia through provision of IDA Guarantees for independent power projects (IPPs). REGREP would support initially one frontrunner IPP transactions (Metehara) with a total generation capacity of 100 MW. The front-runner transactions are likely going to use up about US\$30 million from the US\$200 million allocated under REGREP.

To accommodate various possible risk mitigation needs with the solar IPPs, the proposed REGREP would offer two types of guarantee instruments: (i) payment guarantees, and (ii) loan guarantees. Under the Scaling Solar Initiative, EEP is required to provide a security of an amount to be agreed with the GoE but expected to be up to [6 months] of ongoing payments under the respective PPA. EEP would have to issue such security to each of the planned solar IPPs. The loan guarantee would be offered to commercial banks extending debt finance to the IPPs. Figure 3-6 illustrates the potential guarantee structures and related legal agreements.

The program draws on the Scaling Solar platform, but participation in Scaling Solar is not a prerequisite to qualify for the guarantee program. Scaling Solar brings together a suite of World Bank (IDA, IBRD), IFC, and MIGA services and instruments under a single engagement aimed at creating viable markets for grid connected solar PV power plants. As part of the Scaling Solar initiative’s original design, IFC Advisory Services supports governments in preparing a competitive and transparent solar auction based on template documents and processes. Based on the bid package, IFC Investment Services, IDA/IBRD and MIGA then provide term sheets for financing, guarantees, and political risk insurance, respectively. Bidders can decide to use none, a combination, or all these WB instruments. Bidders that meet the technical and financial criteria are then ranked based on the offered tariff.

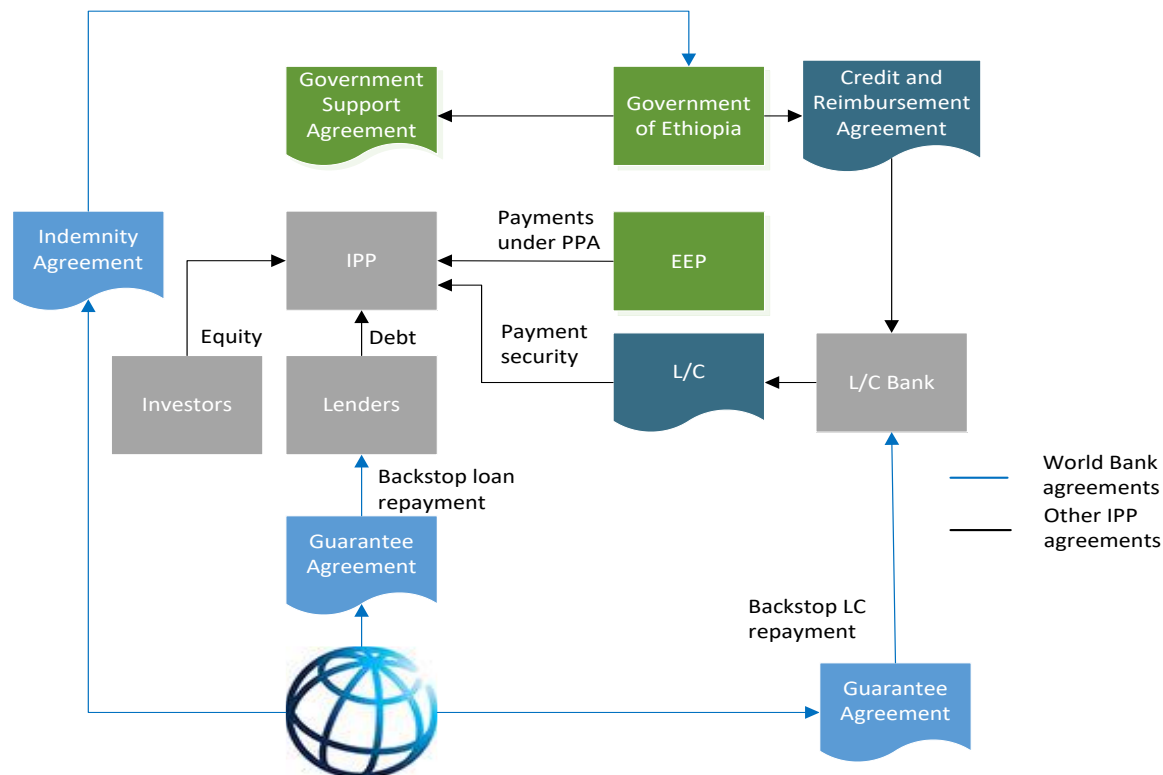


Figure 2-2: Illustration of Possible Guarantee Structures and Related Agreements

Source: World Bank Financial Solutions Group.



2.2 Program Components

2.2.1 Scaling solar projects

Although, the scope of such projects in terms of capacity and land use is not defined yet in this ESMF, the bidders are allowed to offer crystalline (mono or poly) or thin film PV modules (amorphous silicon, CdTe or CIS/CIGS), centralized or decentralized inverter solutions and fixed tilt or tracking systems (single-axis or dual-axis). However, it must be noted that the power production technology is defined as conventional photovoltaics and will then not imply any sort of solar concentration technology such as CSP (Concentrated Solar Power) or CPV (Concentrator Photovoltaics).

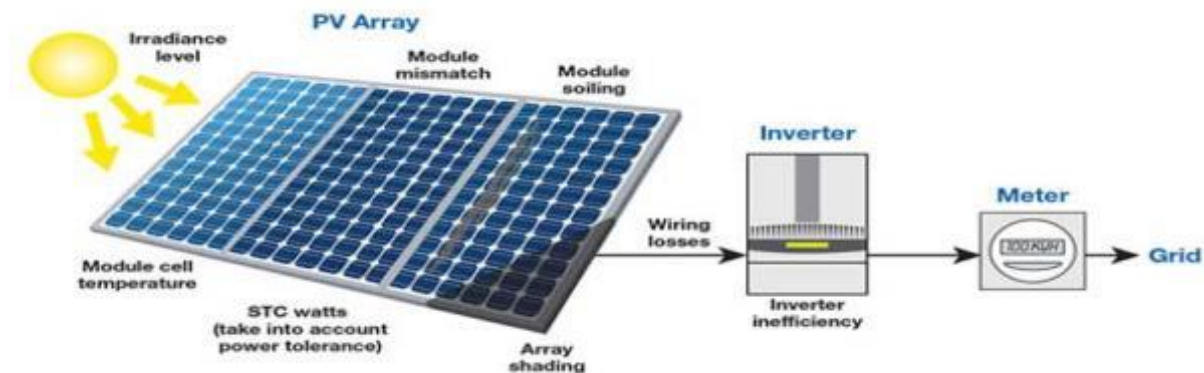


Figure 2-3: Simple photovoltaic system

2.2.1.1 Mounting system

PV modules are mounted on structures made of aluminum or hot-dip galvanized steel. All PV mounting structure will be of the same type. Conceptual fastening to the ground will be one of the three following propositions:

- Founding on a small footing (depth approximately 1.0 m) with a cable anchor system.
- Founding on the larger footings.
- Founding by pre-drilled grouted piles (depth approximately 2.0 m) with cement grout.

2.2.1.2 PV modules

PV modules absorb the sun's rays as a source of energy to generate electricity. Each PV module is rated by its DC output under STC (Standard Test Conditions). The test conditions are defined as follows - irradiation: 1000 W/m², temperature: 25°C, AM: 1,5 (AM stands for Air Mass, the thickness of the atmosphere). The DC output under STC (rated in Watt Peak - Wp) typically ranges from approximately 100 Wp (thin film technology) to 350 Wp (monocrystalline technology) for utility-scale PV power plants.

PV modules are connected in series (called "strings" of modules) in order to obtain the right input voltage of the inverter. Input and output DC cables (+/-) of the modules are pre-mounted with connectors so that the installation is made on a "plug-and-play" principle. Strings voltage can reach up to 1,500 VDC.

2.2.1.3 Inverters

Inverters convert the DC current produced by PV modules to grid-exploitable AC current (three-phase 400 V at utility frequency). They typically range from approximately 20 kVA (decentralized) up to 2,500 kVA (centralized inverters). Inverters are central components in the communication with the SCADA system, since



they monitor the strings operation. PV inverters also have special functions like maximum power point tracking or anti-islanding protection.

2.2.1.4 Transformers

Transformers will convert LV (400 V) from the inverters to MV (33 kV) for connection to the substation.

2.2.1.5 Grid connection

The connection and feed-in point to the utility national electrical grid will be located along the existing 400/230/132 kV single-circuit transmission line, approx.

2.2.1.6 Substation

A new substation will be designed, constructed, tested and commissioned by the IPP inside the allocated land for the project. The substation will thereafter be owned and operated by EEP. The delivery point (ownership and operational boundary) will be the EEP isolator located between the facility's MV/HV power transformer and the HV busbar.

2.2.1.7 Transmission Line

EEP will be responsible to construct transmission line to connect the PV power plant to the interconnection point. If there is interconnection to the existing line, it will be made by a loop-in/loop-out (LILO) arrangement.

Therefore, EEP is required to undertake a site specific environment and social safeguard studies i.e., ESIA and RAP according to the national laws and the WB operational policies.

2.2.1.8 Supervisory control and data acquisition (SCADA) system

The SCADA system (or monitoring system) acquires data from the PV power plant and store it in a database. The system includes data logger acquiring parameters from several components of the plant like inverters, meters and meteorological sensors measuring temperature (ambient and on the back side of the PV modules), irradiation and wind speed. The SCADA system is a key tool for the Operation and Maintenance of the plant. It intends to maximize production of energy, improve the plant's availability and consequently allows for early detection of equipment malfunction and failure.

Given the size of the project and the land covered, and in order to obtain accurate data, several meteorological stations will be installed in different areas of the PV power plant.

2.2.1.9 Infrastructure

The project will include internal access roads to the different parts of the plant, fencing of the site as well as a CCTV system. Different light buildings will also be built like an operation and administration center, security posts, storage place for spare parts and different commodities for the O&M teams (toilets, break room, etc.).

2.2.2 Scaling Wind Project

The terms "wind energy" or "wind power" describe the process by which the wind is used to generate mechanical power or electricity. Wind turbines convert the kinetic energy in the wind into mechanical power. Wind energy is a relatively mature technology. It competes with other energy sources in terms of price, environmental effects and usability. With the exception of hydro power, wind energy is closer to commercial profitability than any of the other renewable sources, though improved project economy is a vital challenge for wind energy (Reiche and Bechnerger, 2004).

2.2.2.1 Wind Turbine Types

Modern wind turbines fall into two basic groups; the **horizontal-axis** variety, like the traditional farm windmills used for pumping water, and the **vertical-axis** design, like the eggbeater-style Darrieus model, named after its French inventor. Most large modern wind turbines are horizontal-axis turbines.



2.2.2.2 Turbine Components

Horizontal turbine components include: blade or rotor, which converts the energy in the wind to rotational shaft energy; a drive train, usually including a gearbox and a generator; a tower that supports the rotor and drive train; and other equipment, including controls, electrical cables, ground support equipment, and interconnection equipment.

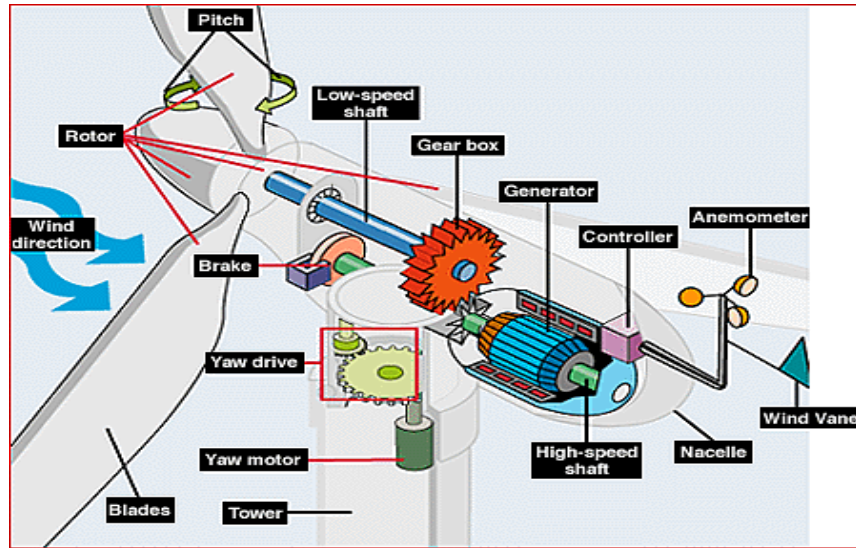


Figure 2-4: Typical Wind turbine components (Source: NREL)

Wind turbines are often grouped together into a single wind energy plant, also known as a wind farm, and generate bulk electrical power. Electricity from these turbines is fed into a utility grid and distributed to customers, just as with conventional power plants.

2.2.2.3 Wind Turbine Size and Power Ratings

Wind turbines are available in a variety of sizes, and therefore power ratings. The largest machine has blades that span more than the length of a football field, stands 20 building stories high, and produces enough electricity to power 1,400 homes. A small home-sized wind machine has rotors between 8 and 25 feet in diameter and stands upwards of 30 feet and can supply the power needs of an all-electric home or small business. Utility-scale turbines range in size from 50 to 750 kilowatts. Single small turbines, below 50 kilowatts, are used for homes, telecommunications dishes, or water pumping.

2.2.2.4 Construction Sequence/Associated facilities

Various associated facilities will be carried out during construction phase. Some of these facilities are Access Roads; Foundations (Tower Pier Foundation with Spread footer); Electrical Collector System; Wind Turbine Generator – Tower – Setting the generator – Rotor assembly (about 80-meter turbine tower is composed of four cylindrical steel sections); The four tower sections are typically unloaded adjacent to each wind turbine foundation to minimize handling of these heavy steel components. Each tower section weighs between 35 and 50 tons. The lower tower section is set first. A flange on the bottom of this 15' diameter section allows it to be bolted to the top of the foundation pedestal. The following pictures are depicted the typical activities of installation of wind power.

**Figure 2-5: Typical Tower erection****Figure 2-6: Typical Collector Substation**

2.2.3 Program Beneficiaries

Direct beneficiaries. The direct beneficiaries are (i) EEP, as the proposed REGREP will help support sustainable financing mechanisms for energy infrastructure development, assist in optimizing hydropower use (balancing the risks of climatic and hydrological variability), and contribute to an increase in needed energy generation capacity; (ii) IPP investors, who will benefit from the IDA payment guarantee; and (iii) the commercial banks extending debt finance to IPPs covered under the IDA loan guarantee, as applicable. The electricity consumers of Ethiopia also benefit, as the new power plants will contribute to improved electricity supply, assist in reducing load shedding, thus increasing the reliability and security of electricity supply.

Indirect beneficiaries. The wider economy is expected to benefit as the proposed REGREP will also help attracting private capital to diversify the generation mix, thereby supporting the GoE's efforts to limit the public debt burden and improve sector financial sustainability. Finally, the Project introduces a structured framework for the transparent and competitive procurement of new generation with competitive costs and technology benefits.



3 EXISTING POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORKS

3.1 Ethiopia's Relevant Policy and Legal Frameworks

3.1.1 The FDRE constitution

The Federal Democratic Republic of Ethiopia Constitution issued in August 1995 has several provisions, which have direct policy, legal and institutional relevance for the appropriate implementation of environmental protection and rehabilitation action plans to avoid, mitigate, or compensate the adverse effects of development actions. Article 40 of the constitution proclaims that land and natural resources are commonly owned by the people of Ethiopia and shall not be subject to sale or other means of exchange. Also, Articles 43, 44 and 92 of the Constitution specifically deal with the right to development, environmental rights, and environmental objectives respectively, and some of the main provisions are listed as follows.

Article 35- Rights of Women

- The historical legacy of inequality and discrimination suffered by women in Ethiopia considered, women, to remedy this legacy, are entitled to affirmative measures. The purpose of such measures shall be to provide special attention to women so as to enable them to compete and participate on the basis of equality with men in political, social, and economic life as well as in public and private institutions.
- Women have the right to full consultation in the formulation of national development policies, the designing, and execution of projects, and particularly in the case of projects affecting the interests of women.
- Women have the right to acquire, administer, control, use and transfer property. In particular, they have equal rights with men with respect to use, transfer, administration, and control of land. They shall also enjoy equal treatment in the inheritance of property.
- Women shall have a right to equality in employment, promotion, pay, and the transfer of pension entitlements.

Article 37- Right of Access to Justice

- Everyone has the right to bring a justifiable matter to, and to obtain a decision or judgment by, a court of law or any other competent body with judicial power.

Article 39- Rights of Nations, Nationalities, and Peoples

- Every Nation, Nationality, and People in Ethiopia has the right to a full measure of self-government which includes the right to establish institutions of government in the territory that it inhabits and to equitable representation in State and Federal Governments.

Article 40- The Right to Property

- "Private property", for the purpose of this Article, shall mean any tangible or intangible product which has value and is produced by the labor, creativity, enterprise, or capital of an individual citizen, associations which enjoy juridical personality under the law, or in appropriate circumstances by communities specifically empowered by law to own property in common.
- The right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities, and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange.
- Ethiopian peasants have right to obtain land without payment and the protection against eviction from their possession. The implementation of this provision shall be specified by law.
- Ethiopian pastoralists have the right to free land for grazing and cultivation as well as the right not to be displaced from their own lands. The implementation shall be specified by law.
- Every Ethiopian shall have the full right to the immovable property he builds and to the permanent



improvements he brings about on the land by his labor or capital. This right shall include the right to alienate, to bequeath, and, where the right of use expires, to remove his property, transfer his title, or claim compensation for it. Particulars shall be determined by law.

- Without prejudice to the right to private property, the government may expropriate private property for public purposes subject to payment in advance of compensation commensurate to the value of the property

Article 41- Economic, Social, and Cultural Rights (Social development, inclusion, consultation, and participation)

- Provides the rights of citizens in engaging freely in economic activities, choose livelihoods, create and expand job opportunities for the unemployed including to find gainful employment;
- Ensure improved living standards and sustainable development to the nations, nationalities and peoples of Ethiopia;
- Ensures Ethiopians have the right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nation/s, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange;
- Every person has the inviolable and inalienable right to life, the security of person and liberty.
- Ensure Ethiopian farmers and pastoralists receive fair prices for their products, obtain an equitable share of the national wealth commensurate with their contribution;
- Vulnerable groups support, and assistance encompass the physically and mentally disabled, the aged, and to children who are left without parent or guardian;
- Equal access to public social services, with FDRE obligation to allocate resources to provide to the public health, education and other social services;
- Ensure participation and meaningful consultation of the nations, nationalities and peoples of Ethiopia to enhance the capacity of citizens for development and to meet their basic needs;
- The constitution provides the right to hold opinions without interference to seek, receive and impart information and ideas and freedom of association for any cause or purpose;

Protect and preserve historical and cultural legacies, and contribute to the promotion of the arts and sport

Article 43- The Right to Development

- The Peoples of Ethiopia as a whole, and each Nation, Nationality and People in Ethiopia in particular have the right to improved living standards and to sustainable development.
- Nationals have the right to participate in national development and, in particular, to be consulted with respect to policies and projects affecting their community.

Article 44- Environmental Rights

- All persons have the right to a clean and healthy environment.
- All persons who have been displaced or whose livelihoods have been adversely affected as a result of State programs have the right to commensurate monetary or alternative means of compensation, including relocation with adequate State assistance.

Article 90- Social Objectives

- To the extent the country's resources permit, policies shall aim to provide all Ethiopians access to public health and education, clean water, housing, food and social security.

Article 92- Environmental Objectives

- Government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment.



- The design and implementation of programs and projects of development shall not damage or destroy the environment.
- People have the right to full consultation and to the expression of views in the planning and implementations of environmental policies and projects that affect them directly.
- Government and citizens shall have the duty to protect the environment.

In addition, under the Constitution, the GoE guarantees equitable access by all Ethiopian people to public goods and services. The constitution articles 14, 29, 31, 35, 39, 40, 41, provide the core principles and frameworks for subsequent proclamations on issues related with social development.

3.1.2 Relevant Environmental and Sectoral Policies

3.1.2.1 Environmental Policy of Ethiopia (EPE)

The environmental policy of Ethiopia, approved in 1997 by Council of Ministers, is aimed at guiding sustainable social and economic development of the country through the conservation and sustainable utilization of the natural, man-made, and cultural resources and the environment at large.

The overall policy goal is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. The Specific Policy Objectives among others seeks to:

- a. Ensure that the benefits from the exploitation of resources are extended as far into the future as can be managed, and minimize the negative impacts of their exploitation on the use and management of other natural resources and the environment;
- b. Incorporate the full economic, social and environmental costs and benefits of natural resource development into the planning, implementation and accounting processes by a comprehensive valuation of the environment and the services it provides, and by considering the social and environmental costs and benefits which cannot currently be measured in monetary terms;
- c. Prevent the pollution of land, air and water in the most cost-effective way so that the cost of effective preventive intervention would not exceed the benefits;
- d. Conserve, develop, sustainably manage and support Ethiopia's rich and diverse cultural heritage; and,
- e. Raise public awareness and promote understanding of the essential linkages between environment and development.

Specifically, regarding Energy Resource, the three major relevant policies issued in the Environment Policy of Ethiopia are the following:

- a. To adopt an inter-sectoral process of planning and development which integrates energy development with energy conservation, environmental protection and sustainable utilization of renewable resources;
- b. To promote the development of renewable energy sources and reduce the use of fossil energy resources both for ensuring sustainability and for protecting the environment, as well as for their continuation into the future;
- c. To locate, develop, adopt or adapt energy sources and technologies to replace biomass fuels.

3.1.2.2 Energy Policy of Ethiopia

Ethiopia has energy policy document drafted in 1994. The policy document has encouraged the use of indigenous resources and renewable energy. The general objectives of the Energy policy are:



- To ensure a reliable supply of energy at the right time and at affordable prices, particularly to support the country's agricultural and industrial development strategies adopted by the government;
- To ensure and encourage a gradual shift from traditional energy sources use to modern energy sources;
- To stream-line and remove bottlenecks encountered in the development and utilization of energy resources and to give priority to the development of indigenous energy resources with a goal toward attaining self-sufficiency;
- To set general guidelines and strategies for the development and supply of energy resources;
- To increase energy utilization efficiency and reduce energy wastage; and,
- To ensure that the development and utilization of energy is benign to the environment.

Currently, this National Energy Policy is under review to identify the gaps between what is stated in the 1994 National energy policy and the existing status, as well as the anticipated energy resource development. The potential areas that are considered in updating the Ethiopia National Energy policy (1994) include: among others are current technological levels, bottlenecks in the energy development including cross cutting issue, etc.

3.1.2.3 Land Tenure Policy of Ethiopia

The Constitution of the Federal Democratic Republic of Ethiopia (FDRE) states that the right to ownership of rural and urban land, as well as all-natural resources, is exclusively vested in the State and People of Ethiopia. Article 40 of the Constitution indicates that land is a common property of the Nations, Nationalities and the People of Ethiopia, and shall not be subjected to sale or to other means of transfer. Buying and selling of land is prohibited but leasing rights is allowed. Moreover, it is the right for existing land holder to be compensated fully and satisfactorily if land is expropriated by the state.

The Land Policy of Ethiopia strongly supports that program/ project plans must include attractive and sustainable resettlement strategies to the people who are going to be displaced because of the development plan, and they must be fully convinced, compensated and have to participate in all phases of the program/project implementation. Hence, this policy has laid a foundation in building trust-ship among the people who are going to be displaced as a result of the development (in this case people displaced for the proposed REGREP activities) and the implementers who have powers and duties specified under relevant regulations. Consequently, for effective implementation of the policy intent, the FDRE has proclaimed the Expropriation of Landholdings for Public Purposes and Payment of Compensation (Proclamation No. 455/2005), Regulation on Payment of Compensation for Properties Situated on Landholdings Expropriated for Public (Regulation No.135/2007) and Rural Land Administration and Land Use Proclamation (Proclamation No. 456/2005).

3.1.2.4 National Social Protection Policy of Ethiopia

The main objectives of Social Protection Policy of Ethiopia are the following:

- Protect poor and vulnerable individuals, households, and communities from the adverse effects of shocks and destitution;
- Increase the scope of social insurance;
- Increase access to equitable and quality health, education and social welfare services to build human capital thus breaking the intergenerational transmission of poverty;
- Guarantee a minimum level of employment for the long term unemployed and under-employed;
- Enhance the social status and progressively realize the social and economic rights of the excluded and marginalized; and,
- Ensure the different levels of society are taking appropriate responsibility for the implementation of social protection policy.



3.1.3 Strategies

3.1.3.1 Conservation Strategy of Ethiopia

The Conservation Strategy of Ethiopia, which was approved by the Council of Ministers, provided a strategic framework for integrating environmental planning into policies, programs and projects. With regard to development of alternative energy resources and their utilization, the relevant strategies include the following:

- Develop alternative energy sources (e.g. solar power, wind, biogas, agricultural bio-fuel, liquid bio-fuel or small hydroelectric plants) for towns and villages remote from the national grid;
- Acquire, develop, test and disseminate appropriate and improved energy use technologies (e.g. improved stoves, charcoal kilns, solar powered cookers and heaters); and,
- Demonstrate and support the use of other energy sources (e.g. geothermal, solar, etc.) in the various economic sectors where it is currently little used such as in transportation, irrigation, crop-drying, food processing, fish drying, and thermal heating.

3.1.3.2 National Electrification Strategy (NES)

In June 2016, the GoE prepared the National Electrification Strategy (NES), which paved the way for scaling-up electrification in Ethiopia. The preparation of the NES, which translated the vision of the GTP-II targets in to an actionable strategy, was supported under Phase 1 of the World Bank's three-year programmatic technical assistance: the ESMAP funded Ethiopia Energy Sector Review and Strategy. The NES comprises eleven strategic elements organized into three pillars: 'institutional', 'planning and technical' and 'financial', each of which provides a specific menu of support.

Based on the NES, currently, the GoE initiated the National Electrification Program (NEP) is the centerpiece of the implementation of the electrification expansion strategy in a more effective and sustainable manner. The NEP is initially envisioned to support of the GTP-II electrification expansion/connection targets. The NEP also includes a comprehensive focus on gender equality. Given that several of NES strategic elements will require substantial capacity improvements in all the three pillars identified, the NEP will be implemented to allow for immediate support to the stringent GTP II objectives and the urgent need to promote widespread growth in the country. Activities currently underway as part of the NEP include: (i) The establishment of a Directorate of Electrification (DoE) at the Ministry of Water, Irrigation, and Energy (MoWIE), as well as a National Steering Committee for Electrification comprised of key sector stakeholders; (ii) the preparation of a National Electrification Program Implementation Roadmap to guide the rapid and coordinated roll-out of grid and off-grid connections; and (iii) the establishment of central geospatial planning platform and capacity to inform and monitor NEP's effectiveness and efficiency.

3.1.3.3 Ethiopia's Climate-resilient Green Economy Strategy

The Government of the Federal Democratic Republic of Ethiopia has initiated the Climate-Resilient Green Economy (CRGE) initiative to protect the country from the adverse effects of climate change and to build a green economy that will help realise its ambition of reaching middle-income status before 2025.

Ethiopia's green economy plan is based on the following four pillars:

- Improving crop and livestock production practices for higher food security and farmer income while reducing emissions;
- Protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks;
- Expanding electricity generation from renewable sources of energy for domestic and regional markets; and,
- Leapfrogging to modern and energy-efficient technologies in transport, industrial sectors, and buildings.



3.1.4 Regulations, Proclamations and Procedural Guidelines

3.1.4.1 Environmental Impact Assessment Proclamation No.299/2002

This proclamation clearly indicates that major development programs, plans, and projects of the private or public enterprises shall be subject to Environmental Impact Assessment study before their approval for implementation. This means that Environmental Impact Assessment is a proactive (not reactive) tool used to predict and manage the environmental effects of a proposed development activity during its design, construction, operation, or an ongoing industry because of its modification.

The proclamation also provides a legal base for the effective means of harmonizing and integrating environmental, economic, cultural and social considerations in to the planning and decision-making processes there by promoting sustainable development. Moreover, it serves as a basic instrument in bringing about administrative transparency and accountability, to involve the public and the communities, in the planning and execution of development programs that may affect them and their environment.

The objective of undertaking the assessment study is to ensure the impacts of a development project and the incorporated mitigating measures for the adverse significant impacts, and policy programs are adequately considered while decisions are put into effect.

3.1.4.2 Environmental Pollution Control Proclamation No.300/2002

This proclamation is aimed at eliminating or, when not possible, to mitigate pollution as an undesirable consequence or social and economic development activities. It also states that the protection of the environment and safeguarding of human health, as well as the maintaining of biota and the aesthetic value of nature are the duty and responsibility of all citizens. It further considers other important issues such as control of pollution; management of hazardous waste, chemical and radioactive substances; the importance and need to respect environmental standards; and punitive and incentive measures.

3.1.4.3 Proclamation to Provide for the Establishment of Environmental Protection Organs (Proclamation No. 295/2002)

The first objective of this proclamation is to assign responsibilities to separate organizations for environmental development and management activities on the one hand, and environmental protection, regulations and monitoring on the other, which is instrumental for the sustainable use of environmental resources. The second objective is to establish a system that fosters coordinated but differentiated responsibilities among environmental protection agencies at federal and regional levels.

3.1.4.4 Proclamation for the Convention on Climate Change

The proclamation considers the trans-boundary impacts of climate change. The basic objective of this convention is to provide agreed limits on the release of greenhouse gases into the atmosphere. It also aims to apply mechanisms in place to lower the impacts of climate change.

3.1.4.5 Solid Waste Proclamation (Proclamation 513/2007)

Solid Waste Management proclamation aims to promote community participation to prevent adverse impacts and enhance benefits resulting from solid waste management. It provides for preparation of solid waste management action plans by urban local governments.

3.1.4.6 Prevention of Industrial Pollution Regulation (Proclamation 159/2008)

Proclamation 159/2008, Prevention of Industrial Pollution Regulation: As a follow up to Proclamation 300/2002, a regulation to prevent industrial pollution was developed by the Federal Environmental Protection Authority to ensure compatibility of industrial development with environmental conservation. This Proclamation includes



comprehensive industrial pollution standards for a range of industrial and mining activities.

3.1.4.7 The Forest Development, Conservation and Utilization Proclamation

This proclamation, issued in September 2007, provides for the development, conservation, and sustainable utilization of forests in satisfying the needs of the society for forest products and in the enhancement of national economy in general. It provides the basis for sustainable utilization of the country's forest resources. The Proclamation categorizes types of forest ownership as private forest and state forest. The Proclamation then goes on to give some specific direction for the development and utilization of private and state forests. Part two of the Proclamation contains provisions for the Promotion of the Utilization of Private Forest, while Part three gives provisions for Conservation, Development, and Administration of State Forest.

Lastly, Part four comprises Miscellaneous Provisions that, among others, include prevention of forest fire, production, and movement of forest products, prohibitions, forest guards, and inspectors of forest products movement, and powers and duties of the MoA and Regional States.

3.1.4.8 Expropriation of Land Holdings for Public Purposes and Payment of Compensation, Proclamation No. 455/2005

In order to facilitate expropriation of landholding and payment of compensation, the government enacted a proclamation in July 2005 on the "*Expropriation of landholding for public purposes and payment of Compensation*" Proclamation No. 455/2005. The objective of the proclamation was to define the basic principles that have to be taken into consideration in determining compensation to a person whose landholding has been expropriated. The proclamation indicated certain procedures to be followed during the expropriation of landholdings:

Power to Expropriate Landholding: Woreda or an urban administration shall upon payment in advance of compensation, have the power to expropriate rural or urban holdings for public purposes where it should be used for a better development projects to be carried out by public entities, private investors, cooperative societies or other organs, or where such expropriation has been decided by the appropriate higher regional or federal government organ for the same purpose and investors.

Notification of Expropriation Order: In this context the landholders will be notified in writing, when they should vacate and the amount of compensation to be paid. The period of notification to be given shall be determined by directives, it may not, in any way, be less than ninety days (90). The landholder shall handover the land to the Woreda or urban administration within in ninety (90) days from the date of payment of compensation.

The Responsibility of Implementing Agency: as defined in the proclamation, include preparing detail data pertaining to the land needed for its works and send same, at least one (01) year before the commencement of the works and to the organs empowered to expropriate land, pay compensation in accordance with this proclamation to landholders whose holdings have been expropriated.

Amount of Compensation: As per Article 7 of the Proclamation, the amount is based on certain conditions, which include;

- The landholder whose holding has been expropriated shall be entitled to payment of compensation for his property situated on the land and permanent improvements she/he made to such land;
- The amount of compensation for the property shall be determined based on replacement cost of the property, and if it is in urban area, it may not, in any way be, less than the current cost of constructing a single room low cost house.



- Compensation for permanent improvement to land shall be equal to the value of capital and labor expended on the land, and costs of removal, transportation and erection shall be paid as compensation for property that could be relocated and continue its services as before.

Displacement Compensation: is also indicated in the Proclamation, Article 8 indicates that such compensation shall be paid within the following conditions:

- A rural landholder, whose landholding has been permanently expropriated, in addition to Article 7, be paid displacement compensation which is equivalent to ten times the average annual income he/she secured during the five years preceding the expropriation of the land.
- A rural landholder or holders of communal land whose landholding has been provisionally expropriated shall, in addition to Article 7, be paid until repossession of the land, and also for lost income based on the average annual income secured during the five years preceding the expropriation of the land, however, such payment shall not exceed the amount of compensation payable under the above Article.
- If Woreda administration confirms that a substitute land which can easily be ploughed and generate comparable income is available for the holder, the compensation to be paid as mentioned above shall only be equivalent to the average annual income secured during the five years preceding the expropriation of the land.
- For urban landholder whose holding has been expropriated shall be provided with a plot of urban land and be paid displacement compensation equivalent to the estimated annual rent of the demolished dwelling house. For the business houses to be demolished, *mutatis mutandis* shall apply.
- Certified private or public institution or individual consultants based on valuation formula adopted at the national level shall carry out the valuation of property situated on land to be expropriated.

Property Valuation: the proclamation has also indicated who should be the committee members during valuation of properties to be affected. It states that the Woreda administration where the land to be expropriated is located in rural areas, shall assign a committee of not more than five experts having relevant qualification and if the land is located in urban area, the urban administration shall do the same for valuing property. If the land to be expropriated requires specialized knowledge and experience, a separate committee of experts, to be designated by the Woreda or urban administration, shall value it.

Complaints and Appeals in Relation to Compensation Payments: as per the proclamation, are to be dealt in the following manner:

- If the holder is dissatisfied with the amount of compensation, complaints might be lodged to administrative organ established to hear grievances related to urban landholdings.
- If administration organ to hear grievances related to urban holdings is not yet established, complaint shall be submitted to regular court having jurisdiction;
- The above organ shall examine the complaint and give its decision within short period of time as specified by directives issued by the region.
- The party dissatisfied with the decision rendered above may appeal to the regular appellate court or municipal appellate court within 30 days.
- The execution of an expropriation order may not be delayed due to a complaint regarding the amount of compensation.

On the other hand, the *Civil Code of Ethiopia* includes provisions as to the *procedures for dispute settlements*. According to the Civil Code of Ethiopia, in the case of dispute on the amount of compensation between the competent authorities and the owner of the expropriated immovable, an arbitration appraisal committee shall fix the amount. Article 1473 does not mention about the composition of the members of the committee, except stating “committee shall comprise such members”. If the interested party or the competent authorities do not



agree on the decision of the arbitration appraisal committee according to Article 1477, appeal could be made within three months from the decision of the committee.

In line with the Civil Code, grievances are first preferred to be settled amicably whenever possible in the presence of elders, local administration representatives or any influential persons in the locality. If the PAPs are not satisfied with what has been proposed by the amicable means, then the litigation is referred to the formal courts.

In the course of implementing the proclamation, “*Expropriation of landholding for public purposes and payment of Compensation*” Proclamation No. 455/2005, the Ministry of Federal Affairs has the duties and responsibilities to:

- ✓ follow up and ensuring that the provisions of the proclamation are complied with in a region,
- ✓ give technical and capacity building support to regions, and
- ✓ prepare, in collaboration with other federal governments, national valuation formula for the determination of compensation payable under this proclamation and submit the same to the Council of Ministers for approval.

On the other hand, the Woreda and urban administrations have the following responsibilities and duties; i.e. pay or cause the payment of compensation to holders of expropriated land and provide them with rehabilitation support to the extent possible and maintain data of properties removed, town expropriated landholdings particulars and conditions of maintaining such data shall be prescribed by directives.

Proclamation No 455/2005 Expropriation of Landholdings for Public Purposes and Payment of Compensation establishes the legal principles and framework for expropriation and compensation.

3.1.4.9 National Rural Land Administration and Use (Proclamation No. 456/2005)

The Rural Land Administration and Use Proclamation (Proclamation No. 456/2005) defines the state ownership of rural land and the tenure rights of the land occupant, including rights to "property produced on his land", rights of inter-generational tenure transfer, and rights of exchange land and limited leasing rights. Provisions are made for the registration and certification of tenure rights. Part 3 of the Proclamation presents regulations relating to the use of rural land, particularly as it relates to soil and water conservation and watershed management. The rural land administration and land use laws are to be implemented by the regional states.

Land holding right gives the right to use the land for agricultural purposes as well as to lease it and, while the right remains in effect, bequeath it to family members, as well as the right to acquire property thereon, by labor or capital, and to sell, exchange and bequeath the same. The Proclamation also addresses environmental concerns, including non-compliance with directives on environmental protection.

Article 7(3) of the Proclamation reinforces the rights of land users to compensation for the development they have made on the land. It also states that when the land holder is evicted by federal government, the rate of compensation would be determined based on the federal land administration law. When the rural land holder is evicted by regional governments, the rate of compensation would be determined based on the rural land administration laws of regions.

It is envisaged that the Proclamation will create a sense of ownership among the vast majority of the rural population and enable them to take initiatives and collectively engage in environmental management activities.

3.1.4.10 Proclamation on Research and Conservation of Cultural Heritage (No.209/2000)

The Authority for Research and Conservation of Cultural Heritage (ARCCCH) has been established by Proclamation No. 209/2000 as a government institution with a legal personality. The Proclamation has also provisions for management of cultural heritages in part two, exploration, discovery and study of Cultural



Heritages in part three and miscellaneous provisions in part four.

Article 41 of the Proclamation deals on Fortuitous Discovery of Cultural Heritages and Sub-Article 1 states that, any person who discovers any Cultural Heritage in the course of an excavation connected to mining explorations, building works, road construction or other similar activities or in the course of any other fortuitous event, shall forthwith report to the Authority for Research and Conservation of Cultural Heritage (ARCCCH), and shall protect and keep it intact, until the Authority takes delivery thereof. Sub-Article 2, on the other hand states that, the Authority shall, upon receipt of a report submitted pursuant to Sub- Article (1) hereof, take all appropriate measures to examine, take delivery of and register the Cultural Heritage so discovered.

3.1.4.11 Labor Proclamation of Ethiopia (377/2003)

Ethiopia has issued proclamations in the effort to improve employment relations and outcomes, protect against child labor exploitation, and maintain proper occupational health and safety. The transitional government of Ethiopia has issued Labor Proclamation No. 42/1993. This proclamation was amended and replaced with Labor Proclamation No. 377/2003. The Labor Proclamations have had detailed provisions pertaining to workers' suspension and protects their rights, procedure that requires employers to provide good working environment to workers in order to safeguard their health and provide compensations in cases of work place injuries and death. Besides, there are other labor related proclamations such as the provisions of the Employment Exchange Service Proclamation (Proclamation No. 632/2009) and the Right to Employment of Persons with Disability (Proclamation No. 568/2008) enacted to govern the relations between employers and employees.

The Labor Proclamation mandates employers to protect occupational safety, health and create better working environment for their workers. Article 92 states that "An employer shall take the necessary measure to safeguard adequately the health and safety of the workers...".

7. In part 7 of the Proclamation- "Occupational Safety, Health and Working Environment", article 92, i.e. Obligations of an Employer, as employees are the most exposed part of society to the project operations risks. Based on the proclamation an employer shall take the necessary measure to safeguard adequately the health and safety of the workers. Employer's liability in this connection has two levels; the level of prevention and of remedial. At the level of prevention, the employer is duty bound to prevent risks. For this purpose, it is required to provide safety equipment and train how and when to make use of them (Art. 92). Nevertheless, it is worth noting that the employee has also a corresponding duty at the level of prevention. He/she is required to make use of the protective tools appropriately and at appropriate time and place (Art. 93). Furthermore, he/she is obligated to obey all health and safety instructions. Hence, prevention demands the care of both parties (i.e. bilateral care).

In cases of employment injury occurrences remedial regulations such as taking compensatory measures after the damage has already been sustained is required. The proclamation indicates that employer's liability is not limited to the stage of prevention. Once the accident is sustained, the employer is expected to cover cost of medication including the cost for any necessary prosthetic or orthopedic appliances. Hence, for work related injury, the employer is required to cover medical cost and further obligated to provide disability benefit to the employee and pay dependent's benefit to the dependents of the deceased in cases of death. This proclamation needs to be followed as Project workers will be exposed to various dangerous and hazardous environment during project implementation. An employer shall also register employment accidents and occupational diseases and notify the labor inspection of same.

The proclamation includes regulations about working conditions for women and young workers. According to article 89, sub-article 1 of the Proclamation, "Young worker" means a person who has attained the age of 14 but is not over the age of 18 years. As per article 89, sub-article 2 of the proclamation it is prohibited to employ persons less than 14 years of age. In sub-article 3, it is stated that;

"It is prohibited to employ young workers which on account of its nature or due to the



condition in which it is carried out, endangers the life or health of the young workers performing it.”

Besides, the law regulated the situation of female employees from two angles. The first is providing flat protection available to all female workers by virtue of being female. According to Article 87(1) of the Labor Proclamation, Women shall not be discriminated against as regards to employment and payment, on the basis of their sex. The second provides special provision for women under particular circumstances such as pregnancy and maternity (Arts. 87 (3), (4), (5) & 88 of Labor Proclamation).

The proclamation has also included sections on labor dispute and how it can be resolved by labor court. Under part nine on labor dispute, the labor proclamation has employed an illustrative listing of what constitutes individual labor dispute and what constitutes a collective one (Arts.138 (1) &142 (1) respectively. As per the indication in the section, the labor dispute can be resolved at regional first instance court, labor division of the regional appeal at court or labor division of the federal high court depending on whether it is individual or collective and if unresolved at regional courts.

The 2003 Occupational Health and Safety Guideline developed as a follow-up to the labor Proclamation, which provides guidance on occupational health and safety requirements.

The Proclamation was amended in 2006 to give workers the right to severance pay where their employment contracts are terminated because of HIV/AIDS.

3.1.4.12 FDRE Council of Ministers Regulation (Regulation No. 135/2007)

The detail for expropriation of land holding for public purposes and payment of compensation is issued by the Council of Ministers regulation No 135/2007. The regulation provides the basis for property valuation situated on land holdings expropriated for public purposes. The regulation provides the basis for compensation of affected properties. The regulation sets the methods for the assessment of compensation, provision of land for land replacement and payment of displacement compensation. The Council of Ministers regulation is issued for the purpose of not only paying compensation but also to assist displaced persons to restore their livelihood.

The type of properties and assets identified to be eligible for payments of compensation include buildings, fences, crops, perennial crops, trees, protected grass, improvement made on rural land; relocated property, mining license and burial grounds. The regulation also provides guideline and formula for calculating the amount of compensation payable for lost assets due to development project.

For example, Part Two- Article 3 (1 to 4) of the regulation states compensation for buildings shall be determined on the basis of the current cost per square meter or unit for constructing a comparable building including patios, septic tanks, and other attached service facilities, estimated cost for demolishing, lifting, reconstructing, installing and connecting utility lines of the building. The owner of a building shall have the right to claim compensation for the entire building by surrounding the total land in his possession where part of the building is subject to be removed.

The regulation prohibits payment of compensations for any construction or improvement of a building, any crops sown, perennial crops planted or any permanent improvement on land, where such activity is done after the holder of the land is served with the expropriation order.

FDRE Council of Ministers Regulation (Regulation No. 135/2007), on the Payment of Compensation for Property Situated on Landholdings Expropriated for Public Purposes provides the procedures for application of Proclamation No 455/2005.

3.1.4.13 Environmental Impact Assessment Procedural Guidelines Series (Series 1 and 2)

In order to facilitate the implementation of Environmental Impact Assessment Proclamation (Proclamation 299/2002), the then Environmental Protection Authority had formulated four procedural guidelines, namely,



Review Guideline Series 1: Guidelines for Review Approach; Review Guideline Series 2- Guidelines for Contents and Scopes of Report; Review Guideline Series 3- Checklist of Environmental Characteristics and Review Guideline Series 4- Review Criteria. Review Guideline Series 1 and 2 will be elaborated to a certain extent.

A) Procedural Guideline Series 1 - Guidelines for Review Approach

This guideline pointed out roles and responsibilities of EPA and Regional Environmental Agencies, the proponent, consulting firm, interested, and affected parties, and the licensing agency. In the guideline, the EIA processes and requirements, and comprehensive description of the EA process has been stated. It also outlined projects which may have adverse and significant environmental impacts, and may, therefore, require full EIA (Schedule 1), projects whose type, scale or other relevant characteristics have the potential to cause some significant environmental impacts but not likely to warrant an environmental impact study (Schedule 2) and projects which would have no impact and does not require environmental impact assessment (Schedule 3)

B) Procedural Guideline Series 2 - Guidelines for Contents and Scopes of Report

This guideline among others indicates structure and content of the Environmental Impact Study Report and describes the contents including the administrative, legal and policy requirements, assessment and mitigation measures. The guideline indicates the following main types of mitigating measures, which need due considerations:

- Preventing, reducing or minimizing impacts before they occur;
- Eliminating an actual impact over time by incorporating appropriate maintenance measures during the life of the project;
- Rectifying an impact by repairing, rehabilitating or restoring the affected environment;
- Compensating for an impact by replacing or providing substitute resources or environments as well as contingency plans in case of emergencies;
- Maximizing beneficial impacts through specific additional actions
- **Environmental guideline and plan**

Guideline for Environmental Management Plan, May 2004 outlines measures for preparation of an Environmental Management Plans (EMP) for proposed developments in Ethiopia and institutional arrangements for implementation of EMPs.

EIA Procedural Guideline, November 2003: This guideline outlines the screening, review and approval process for development projects in Ethiopia and defines the criteria for undertaking an EIA.

EIA Guideline, July 2000: The EIA Guideline Document provides essential information covering the following elements:

- Environmental Assessment and Management in Ethiopia
- Environmental Impact Assessment Process
- Standards and Guidelines
- Issues for sector environmental impact assessment in Ethiopia covering agriculture, industry, transport, mining, dams and reservoirs, tanneries, textiles, hydropower generation, irrigation projects and resettlement
- The guideline contains annexes that:
 - Identify activities requiring a full EIA, partial measure or no action
 - Contain sample forms for application
 - Provide standards and guidelines for water and air



3.1.4.14 EIA Directive 1/ 2008, Directive to Determine Projects Subject to Environmental Impact Assessment

This directive was issued to determine the categories of projects subject to the Environmental Impact Assessment Proclamation 299/ 2002. To this end, the Environmental Impact Assessment Proclamation is to be applied to the types of projects listed under these directives. The types of projects subject to EIA in the rural and urban sector include roads, solid waste facilities, water supply, energy access schemes, which is one of the concern of the proposed program is part of it.

3.1.4.15 Waste Handling and Disposal Guideline, 1997:

The Waste Handling and Disposal Guidelines have been in use since 1997. The Guidelines are meant to help industry and local authorities handle medical waste situation at the local level.

3.1.4.16 Directive on Clearance of Overhead Electric Lines No. EEA/1/2005

The previous Ethiopia Electricity Agency (EEA), established in 2014 as an autonomous organ with naming Ethiopian Energy Authority (EEA), is responsible for setting standards and specifications for electricity projects related activities. The Council of Ministers Regulation No 308/2014 gave way to the establishment of the Ethiopian Energy Authority as an autonomous federal government organ.

The Energy Authority is accountable to the Ministry of Water, Irrigation, and Energy. The Directive on Clearance of overhead electric lines was issued by the then Ethiopian Electricity Agency pursuant to the authority vested in it by Articles 55, 67 and 69 of Electricity Operations Council of Ministers Regulations No. 49/1999. The objective of the Directive is to set standards for the clearance spaces associated with transmission and distribution lines for the purpose of the protection of persons from risk and property from damage, as well as to specify the quality of supply voltage.

Article 6, 7, and 8 of the directive include the minimum standard distance corresponding to electric lines from ground for a road accessible to vehicular traffic, a building or structure, track of a small gauge railway/tramway system and clearance from vegetation as well as other lines. For projects activities under the proposed program mainly involve works on low and medium voltage up to 33kv. According to the Agency directives of overhead electric line clearance 5 m wide ROW is required for overhead electric lines, not exceeding 33 kV and growing of trees under electric lines shall not be allowed. The land beneath these overhead lines can continue to be used normally by the holder for grazing and plowing. The ROW is required to ensure the safe construction, maintenance, and operation of the power line.

3.1.4.17 Directive of Occupational and Community Health and Safety

Ethiopian Federal Democratic Republic constitution ensures the right of workers to work in a healthy and safe working environment as stipulated in Article 42(2). The Constitution contains a full chapter on fundamental rights and freedoms, which includes the right to equality without discrimination, the rights of women and children, the right to access to justice, and economic, social, and cultural rights. It also covers the “Rights of labor”, including the rights of workers to form associations to improve their conditions of employment and economic well-being, the reasonable limitation of working hours, to remuneration for public holidays and to a healthy and safe working environment. The structure and division of powers between Federal and State governments are also covered by the Constitution.

The other significant piece of recent legislation in this area is the Occupational Safety and Health Directive, which was adopted in July 2008. This is also very wide-ranging in its application, covering all employment sectors but with specific provisions for the manufacturing and construction sectors. Without prejudice to the Labor Proclamation, this Directive lays down general duties of employers and the duties and rights of workers, and the need for certain organizational measures such as a safety and health policy and arrangements, and for personal protective equipment. It also specifies measures for controlling a wide range of risks, such as those from chemicals, noise, radiation, machinery, working at heights, boilers and lifting equipment.



3.2 Applicable Environmental and Social safeguard policies and standards of World Bank Group

3.2.1 Introduction

According to the World Bank, projects are classified into three categories (A, B, and C) based on the type, location, sensitivity and potential environmental impacts.

Category ‘A’ projects: The project is likely to have adverse environmental and social impacts that are diverse, sensitive and unprecedented affecting broader area than implementation sites. A full ESIA is always required for projects that are in this category, and for which impacts are expected to be ‘adverse, sensitive, irreversible and diverse with attributes such as pollutant discharges large enough to cause degradation of air, water, or soil; large-scale physical disturbance of the site or surroundings; extraction, consumption or conversion of substantial amounts of forests and other natural resources; measurable modification of hydrological cycles; use of hazardous materials in more than incidental quantities; and significant involuntary displacement of people or other significant social disturbances.

Category ‘B’ Projects: The potential environmental impacts on humans and sensitive areas (wetlands, forests, natural habitats, etc.) are less adverse, site specific, few if any are irreversible. Even though an ESIA is not always required, some environmental analysis is necessary, and some form of environmental management plan needs to be prepared with recommended measures to prevent, minimize, mitigate or compensate for adverse impacts. Typical projects include renewable energy; irrigation and drainage (small-scale), rural water supply and sanitation, watershed management or rehabilitation projects, rehabilitation, maintenance, or upgrading of projects (small-scale), rather than new construction.

Category ‘C’ Projects: There are no or minimal adverse environmental and social impacts. Such projects may not need ESIA other than screening. Typical projects include education, family planning, health, nutrition, institutional development, technical assistance, and most human resource projects. Such projects will not directly cause disturbance of the physical environment and biological components and do not need environmental assessment.

The proposed REGREP is categorized under World Bank Environmental Assessment Category “Category “B”, given highly significant adverse environmental and social impacts are not expected during the implementation of the projects under the proposed program. Considering the scope and nature of the potential projects activities under the proposed program (REGREP), i.e., installation of solar panel and wind turbine; construction activities associated with both projects and other accessories and associated facilities such as transmission line and access roads, etc.), and the specific sites for implementing these projects are not yet known or decided, at this level the instrument proposed for analyzing potential environmental and social risks is Environmental and Social Management Framework (ESMF).

The ESMF is designed to comply with the National and World Bank environmental and social policies and legal frameworks. As most of the projects expected to be implemented by private entity (IPPs), all safeguards implementation, and supervision activities will follow as per the World Bank operational policies OP 4.03. This process requires the Client of the REGREP and its implementing partners (IPPs) to screen project activities, identify the potential adverse impacts and thereby determine the corresponding mitigation measures. In addition, as per the policy, all IPPs engaged in the implementation of the projects under REGREP are also required to prepare ESIA/ESMP for sound management and implementation of environmental and social safeguards. The recent pipeline projects under REGREP comprises of three potential transactions at Methara, Gad-Somali, and Dechato-Afar (see section 3). Given the nature and scale of the proposed three transaction under REGREP, among the eight PSs, all of them are expected to apply.

These specific private sectors World Bank *Environmental and Social Performance Standards* set out the requirements for borrowers relating to the identification and assessment of environmental and social risks and impacts associated with projects supported by the Bank through Investment Project Financing. The standards



will:

- a) Support borrowers in achieving good international practice relating to environmental and social sustainability;
- b) Assist Borrowers in fulfilling their national and international environmental and social obligations;
- c) Enhance non-discrimination, transparency, participation, accountability and governance; and d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement.

3.2.2 World Bank Group Environmental and Social Safeguards Requirements

3.2.2.1 World Bank operational policy-OP/BP 4.03

The OP/BP 4.03 World Bank operational policy uses the Performance Standards (PSs) which apply for Private Sector activities to each of the IPPs supported under REGREP. Based on the experience of similar IPPs, it is anticipated that each of the IPPs would be a Category ‘B’. The proposed IPPs are expected to have limited environmental and social impacts, which are site-specific, temporary, and manageable. Those impacts can be avoided or mitigated by adhering to applicable performance standards, procedures, guidelines, and design criteria. The categorization is consistent with categorization of other similar projects within the energy sector.

At the design stage, it is estimated that all of the eight PS would be relevant for the IPPs (to be confirmed as the sites are developed and during appraisal). The applied PSs to this program area: PS1-Assessment and Management of Environmental and Social Risks and Impacts, PS 2 - Labor and working conditions, PS3-Resource Efficiency and Pollution Prevention PS 4 - Community Health, Safety, and Security, PS 5 - Land Acquisition and Involuntary Resettlement, PS6 – Biodiversity conservation and living natural resources PS 7 Indigenous People and PS8 - Cultural Heritage. Detailed assessment of PSs that may be relevant specific to the site would be determined during preparation.

As required under Ethiopian laws and WB PSs, the IPPs will conduct Environmental and Social Impact Assessment (ESIA). The ESIA would cover relevant environmental and social regulations and the key aspects of the WB PSs relevant to the project design, construction, operation, and decommissioning. IPPs will design and implement an Environmental and Social Management System (ESMS) for the construction and operations phase consistent with WB PS requirements. The System will define roles and responsibilities, and other necessary elements (manual of procedures) to enable all operations to comply with Ethiopian laws and WB PSs. All IPPs engaged in Scaling Solar or Scaling Wind will be subject to thorough WB due diligence.

3.2.2.2 World Bank group Performance standards

As per the proposed implementation arrangements under the program, the private developer shall play a lead role in the success of the project implementation and shall be undertaking the setting up of infrastructure for energy generation. The WB performance standards apply to private sector projects and provide instruments to manage the operations of projects in an environmentally and socially acceptable manner (Table 2.2). The following performance standards are likely to be applicable o REGREP:

Table 3-1: Performance Standards applied for the proposed program (REGREP)

| Performance Standards | Applicability to the program | |
|--|------------------------------|------|
| | ● Yes | ○ No |
| Assessment and Management of Environmental and Social Risks & Impacts / Performance Standard 1 | ● Yes | ○ No |



| | | |
|---|--------------------------------------|--------------------------|
| Labor and Working Conditions / Performance Standard 2 | <input checked="" type="radio"/> Yes | <input type="radio"/> No |
| Resource Efficiency and Pollution Prevention / Performance Standard 3 | <input checked="" type="radio"/> Yes | <input type="radio"/> No |
| Community Health, Safety, and Security / Performance Standard 4 | <input checked="" type="radio"/> Yes | <input type="radio"/> No |
| Land Acquisition and Involuntary Resettlement / Performance Standard 5 | <input checked="" type="radio"/> Yes | <input type="radio"/> No |
| Biodiversity Conservation and Sustainable Management of Living Natural Resources / Performance Standard 6 | <input checked="" type="radio"/> Yes | <input type="radio"/> No |
| Indigenous Peoples / Performance Standard 7 | <input checked="" type="radio"/> Yes | <input type="radio"/> No |
| Cultural Heritage / Performance standard 8 | <input checked="" type="radio"/> Yes | <input type="radio"/> No |

Performance Standard 1 establishes the importance of:

- (i) Integrated assessment to identify the environmental and social impacts, risks, and opportunities of projects;
- (ii) Effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and
- iii) Client’s management of environmental and social performance throughout the life of the project.

Performance Standards 2 through PS 8 establish objectives and requirements to avoid, minimize, and where residual impacts remain, to compensate/offset for risks and impacts to workers, Affected Communities, and the environment. While all relevant environmental and social risks and potential impacts should be considered as part of the assessment, Performance Standards 2 through 8 describes potential environmental and social risks and impacts that require particular attention.

Where environmental or social risks and impacts are identified, the client is required to manage them through its Environmental and Social Management System (ESMS) consistent with Performance Standard 1.

Performance Standard 1 applies to all projects that have environmental and social risks and impacts. Depending on project circumstances, other Performance Standards may apply as well. Independent Power Producer (IPP) is encouraged to apply the ESMF to all their scaling solar and wind energy development project activities, regardless of financing source.

Below is a brief note on the objectives of each of the performance standards:

Assessment and Management of Environmental and Social Risks & Impacts: Performance Standards 1

The objectives of the **performance standard 1** are:

- Identify and assess environmental and social impacts in the project’s area of influence.
- Avoid, minimize, mitigate, or compensate for adverse impacts.
- Ensure that affected communities are engaged on issues that may affect them.
- Promote improved environmental and social performance through effective management systems

Labor and Working Conditions: performance standard 2



The objectives of the **performance standard 2** are:

- Establish, maintain, and improve the worker-management relationship.
- Promote fair treatment and equal opportunity for workers, in compliance with national laws.
- Protect workforce by addressing child labor and forced labor.
- Promote safe working conditions and protect / promote the health of workers

Resource Efficiency and Pollution Prevention: Performance Standard 3

This Performance Standard outlines a project-level approach to resource efficiency and pollution prevention and control in line with internationally disseminated technologies and practices. The objectives of the **Performance Standard 3** are:

- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- To promote more sustainable use of resources, including energy and water.
- To reduce project-related GHG emissions.

Community Health, Safety, and Security: Performance Standard 4

While acknowledging the public authorities' role in promoting the health, safety, and security of the public, this Performance Standard – 4 addresses the client's responsibility to avoid or minimize the risks and impacts to community health, safety, and security that may arise from project related-activities, with particular attention to vulnerable groups. The objective of **Performance Standard 4** is:

- Avoid or minimize the risks to, and impacts on, the health and safety of the local community over the project life cycle, from both routine and non-routine circumstances.
- Ensure that the safeguarding of personnel and property is carried out in a legitimate manner that avoids or minimizes risks to the community's safety and security.

Land Acquisition and Involuntary Resettlement: Performance Standard 5

Performance Standard 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. The objective of Performance Standard 5 is:

- Avoid or minimize involuntary resettlement whenever feasible by exploring alternative project designs.
- Mitigate adverse social and economic impacts by providing compensation for loss of assets at replacement cost and ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation and informed participation of those affected.
- Improve or at least restore livelihoods and living standards of displaced persons.
- Improve living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites.

Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in physical or economic displacement.

***Biodiversity conservation and Sustainable Management of Living Natural Resources: Performance Standard 6***

Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing the living natural resources are fundamental to sustainable development.

The objective of Performance Standard 6 is:

- To protect and conserve biodiversity,
- O maintain the benefits from the ecosystem services,
- To promote the sustainable management of living natural resources through the adoption of practices that integrate the conservation needs and development priorities

Indigenous Peoples: Performance Standard 7

Performance Standard 7 recognizes that Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population. Consequently, Indigenous Peoples may be more vulnerable to the adverse impacts associated with project development than non-indigenous communities. This vulnerability may include loss of identity, culture, and natural resource-based livelihoods, as well as exposure to impoverishment and diseases. Solar and wind energy development IPP sites can be selected in such a manner to avoid adverse impact on underserved and vulnerable communities. Underserved and pastoral communities may be particularly vulnerable if their lands and resources are transformed. IPPs should anticipate and avoid adverse impacts on such communities or when avoidance is not possible, to minimize and/or compensate for such impacts. PS 7 will be applied to manage such risks. The objectives of Performance Standard 7 are:

- To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.
- To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts.
- To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.
- To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life-cycle.
- To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present
- To respect and preserve the culture, knowledge, and practices of Indigenous Peoples.

Cultural Heritage / Performance Standard 8

Performance Standard 8 involves properties and sites of archaeological, historical, cultural, artistic, and religious significance. It also refers to unique environmental features and cultural knowledge, as well as intangible forms of culture embodying traditional lifestyles that should be preserved for current and future generations. The objectives of Performance Standard 8 are:

- To guide companies and IPPs in protecting cultural heritage from adverse impacts of project activities and supporting its preservation.
- To promote the equitable sharing of benefits from the use of cultural heritage.

The anticipated scaling solar and power energy development project sites will be selected in such a manner so



as to avoid any impact to cultural heritage sites. In case of chance finds during construction phase, measures related to chance finds procedures and cultural heritage shall be considered during project design and preparation of safeguards instruments.

3.2.3 Gender

Actions taken at each stage of the project cycle, from planning to operations, should be based on a gender and social analysis. A gender analysis provides an understanding of how the relationships between men and women—their access to resources, their activities, and the constraints they face relative to each other—affect their ability to participate in and benefit from, the opportunities that the projects provides. Approaches can be grouped into three broad categories that are aligned with the broader framework for addressing gender gaps in World Bank operations overall.

1 | Do No Harm: Actions in this category attempt to mitigate unanticipated risks or consequences that a project might create, such as gender-based violence, displacement from assets, like land or housing, and women’s unpaid work.

2 | Ensure Equitable Participation: These actions attempt to address gaps between males and females in participation, opportunities, and access to resources. These include any employment or entrepreneurship prospects that may be created as a result of the project.

3 | Actively Close Gender Gaps: Interventions in this group explicitly seek to use operations to create transformational change in the lives of males and females.

Close attention will be paid to both ensure gender equality objectives are delivered on in terms of employment opportunities, community consultation, livelihoods and land compensation and GBV across the spectrum of do no harm to actively trying to close gender gaps. Best-practice recommendations and potential actions will be shared with bidders for their consideration at the award stage and during construction and operation.

Employment: IPP’s will be encouraged to explore employment opportunities for women and attention will be paid to PS2 for Labor and Working Conditions, which requires the promotion of fair treatment, non-discrimination, and equal opportunity.

Community Consultation: Both women and men will be consulted in community engagement processes during and after construction to ensure their views and concerns are captured through the project duration.

Livelihoods Compensation: Important will be recognizing women’s livelihoods and how they may be impacted if land is utilized under the project activities, especially if they fall into the realm of subsistence use or informal economic activities and may not be noted in larger discussions or assessments.

Resettlement and Land: Ensure gender equality in access to compensation under the resettlement plan by ensuring that not only the name and signature of the “head of household” is required but both that of husband and wife as relevant. If Land Use Certificates are issued it should indicate the names of both husband and wife. Best practices from other regions indicates that land-use rights held jointly by couples result in beneficial effects such as increased household expenditures and women’s self-employment, and lower household vulnerability to poverty.

GBV: Mechanisms need to be put in place to prevent and minimize GBV and Violence Against Children (VAC). Such mechanism should include working with the contractors to prevent sexual harassment in the workplace and GBV and VAC in the project affected communities (for example through code of conducts), strengthening grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response.

3.2.4 Public Disclosure



Performance standard 1 section 29 requires provision of affected communities and other stakeholders with the access to relevant information disclosure of relevant project information helps affected communities and stakeholder understand the risks, impacts and opportunities of the project. Therefore, the ESMF like other safeguard instrument to be publicly disclosed prior to project appraisal. The disclosure should be both in EEP, MoWIE websites and World Bank external web site as well as other relevant sites where it can be accessed by the public, including affected groups and NGOs. EEP, in compliance with the World Bank's *Public Consultation and Disclosure Policy*, will make available copies of the ESMF at accessible places to the public to allow the public and other stakeholders to express their views and comment on the possible environmental and social impacts of the projects and the respective safeguards management to minimize or avoid the anticipated impacts.

In this ESMF document, all comments and suggestions will be analyzed by EEP, which shall prepare a final report for the MoWIE and WB. The report will be published and made available to the concerned groups and to interested bodies upon request.

3.2.4.1 Citizen Engagement and Grievance Redress

Each IPP's safeguard management process will include meaningful engagement with communities that may be impacted, as specified under PS 5, with a specific focus on creating forums for consulting local population and identifying project impacts and opportunities. Particular attention will be paid to aspects of labor influx, principles of equity and harmony with the community, as well as grievance redress mechanisms. Communities and individuals who could be adversely affected by a WB supported project would be able to submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). Project affected communities and individuals would also be able submit their complaint to the WB independent Inspection Panel. These actions will form part of the broader support by the WB to the energy sector institutions for building their capacity related to citizen engagement and grievance redress.

3.2.5 The World Bank Group Environmental, Health & Safety (EHS) General Guidelines

The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP), as defined in IFC's Performance Standard 3 on Resource efficiency and Pollution Prevention.

The EHS Guidelines contain the performance levels and measures that are normally acceptable to The World Bank Group and are generally considered to be achievable in new facilities at reasonable costs by existing technology.

When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment.

World Bank Environmental, Health and Safety Guideline for Electric Power Transmission and Distribution

Environmental, Health and Safety/EHS/ Guidelines are technical reference documents with general and specific examples of good international industry practices. EHS issues are mentioned which associated with electric power transmission and distribution, that occur during construction and operation phase of a facility along with recommendation with their management. The guideline includes Environmental issues, right of way maintenance mechanisms, vegetation management including forest fires, bird collision and electro caution, Aquatic habitat alteration, electric and magnetic field, hazardous materials including insulating oil fuels and wood preservatives, pesticides and their handling storage and application with related occupational health and safety issues. In addition, performance indicators are also referred.



Environmental, Health, and Safety Guidelines for Wind Energy

The EHS Guidelines for wind energy include information relevant to environmental, health, and safety aspects of onshore and offshore wind energy facilities. The EHS Guidelines for wind energy include information relevant to environmental, health, and safety aspects of onshore and offshore wind energy facilities. It should be applied to wind energy facilities from the earliest feasibility assessments, as well as from the time of the environmental impact assessment, and continue to be applied throughout the construction and operational phases.

For more information about the world bank group environmental, health & safety (EHS) please refer the following link:

https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies_standards/ehs-guidelines

4 DESCRIPTION OF BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

The baseline environmental and social conditions are described hereunder on the basis of the fact that the locations of each of the projects are distributed in the whole country. Therefore, the approach followed in this case is that, since these locations could be anywhere, it is better to describe the environmental situations of the Regions that totally form the bulk of the country. That is, the environmental and social descriptions do not refer to specific project sites. The country is composed of nine regional states and two City Administrations under the Federal Administration for which description of the bio-physical environment and social baseline situations are described below.

4.1 Afar National Regional State

4.1.1 Bio-Physical Environment

Afar region lies in the arid and semi-arid climatic zone within the Great Rift Valley of East Africa with an irregular drainage systems and depressions. It lies in the geographic location between 8⁰49' and 14⁰30' N latitude and 39⁰34' to 42⁰28' east longitude. The land area of Afar Region is about 94,817 km², and is divided into five Zones with 32 Woredas and 401 Kebele administrative structures.

a) Topography

The topography of the Afar region varies from hilly escarpment in the western and southern edges with an altitude of 1,000 – 1,500 masl to low plain land areas in the north east and south east. The altitude of the lowlands fall between 0 and 1,000 masl, while there are some areas below sea level. Over 95% of the Afar Region lies in the altitude range below 1,000 masl. About 8% of the total land area lies below sea level. This region is also known for its lowest altitudinal location (depression) in the world, having depths as low as 114 meters below sea level in the Danakil depression in the northern part of the region.

b) Climate

The region is one of the areas having high temperature and low rainfall. Temperature in the region ranges from a mean maximum temperature of 42.5°C in the area of Dubti Woreda and mean minimum temperature of 17.8°C in the high-altitude zone at Gewane. The area has moisture index of less than 0.25 and receives mean annual rainfall of 200 mm.

Severe dry season occurs in May and June at regional level. This season has the hottest temperature. The main rainy season occurs between July and September, while short rain stays between March and April. Rainfall ranges from 500 mm on the western edges of the regional state to 200 mm in the lava plains to the eastern part of the region.



c) Geology and Soils

According to geological map of Ethiopia (1996), the geological formation of the area includes:

- Afar series; mildly alkaline basalt with subordinate alkaline and pre-alkaline silicics (rhyolitic dome and flows and ignimbrites).
- Basalt flows, spatter cones and hyaloclastites, (a) Transitional type between alkaline and tholeiitic. (b) Alkaline olivine basalt.
- Undifferentiated alluvial, lacustrine and beach sediments.
- Alkali granite and syenite.
- Rhyolitic Volcanic centres, obsidian pitchstone, pumice ignimbrite, tuff subordinate trachytic flows (alkaline and pre-alkaline composition), and
- Alluvial and lacustrine deposits: Sand silt clay diatomite, limestone and beach sand.

The major soils of the region in general include:

- Fluvisols /12.57 %/, which are fertile and easy to work with (this soil type is found along the river courses),
- Leptosols /20.60 %/ (found along plateau margins and steeper slopes) that have rocky characteristics,
- EutricRegosols /18.88 %/ (found on gentle /undulating/ rolling, moderate to high relief hills),
- EutricCambisols and VerticCambisols /8.06 %/, and
- Solonchaks /18.72 %/ which are typical soils that develop in arid climatic conditions and most plants cannot grow on them.

The soils of the region have limited fertility value. The fertile soils of the region include fluvisols found adjacent to major stream courses.

d) Vegetation Cover and Wildlife

The vegetation cover of Afar in general is sparse and the area is prone to desertification. Over 70% of the land area in Afar region is bare land. The main vegetation types in the region include the following:

- *Juniperousolea* forest rising to less than 7m in height,
- Riparian Woodlands/ forest, species constituting varieties of acacia trees,
- Shrub land; predominantly acacia species and prosopis, and,
- Bushland; the dominant species include acacia and balanites species.

Wildlife resources of the region are rich. Wildlife of the area is those that are most adaptive creatures to the arid and semi-arid lands of the region.

e) Land use / Land cover

As of 1999, the major portion of the land in the region is bare land (70.09% of the Region's area) followed by shrub land (13.68% of the Region's area).

f) Water Resources

There are number of rivers in the region including: Awash, Mille, Kessem, Kebena, Awura, Gulina, Dawie, Borkena, Telalk, Woama, Alaa and other streams. The other major water sources of the region are Lakes. There are twelve relatively large lakes and five ponds in the region. Two of the largest lakes are Afdera Lake and Abe Lake which are found in zone 1 and 2 of the Region. The smaller ones include Lake Asahle, Lake Dalol, and Lake Gemeri. Groundwater is also the major source for potable water supply in the region.

4.1.2 Socio-economic Base line

a) Population, Religion and Ethnic Group



The population of Afar region was estimated at 1,559,001 in year 2011, with 873,041 males and 685,960 females. The majority of the population (86.6%) resided in rural areas and the remaining 13.4% in urban areas. The regional population growth rate in the same year was estimated at 4.11% in urban areas, and 2.23% in rural areas. The population density is 21.6 persons/square kilometre on an average. The major ethnic groups of the regional state include Afar, Amhara, Tigray and others. The dominant occupation in the Region is pastoralism. Over 90% of the population is pastoralist community. Afar Region is one of the pastoral areas in Ethiopia, where extensive herding is practiced.

On the other hand, as per the estimations made by the CSA, for the year 2016 (July), the total population was estimated to be 1,769,002 with a male population of 969,001 and female population of 800,001. In the same period, the rural population the urban population was estimated to be comprised 81.5% and 18.5% respectively.

b) Cultural Heritage and Tourism

Afar region is rich in cultural assets. The archaeological findings from the Region have revealed that it is one of the cradles of mankind. The hominid relic of the world renown, “Lucy”, was found in Hadar area of the Region. This site is considered as an attraction area for scientific research to decipher or figure out man’s origin. The research sites such as Hadar and the middle Awash, that consist fossil and handicraft remains of human ancestors, are attractive destinations for tourists all over the world.

There are potential for tourist attraction in the area, including paleo anthropologic and wildlife resources as well as the Afar traditional way of life. Ertele and the Afar depression are sites of scientific research both of natural science as well as human civilization.

The YanguDirasa National park, the Awash National Park hosts number of wildlife species for tourism and biodiversity conservation.

The economic benefits from such tourism also termed as ‘paleotourism’ has not yet developed. But it could be known that eleven new sites have been identified to be considered for research and eventually for “paleotourism’.

4.2 Tigray National Regional State

4.2.1 Bio-Physical Environment

a) Topography

Topography of Tigray Region is mainly the extension of the central highland and associated western lowlands and is divided into two major blocs; the eastern bloc comprises of highlands while the western bloc is predominantly lowland. Altitudes range from 500 meters up to 3,900 meters above sea level. It is situated between 12⁰15' N and 14⁰57' N latitude and between 36⁰59' E and 40⁰ E longitudes with an estimated area of 53,638 km².

b) Climate

Tigray Region falls within 6 ecological zones (desert, Kola, WoinaDega, Dega and Wurch). Part of the Tigray regional state, that is, the eastern and southern zones, where Mekele is situated receive peak rain in April and August, whereas the western and central part receive single maximum rainfall between June/July to August/September and for the north western part, the wet period runs from April/ May to October/November. The mean annual rainfall for the region ranges from 600 mm in the north-eastern part to 1,600 mm in the western part of Welkait Woreda. Temperature ranges between 16⁰ C and 20⁰ C in the eastern and central highland part while in the lowlands of the western zones it is 38⁰C to 40⁰C.

c) Geology and Soil Type

The geology of Tigray comprises low-grade Metamorphic, Paleozoic and Mesozoic rocks. Tertiary volcanic, quaternary deposit and acidic to basic/ ultra-basic intrusions are also some of geological feature of the region.



Major soil types of the region identified in a study conducted in 1976 is quoted by the Bureau of Planning and Economic Development (Report of 1998) as: orthic Acrisols, chromic and Eutric cambisols, Humic cambisols, Vertic cambisols and Vertic luvisols, Eutric fluvisols, dystrophic soils, Eutric Nitisols, Eutric gossols, Haplic Xerosols, Cambic Arenosols, and chromic Andisols.

d) Water Resources

There are three major river basins and a valley in the Tigray Region: Tekeze basin, Mereb basin, Afar basin and Angereb valley. Some of the surface water sources comprise Tekeze River, Sure River, Mai Tell River and Mai Hitsatsa River. Groundwater source is abundant and is the major water supply source in the area.

e) Vegetation and Wildlife

Due to human interference and early settlements in this part of the country, the major vegetation has been destroyed. Currently the dominant ones are woodland and savannah, junipers woodlands, acacia woodland and savannah.

Accordingly, the vegetation cover of the region is divided into forest, woodland savannah and grassland regions.

The plant species include Acacia trees mixed with savannah, juniperus trees mixed with savannah, and mixed deciduous woodland. The vegetation cover of the north-western zone of the region comprises of grass land, scattered bush and scrub covered and dense forest covered land. There are protected forest areas in Tahitay Adiabo and Atsgede Tsimbela Woredas of western zone. This includes Maikohni forest area, Aditsetser, Adi Ascere areas and Enda Tanki protected site. The region has varied wildlife species including hyena, tiger, monkey and fox.

4.2.2 Socio-economic Base line

a) Population, Ethnicity and Religious Groups

According to the Statistical Abstract of CSA, 2011, the total population of Tigray Administrative Region was 4,862,998, out of which 2,363,000 are male and 2,439,998 are female, with an annual growth rate of 3% in urban areas. The density in Tigray Region in this time was 116 persons /square kilometre. There are a number of ethnic groups that inhabit the Region. Tigray being the major ethnic group, there are also Kunama, Saho, Agew, Argoba and others in smaller proportions.

According to the population estimates of the CSA, for July 2016, the total population of Tigray was 5,151,998 out of which 2,539,997 were estimated to be male while the remaining 2,612,001 were female. In terms of this estimate, 74.2% were rural inhabitants while the balance, i.e. 25.8% was urban inhabitants.

b) Cultural and Historical Heritage

Tigray has rich cultural and historical resources and high potential for the tourism industry. In Tigray Region, the colossal obelisks, rock-hewn churches, ruined temples, palaces, mosques, church paintings, stone inscription and manuscripts are some of the ancient Ethiopian properties that have tourist attraction values. The Axum Obelisks, the rock-hewn churches are the major tourist attractions of the Region.

4.3 Amhara National Regional State

4.3.1 Bio-Physical Environment

a) Topography and Climate

The Amhara National Regional State has diverse topographic features, with rugged mountains, extensive plateau and scattered plain separated by deeply cut gorges, steep slopes and cliffs. The elevation varies from 600 masl at Matera up to 4,620 masl at Raps Dashed.

The Amhara National Regional State is located between 9° N and 13° 45' North latitude and 36° to 40° 30' East



longitude. It is bounded by Tigray in the north, Oromia in the south, BenishangulGumuz in the west and Afar region in the east. The Regional State has a land area of about 161,828 km² (15% of the land area of Ethiopia).

b) Climate

The climatic condition of the Region is divided into temperate (Dega), subtropical (WoinaDega) and arid (Kola) agro-climatic zones. Mean annual rainfall of the Region varies from 700 mm to over 2,000 mm and the temperature range is between 10⁰ C and 26⁰ C. There are two rainy seasons, while short rain occurs during March, May, and April, heavy rain is during June, July and August.

c) Geology and Soils

The Precambrian rocks, Cenozoic rocks and Mesozoic rocks cover most part of the Amhara Region. The soil of the region includes: Arthric Acrisids, cambisols, Rendizinas, phaeozems, Lithisols, Aluvisds, and vertisols. Soil erosion is the major environmental degradation problem in the Region due to lack of vegetation cover and rugged topography. Soils in the Region are highly eroded as compared to other parts of the country. According to a study conducted in 1984 E.C, the quantity of soil loss in Amhara Region was estimated at 1.1 billion tons per year. This accounts for 58% of the total annual soil loss of the country in general during the time.

d) Water Resources

There is an abundant water resource in the Region. The major water resource basins in the region are the Abay River /Blue Nile/, Tekeze River and Awash River basins. There are also several lakes like Lake Tana, Lake Zengena and Haik. Ground water resource is abundant, and it is the major water supply source in the region.

e) Vegetation and Wildlife

The natural forest in the Region is heavily depleted and degraded by intensive human interference, mainly for agricultural purpose and for energy (firewood) production. Currently less than 10% of the total estimated forest area is considered to be natural forest in the Region. The rest are scattered wood lots (planted by individual farmers on different land use types) and plantation forests (those that have been planted for different purposes).

Indigenous tree/shrub in the area include: olea, africana, Juniperousprocera, podocarpusfalcatus, *Acacia species*, *hygenia abyssinica*, *ximenia american* and Ficus are some of the indigenous plant species diminishing in the area due to human activities.

Wildlife availability among other factors depends on the extent of vegetation cover of a given area. Parks of the Siemen Mountains are preserved for the most endangered species, such as Walia Ibex, Siemen Fox, Gelada Baboons and different species of birds, most of which are endemic to Ethiopia. Endangered bird species in the region include: Harwood, Francolin and Ostrich.

The Siemen Mountain National Park and protected areas of main bird sanctuaries like, Lake Tana, Ankober - DebreSina mountain, Awi Zone, Choke Mountain, Fogera, Guasa/ in Menze/, Jama and Jara valley, Middle Abay valley, Gofa Forest are found in the region.

f) Land Use/ Land Cover

As of 2002, the Region is largely covered by grazing land, which is followed by cultivable land having 30% and 28.2% respectively of all the area coverage of the region during the time.

4.3.2 Socio-economic Base line

a) Population, Ethnic and Religious Group

According to the Statistical Abstract of CSA, 2011, the total population of the Amhara Region was 18,528,997, in that 9,292,994 were male and 9,236,003 were female. Out of this, only 10.98% were urban residents while the remaining constituted rural population. The population density of the region during this period was 119.8



persons/ square kilometre.

As per the population estimates of the CSA, in July 2016 the Region's total population was estimated to be 20,769,985, which constituted 10,401,995 males and 10,367,990 females. In the same estimation, the rural population was estimated to be 83.2% whereas the urban population constituted 16.8%.

b) Socio-Cultural and Historical Heritage

The Amhara Region is rich in cultural and historical heritages. Very old Monasteries, rock-hewn churches, palaces and castles are found in the region. The Lalibella Rock-hewn Churches, the Gondar Castle that are registered as International Cultural Heritage sites are found in this Region. There are several monasteries in Lake Tana Islands, which is also the origin of Blue Nile (Abay) River. The Blue Nile Falls is found just few kilometres downstream of the Regional Capital, Bahir Dar, which is a tourist attraction site.

4.4 The Oromia National Regional State

4.4.1 Bio- Physical Environment

a) Topography and area

The Oromia National Regional State is located in the central part of the country and extends from south-east, bordering with Kenya in the south part and up to the Sudan border in the western part. It has an area of 353,690 km² (32 % of the country). Oromia National Regional State lies between 3^o 40' N and 10^o 35' N latitude and 34^o 05' E and 43^o 11' E longitude.

The topographic features of the Region have been characterized by immense geographical diversity consisting of high rugged contoured mountains dissected by the great African Rift Valley. The high mountains include Tulu Dimtu in Bale (4,307 masl), Kecha (4,245 masl), Ankolo (4,300 masl) in Arsi, GaraMulat in East Hararge (3,492 masl) and BadaRoge in Shewa (3,350 masl).

The Regional State has topographic features of mountainous and rolling terrain in the north-western and north-eastern parts, valleys and gorges in the central and eastern, flat and plain land in the south and south-eastern part. Altitude in the Region varies from 500 masl in the south eastern part to 4,300 masl in the central and north western parts.

b) Climate

The east and southern parts are dominated by arid climate while the central and north western parts are more of temperate climate. The lowlands (500 - 1,500 masl) experience mean annual temperature of 20^o C – 25^o C, areas of altitude 1,500 - 2,300 masl have mean annual temperature of 15^o C – 20^o C, while the highland areas (2,300 - 3,300 masl) have mean annual temperature range of 10^o C – 15^o C. Mean annual rainfall ranges between 200 mm in the south east to 2,000 mm in the north western part of the Region.

c) Geology, Physiographic Divisions and Seismicity

The major part of Oromia falls in the Great Rift Valley of East Africa and is tectonically unstable. It appears to be a zone of volcanic and seismic activities. There are six physiographic sub-regions in Oromia: the Rift lakes plain, the transitional scrap slopes, the young lava plain, zone of ancient crystalline rocks, the central lava highlands and massifs and zone of Mesozoic sedimentary rocks. The geology of the region consists of: Rocks of the Precambrian era, Rocks of the Paleozoic era, Rocks of the Mesozoic era, and Rocks of the Cenozoic era.

d) Soil

The major soil types of the area constitute Luvisols, Fluvisols, Andosols and Fluvisols are commonly found in the plain lands of river banks and lake shores. This soil type is good for agricultural use. Andosols are formed from volcanic ash parent material. They are light, loose, porous, have high drain capacity and easily eroded by rain or wind action. Andosols have limited agricultural value. Luvisols on the other hand are good for agriculture.



e) Water Resource of the Region

There is an abundant water resource including surface and ground sources. Oromia possess three major drainage systems or river basins: Rivers that drain to the Blue Nile (Abay) and the Mediterranean Sea, Rivers that drain to the Indian Ocean and the Rift Valley Closed drainage system. Major rivers in the country like Blue Nile (Abay), Jemma, Muger, Guder and Anger Didessa, Awash, Gibe, WabeShebele, Dawa, Genale, Weyb, Dabuss, traverse the Oromia Region. Most of the rift valley lakes in Ethiopia, like Lake Langano, Zeway, Abiyata, and Shalla are found in Oromia. The wetland ecosystem of these water bodies has significant environmental and socioeconomic values.

f) Vegetation Cover and Wildlife

Oromia region possesses most of flora and fauna types found in Africa, and several endemic species. There are about 12 million ha of woodland and bush land covering 32% of the Region. There is also 70 percent of the national forest priority areas located in Oromia: the Munesa (1,385 ha), Tiro Boter Becho (8,500 ha), Menagesha Suba (9,000 ha) are set aside as Nature Reserves.

The region has dense forest cover in the central, south western and western areas, while southern and south-eastern areas are covered mainly by sparse vegetation, bushes and scrubs. The vegetation types are varied including Coniferous forest, broad leaved forest, woodland and savannah, grassland, riverine forests and wetland vegetation.

There are parks and protected sites in the region, including Awash National park (partly) Abijatta–Shala National Park, Bale Mountain National Parks, Yabelo mountains, Controlled hunting zone of Borena, wildlife Reserves (Sanctuaries) of Babile, Senkele, and Yabelo. There are also Game Reserves in Arsi, Bale and Borena with over 20 Main Bird Sanctuaries. Those parks and protected areas host variety of wildlife and important bird species. Wide varieties of wild animals exist in the Region. They include, Mountain nyala, the Giant molerat, Ethiopian Wolf, Minilik's Bushbuck, Bohor reed buck, Grey duiker, Oribi, Klipspringer, Grant's Gazelle, Greater Kudu, Lesser kudu, Swayen's hartebeest, Gerenuk, Burchell's Zebra, Warthog, Giant forest hog, Bush pig, Colobus, Monkey, Anubis baboon, Spotted hyaena, Serval cat, Lion, Leopard, Golden jackal and African Hunting.

4.4.2 Socio-economic Base line

a) Population, Ethnic and Religious Group

According to the Statistical Abstract of CSA, 2011, the total population of Oromia Region was estimated to be 30,397,990 (15,309,996 were male and 15,087,994 were female). Ethnic group residing in the region is also varied, the majority being Oromo, followed by Amhara, and several other ethnic groups. The density of the population is 106.8 persons / square kilometre.

For the year July 2016, the CSA estimated the total population of Oromia Region as 34,575,008 that comprised of 17,345,004 male and 17,230,004 female. In this estimation, the urban population and the rural population constituted 85.2% and 14.8% respectively.

b) Archaeological and Cultural Heritages

The SofOumar Cave, the Aba Jiffar palace, etc are found in the Oromia National Regional State as sites of cultural heritage. The Sof-Omar caves in central Bale, with their galleries of polished white cone and chamber of columns are the incredible natural phenomena of great interest and beauty. The palace of Aba Jifar in Jimma is another historical attraction.

In general, Oromia National Regional State is rich in tourist attraction resources that could be categorized in to the following major categories-

- Natural forests with wide range of wild plant species;
- Wild animals and birds of various species including endemics;



- Several rivers with their multiple spectacular waterfalls;
- Rift valley lakes and highland crater lakes;
- Magnificent landscape scenery (mountain chains, river gorges;
- Diversified local cultures with their distinct ethnography, art, traditional practices;
- Historical heritages; and,
- Natural wonders of unique forms.

4.5 Benishangul Gumuz National Regional State

4.5.1 Bio-Physical Environmental Conditions

a) Topography

The Region is stretched along the western escarpment of Ethiopia between Gambela Region in the south, the Sudan to the west and Amhara and Oromia Regions to the northeast and east. Benishangul-Gumuz National Regional State has an altitude ranging from 600 masl up to 2,000 masl and has a topography dominated by river valleys which join the Abay River before it enters the Sudan.

The areas around Wonbera are characterized by rugged mountain ranges like Gassangassa mountain range, Bedessa&Kushaya Mountains. The road route traverses flat terrain from the Guba side while the segment from the Wonbera side has rolling terrain & hilly topographic feature.

b) Climate

The climatic condition of the area is varied, like most part of the country. It has climatic condition of 85% Kola (Hot climate), 10% WoinaDega (Semi –Temperate) and 8% has Dega (Temperate) climatic conditions. The annual rainfall in Metekel zone of the Region ranges from 600 mm to 1,450 mm. The rainy season stays from April/May up to October/November. The dry period is between February and April. Annual temperature of Metekel zone ranges between 18⁰c and 40⁰c.

c) Geology and Soils

The geological formation of the area is characterized by Tulu Dimtu Groups and Tonalities. Meta Basalt, Meta Andesine, green schist, phyllite, Meta conglomerate, quartzite and Marble, precious materials like Gold are also available in the area.

The regional soil is fertile and has high agricultural potential with favourable agro-climatic conditions. It is estimated that 911,876 ha of land in the region has potential for agricultural development, out of which only 233,200 ha could be cultivated.

d) Water Resources

The region has high water resource potential. Abay/Blue Nile, Didessa and Beles Rivers are among the major water sources in the region. There are over 32 perennial rivers in the Metekel Zone, most of which have potential for irrigation.

e) Vegetation and Wildlife

Benishangul-Gumuz National Regional State is endowed with a variety of natural resources. Over 50% of the land is covered with natural forest, which also has commercial value. The woodlands in the Region are the Doqma woodland, the Sudanian woodland, palms and bamboo and riverine forest.

Benishangul-Gumuz region lies in the Abay and Baro drainage basin and is one of the few areas that still have significant part of its landmass covered by natural vegetation. It is estimated that 55% of the land is covered by Bamboo, broad-leaved deciduous woodlands, acacia & cacao woodlands. Riverine forests are predominantly found along the river courses. Some of the tree species found in the area are endemic ones for Ethiopia.



The Region has varied wild life species. Wild animals including Elephant, Giraffe, Rhinoceros, Hippopotamus, Buffalo, Roan antelope and Hartebeest, Lion, Tiger, Patas monkey and Anubis baboon are found in the region. Estimates indicate the availability of about 40 species of larger mammals and estimated bird species of 500-550. Game Reserve and main bird Sanctuary of Dabus is found in the Region.

f) Land use/Land cover of the Region

As of 2002, Woodland and scrublands have the two largest shares of land use with 49% and 28% respectively.

4.5.2 Socio-economic Base line

a) Population, Ethnic and Religious Group

According to the Statistical Abstract of CSA, 2011, the total population of BenishangulGumuz was 938,996 (476,999 male and 461,997 female). The annual population growth was about 3.1%. In the same year, the urban population was only 8.5% while the remaining was rural. The density of the population in the Region is 18.5 persons/square kilometre. There are a number of ethnic groups that inhabit the BenishangulGumuz Region. The major ethnic groups are Berta (26.7%), Gumuz (23.4%), Shinasha (6.9%), Amhara (22.2%), Mao (0.8%) and Oromo (12.8%). The major religious groups are Orthodox Christianity (34.8%), Traditional Religion (13.1%), Protestants (5.9%) and Islam (44%).

On the other hand, the number of population estimated for July 2016 by the CSA was 1,033,999 i.e. 524,000 male and 509,999 female. As per this estimation, the rural population constituted 79.2% while the remaining 20.8% was estimated to be urban population.

4.6 Gambela National Regional State

4.6.1 Bio-physical Environment

a) Topography

The Gambela National Regional State is situated in the south-western part of Ethiopia at 7° N - 8° 17' North latitude and 33° E - 32° 2' East longitudes. The altitude of Gambela lies between 300 and 2,500 masl.

b) Climate

Gambela is subdivided into three agro ecological zones: WoinaDega, Kola and desert agro – ecological Zones.

In general, the Region has warm temperature ranging from 27°C to 33°C. However, temperature as high as 45°C occurred in March and as low as 10°C in January had been recorded.

The average annual rainfall varies according to the different altitudes. Areas of 400 - 500 masl of the western part receive 900 mm - 1500 mm, while areas over 2,000 masl (eastern part) have average rainfall ranging from 1,900 to 2,100 mm.

c) Geology and Soils

The Gambela Region falls within the Baro-Akobo River Basin which consists primarily of basement crystalline with eastern upland covering tertiary lava in some places and Quaternary sediments in the lowlands to the west.

Mineral resources of the area include gold, tungsten, granite, crude oil and construction material. The area is dominantly covered by alluvial and lacustrine deposits: silt, sand, clay, diatomite, limestone, Enticho sandstone, Glacials, Gura and Filo formations and sand stones.

The soils of the region are divided into two major classifications as upland soils and fluvisols (along the river course). The soil fertility is very high and not been exploited much.

d) Vegetation and Wildlife

Gambela Region is endowed with vast natural resources. The main habitats of Gambela Region are forests,



woodlands, swamps and rivers. Out of the total area 25% of the land is covered with forest. Savannah, tropical forests and seasonally flooded grass plains also inhabit the area. The eastern part of the region is covered with natural high forest. Woodlands, bush lands and Savannah woodlands inhabit the central plain lands of the region with altitudes below 600 masl.

The dominant tree species include: *Acacia*, *Cambretum* species, *Terminaliacoxifera*, *Sonogisusreicarpa*, *Kegelioafricanas*, and *Albiziacordiaria*. From grass species; *Beckeropsisuniseta* and *Hyparrheniarufa* are some to mention. Abobo-Gog natural forest is one of the 58 most important natural forests classified as National Forest Priority areas by the Ethiopian forestry action plan (as reported in the Baro - Akobo master plan study). There are also four other sites in the region that are identified as natural forest areas.

The Gambela National park, Mago National park and three controlled hunting areas: Jikawo, Akobo and Teyu sites are found in the region. The Gambela national park is the largest park in the country and accounts for 20% of the land area of the region. The remaining controlled hunting areas of Jikawo and Teyu also occupy similar sizes of land area.

Those areas are habitat for over 300 bird species of which 100 are migratory and over 60 mammals. The major wildlife species conserved in the lowland plain are; Roan antelope, White-ear kob, Nile lechwe, Topi, Elephant, lion, Leopard, hippopotamus, Warthog, Giraffe, Defas, Water buck, Buffalo, Pig, Civet, Lelwel Hartebeest, etc. Reptiles such as Tortoise, fish (Nile perch) and Crocodile are found in the Region.

Nile lechwe and the White eared kob are unique to that area. They are also trans-boundary that migrates between Ethiopia and South Sudan.

e) Land Use and Land Cover

The major settlement area is the riverbanks for both urban and rural communities. Due to this situation, the population is frequently affected by flood calamities. As of 2000, the two major land uses were open wood land and disturbed forest with a percentage share of 41% and 20.87% respectively.

f) Wetlands and Water Resources

Gambela Region is the wettest and best watered area in the country. There are five major rivers, namely, Baro, Akobo, Itang, Gillo and Alwero Rivers that are also trans-boundary. There are also several lakes and ponds in the Region such as, lakes Tata, Wagan and Nitang which are cut-off lakes, so called because they have been formed when bends, branches and arms of the main river have been cut-off by sediments or changes in the direction of the main river channels.

These water sources feed the Gambela flood plain, which is the largest low laying wetland in the Baro - Akobo River Basin. Both migratory and residential birds inhabit the wetland and are one of the tourist attraction sites in the area.

The flood plain of the two rivers, Gillo and Akobo form important wetland ecosystems. Wetlands support a wide range of biotical, hydrological, and physical processes which result in ecosystem function and the provision of valuable goods and services.

4.6.2 Socio-economic Base line

a) Population and Ethnic Group

According to the Statistical Abstract of CSA, 2011, the population of the Region was 368,999 (191,996 male and 177,003 female). Of the total population, 17% lived in urban areas while the remaining 83% are rural residents during this time. Linguistically the population comprises mainly of Omotic, Cushitic and Nilo-Saharan, although Semetic origin also exists. The major ethnic groups are Agnuaq, Nuere, Megengir, Coma and Oppu. The population density of the region in 2011 was about 12.4 per square kilometre.



According to the population estimates made by the CSA, as of July 2016, the Region's total population was estimated to be 422,002 having 220,000 males and 202,002 females. The rural population as per this estimated constituted 66.8% and the urban population constituted 33.2%.

4.7 Somali National Regional State

4.7.1 Bio-physical Environment

a) Topography

The Somali National Regional State is located between 4^o and 11^o North latitude and between 40^o and 48^o East longitude in the eastern part of Ethiopia, which lies to the southeast of the Great African Rift Valley. The region has entirely flat terrain except some hills with gentle slopes around Jigjiga and Togo Wuchale, and along major river courses. The altitude ranges between 500 to 1,600 masl. The major land area of the region falls below 900 masl.

b) Climate

The rain in the Region has been generally low, unreliable and unevenly distributed. When rain occurs it is torrential and is of high intensity. The annual rainfall is between 200 mm and 530 mm for the Region as a whole. The mean annual rainfall is 425 mm. The annual potential evapo-transpiration ranges from 1,800 mm in the lowlands to 800 mm in the highlands.

The major part (60% to 80%) falls within hot and arid climate. Temperature ranges between 20^o C and 45^o C. The region is characterized by strong wind circulation, which can cause and aggravate soil erosion and water moisture losses. The mean annual wind speed varies between 1.8 miles/ sec in highlands and 3.6 miles/sec in the lowlands.

c) Geology and Soil Type

The geology of the Region is dominated by alternating limestone, shale, anhydrite, dolomites and marl. The land surface is sandy and often coated with reddish soil and calcareous crust typical of desert area. Minerals like edible salt, gold and natural gas also occur in the region.

The dominant soil types of the region are Yermosol, Xerosols, Regosols, and solonchakes. Minor parts have fluvisols and Vertisols, Cambisols and Luvisols. Soil erosion has been a serious problem in the region and is caused by the action of wind and water.

d) Water Resources

The region is divided into four basins: the eastern Ogaden basin, the WabeShebele basin, the GenaleDawa basin and part of the Awash River basin. The area receives a bi-modal rain fall: March - May and September - November. Most of the streams in the region are ephemeral and are characterized by short duration and high intensity of flood. However, perennial rivers like WabeShebele, Weyb, Genale and Dawa are also available in the region.

e) Vegetation and Wildlife

Endemic flora species in the Somali region represent 25% of the flora in Ethiopia, of which 18% are unique to the region. Among the largest plant families are graminacea, leguminacea, and euphorbicea. The main climax vegetation classes in the region are: acacia based woodlands, acacia comiphora bush lands, evergreen scrubland and riparian forest.

There are also a number of mammals, birds, reptiles, amphibians, fishes and invertebrates uniquely adapted to the arid and semi-arid conditions. Wildlife animals include lion, hyena, leopard, fox, hunting dogs, crocodiles



and various types of snakes. Hunted wild animals include Bicids, Balango, Goodir, Dabatag, Zebra, Baboon, Hippopotamus, Ostrich, Monkey and Elephant. There are also a number of birds such as, degodi lark, little winged dove, Somali short billed crombec, Jubaland weaver, little brown bustard and white winged collared dove.

f) Land use / Land cover

In 1999, Grassland and scrubland are the two types of land use with land coverage of 56.8% and 22.2% of the Region's total area.

4.7.2 Socio-economic Base line

a) Population and Ethnic Group

According to the Statistical Abstract of CSA, July 2011, the total population of Somali National Regional State is 4,986,004, out of which, 2,773,001 are male and 2,213,003 are female. The Somali Regional State is divided into nine administrative zones, 53 Woredas and 67 urban centres. Majority of the population are pastoralists and the social organization of the Somalis is based on clanship. Over 86% of the population is rural. The region is sparsely populated with an average density of 12 persons per km².

The total population estimates of the Region conducted by the CSA for the year July 2016 was 5,598,002 i.e. 3,023,000 males and 2,575,002 females respectively. The rural population of the Region in the same year constituted about 85.5% while the urban population comprised about 14.5%.

Somali and Issa are the majority ethnic group, while Oromo, Amhara and Gurage are also found in the urban areas.

The settlement pattern of the Somalis is characterized as group and temporary. In areas suitable for agriculture, Somalis settle permanently. The seasonal availability of water and pasture as well as the rapid exhaustion of the pasture owing to overgrazing often causes mobility of the pastoralist population.

b) Societal Aspects

The social organization of the Somali society has a pyramidal structure formed by lineage segmentation levels. The segment levels are known as: Reer, Jilib, Qabil and clan families or group. Each lineage segment constitutes a separate social and political unit having definite members with a territory under it (SNRS, conservation strategy, 1999, cited in EEPCo, 2011).

The Somali are predominantly pastoralists and their settlement pattern, and their life style is influenced by the same mode of occupation. They are mobile in settlement, which is mainly guided by the need of their cattle herds. As a result, a densely populated area at one season can be easily deserted at other times. The Somali have divided themselves into two major lineages of Sab and Somali. The former constitutes hunters, gatherers, and agriculturists.

Among the pastoralists, mostly wealth is not held by individuals but by families. Water and pasture is commonly owned. Agriculture plots are held by families. Craft heritages produced by the low cast Sab are generally made for own use, few are sold to tourists. Since the Somali nomadic pastoralists have been isolated from the central highlands, there has been much lesser degree of acculturation. Moreover, there is lower degree of economic integration, transportation and communication.

Division of labour among the Somali is based on gender differentiation. Women are exclusively responsible for job like building nomadic huts, preparing food, collecting firewood, fetching water, milking cows and small ruminants etc. While males are culturally assigned to perform out – door tasks like herding, watering, farming and mediating.

The economic base of the region is dominated by pastoralist society. Livestock is the major economic earning



for the Somali population. The rural population earns 40% of their income from livestock, 26% from crop production, 14.4% from trade and 7.4% from gifts availed from others (IPS, July 2000, cited in EEPCO, 2011).

4.8 The Southern Nations, Nationalities and Peoples Regional State

4.8.1 Bio-physical Environment

a) Topography

The Southern Nations, Nationalities and Peoples' Region lies on surface area of 117,500 km². The Regional State is located between 4^o 25' and 8^o 20' North latitude and 34^o 20' - 38^o 50' East longitude. Altitude ranges from 400 masl in the southern part up to 4,200 masl in the northern part of the regional state. The physiographic feature of the region is divided into highlands in the north and rift valley and lowland in the south.

b) Climate

The region's climatic conditions vary from place to place. It has semi-desert climate in the southern extreme of the Kenya border, tropical climate in the northern highlands, and warm temperate in the mountainous areas of north Omo zone. The mean annual temperature and mean annual rainfall are 24°C and 600mm respectively, in the semi desert climatic zone, the warm temperate climatic zone of north Omo has mean annual temperature of less than 18°C and mean annual rainfall of 2,500 mm.

c) Soils Type

The soils of the region constitute:

- Luvisols and phaeozens that cover most of the zones of the region.
- There are also Lithosols, Arenosols and Regosols, fluvisols, Andosols, Vertisols and Cambisols, and
- Soil fertility is high in the region and is suitable for cereals, root crops, coffee and vegetables.

d) Vegetation and Wild life

The Region is characterized by dense natural forest and rich wildlife resources. The forest resource is mainly situated in Kafa and Bench Maji Zones and in the southern part of the Region. The most common groups of vegetation include broad leaved deciduous woodland, evergreen scrubs, dry evergreen Montana forest and grasslands, acacia – *commiphora* woodland.

There are several National Parks in the Region. They include NechSar, Mago and Omo National Parks, Tama wildlife reserve and Chew Bahir wildlife reserve and all the rest of the southern parts are designated as controlled hunting areas except a small section between Akobo and Omo in which the wildlife ranges from birds to big mammals.

The wildlife of the region include: Giraffe, Common eland, Buffalo, Elephant, Greater kudu, Lesser kudu, Burchell's zebra, Grant's Gazelle, Guenther's Dikdik, Crocodile, Hippopotamus, Swayne's Hartebeest, Orbi, Bohor Reedbuck, Genet, African Hunting dog, Black backed jackal, Colobus monkey, Oryx, Lion, Gerenuk and Ostrich.

e) Water Resources

There are abundant water resources both from surface and sub surface sources. Surface water resource of the Region include rivers like Omo River, Dinchu, Gojeb, Segen Gibe River, Bilate River, Awash River, While Rift valley lakes like Hawassa Lake, Chamo Lake and Abaya Lake are also found in the region.

4.8.2 Socio-economic Base line

a) Population and Ethnic Groups



According to the Statistical Abstract of CSA, 2011, the population of the regional state is 16,848,011 (male accounts for 8,385,003 and female 8,463,008), accounting for 18.5% of the total population of Ethiopia. The majority of the population (Over 87%) lives in rural areas while the remaining 13% are urban residents. As per the population estimates of the CSA made for the Region for July 2016, the total population was estimated to be 18,719,008 with 9,278,004 male and 9,441,004 female. The percentage of population lived in rural areas in the same year was 83.9% whereas the remaining 16.1% lived in urban areas. The population density in the Region is 159.1 persons per square kilometre.

The region is known for its diverse ethnic composition. There are about 45 ethnic groups residing in the Region, constituting over 50% of the total ethnic groups of Ethiopia.

Most of the populations living in the rural areas of the Region are mainly dependent on agriculture and pastoralist economy, while trade and other businesses are the principal practices in the urban areas.

b) Cultural and Historical Heritage

There are cultural heritage sites like the Tiya monuments and the Omo valley archaeological site.

4.9 The Harari National Regional State

4.9.1 Bio-physical Environment

a) Topography

The Region is divided into highland and low lands (valleys) with elevation ranging from about 1,300 to 2,200 masl, falling in slope gradient gradually towards the south east direction of the region and the lowest elevation of about 1,300 – 1,350 masl occurs at Kille farmer's association (Kebele). On the other hand, the Aw-Hakim Mountain located at the southern margin of the region forms the highest peak (2,200 masl). The Regional State is located between 9° 11' 49" and 9° 24' 42" North latitude and 42° 03' 30" - 42° 16' 24" East longitude.

b) Climate

The rainfall pattern of the region has bi-modal type. The first peak is in April – May and the second and main peak occurs in July–August. The mean annual rainfall is 669 mm.

c) Temperature

The mean annual daily temperature of Harar city as recorded at Harar meteorological station is 19.5° C.

4.9.2 Socio-economic Base line

a) Population and Population Characteristics

According to the projection done in medium variant, the total population of Harari Regional State in 2011 was 203,438, out of which, 102,369 are male and the rest 101,069 are female. The size of urban dwellers is 107,592 and the rest 95,846 are rural population. The growth rate according to the CSA report was 2.06 percent. With an estimated area of 311.25 square kilometres, the region had an estimated density of 589.05 people per square kilometre during the same period. The ethnic groups in the region include the Oromo, Amhara, Harari, Gurage, Somali, Tigray and Argoba that constituted 56.41%, 22.77%, 8.65%, 4.34%, 3.87%, 1.53%, and 1.26% respectively. The religion with the most believers in the region during the same period were Muslim with 69.99%, Ethiopian Orthodox 27.1%, Protestants 3.4 %, Catholic 0.3% and others 0.2 %. The Harari language is the official language of the Region.

According to the population estimates made by the CSA, in July 2016, the Region had an estimated total population of about 240,000 in that males and females constituted 121,000 and 119,000 respectively. The rural population in the same period constituted about 44.5% while the urban population comprised of 53.5%.

b) Tourist Attraction Sites



The tourist attraction sites in the region are:

- The Jugal Wall,
- The narrow streets inside Jugal,
- The Hyena feeding,
- Harla Village,
- Abadir Cave, and
- Traditional worshipping places.

Some of the museums in the region are:

- Arthur Rimbaud,
- Harari Cultural Centre,
- Sheriff Harar City museum, and,
- Harar National Museum.

4.10 Dire Dawa Administrative Council

Dire Dawa Administrative Council is located between 9° 27' N and 9°49' N latitude and 41°38'E and 42° 19'E longitude. East Hararge Administrative Zone of Oromia National Regional State borders it in the south and southeast and Shinele Zone of Somali National Regional State in the north, east and west. The total area of the region is about 128,802 ha; out of this urban accounts for 2684 ha (2%) and the balance 98% is for rural (Dire Dawa Administration, July 2006).

4.10.1 Bio-Physical Characteristics

a) Physiography

The physiography of Dire Dawa Administrative Council embraces mountains, hills, valleys, river beds, and flat plains. The mountain ranges are mainly found in the southern parts of the Administrative Council having a slope of above 45 per cent while the hills are scattered over the Administrative Council with slopes ranging between 16 and 30 per cent (Water Works Design and Supervision enterprise, 2003, cited in Ministry of Federal Affairs, February 2004). On the other hand, the flat plains, which are mainly used as grazing and browsing ground for the livestock of the pastoralists are found in the northeastern and northwestern part of the Administrative Council having slopes ranging between 0 and 3 per cent (ibid.). The valley areas and the riverbeds are used as rain fed and irrigated crop production with an average slope ranging between 0 and 3 per cent.

b) Land Use

The land use systems of the Administrative Council can be classified on the basis of agro-ecological conditions-crop, livestock and tree production components and socio-cultural and economic characteristics. The cereal farming system occurs in the valley areas whereas the agro-pastoral systems occur in the foothills of the mountains particularly in the southeastern part Water Works Design and Supervision enterprise, 2003, cited in Ministry of Federal Affairs, February 2004). According to the information obtained from the Agricultural Bureau of the Administrative Council, cultivated land, grazing/pasture land, forest and marginal land covers about 11500, 47000, 29000, and 58000 hectares respectively (Water Works Design and Supervision enterprise, 2003, cited in Ministry of Federal Affairs, February 2004).

4.10.2 Socio-economic Base line

a) Population, Ethnicity and Religion

According to population projection of the CSA, Dire Dawa Administrative Council was estimated to be 453,000 populations for the year 2016 having 227,000 male and 226,000 female (CSA, August 2013). In the same period, the urban population of the Administrative Council has been estimated to constitute 62.91% while the remaining 37.1% constituted rural population. According to the 2007 census result, the major ethnic groups of



the residents of Dire Dawa administrative council were found to be 45.9% Oromo, 20.2% Amhara, 24.3% Somali, 4.5%, 1.2% Tigray, and 3.9% others. Amharic is the official language of the administrative council. From the same census, the religious composition of the population of Dire Dawa administrative council indicates that 70.8% were Muslims, 25.7% Orthodox Christians, 2.8% Protestants, 0.4% Catholics, and 0.3% followers of other religious groups (CSA, 2007).

b) Tourist attraction sites

The city of Dire Dawa has been considered as one of the tourist attraction sites of the country. Besides, to its natural and urban character, the city and its surroundings have several tourist attraction sites as discussed in the following paragraphs (Ministry of Federal Affairs, February 2004).

i) Natural Sites

- Dangago landscape scenery, and the fauna and flora of the woodlands located in Geldessa, GerbaAneneo and ChirmiteeKebele Peasant Associations are the potentials of eco-tourism.
- Hot Springs: the existence of a hot spring at GerbaAneno Peasant Association in a stream locally known as Hartu is another potential that serves as healing and resorting (WWDSE, 2003, cited in Ministry of Federal Affairs, February 2004).

ii) Archaeological Sites

According to the study made by the Water Works Design and Supervision Enterprise (2003, cited in Ministry of Federal Affairs, February 2004), the Administrative Council of Dire Dawa has the following two caves with stalactite and stalagmite formations and prehistoric paintings that are situated in the south of the city:

- *Laga-Oda* ancient caves are located some 38km away from the center of Dire Dawa in the Gunin Feta Peasant Association to the southwest. It consists of prehistoric paintings of human beings and animals. There are also written records on the walls of these caves and,
- *Hinkuftu* Cave is located in the proximity of the city at an area called Addis Ketema.

iii) Historical Sites

- Africans Graveyard- constructed in memory of members of the British Air Force and African soldiers, who sacrificed their lives against the Italian invasion is located close to the center of the city in Keftegna 1, Kebele 05.
- Italian Mosque, built by the Italians during the Italian invasion, located at the foothill of Ganda Gara (Legehare) is also considered as a historical and religious heritage.
- Ancient Catholic Church- that was built 125 years ago is located at BiyoAwaleKebele Peasant Association some 20km from the city of Dire Dawa to the southeast.
- Ancient Railway Station offering significant economic advantage for the city and the country at large has been viewed as an important tourist site.
- *Kefira* Open Market- located in the south of the city is viewed as a traditional market place that accommodates a wide variety of goods.
- *Camel* Market- located at Keftegna 3, Kebele 13 is fascinating and colorful as *Kefira* Open Market.
- Italian Fort- located on top of *GendaGara* Hill, is considered as one of the historical sites of the city. Besides to its importance as historical site, it has been serving as an ideal site for viewing the panoramic view of Dire Dawa.



- Abeyaziz Mosque- located in Hulul Mojo Peasant Association, some 25km away from the city, is believed to have over 500 years.

Note: Project location should be done in a way that can avoid impacts on the identified historical sites.

iv) Ethno-Tourism

Dire Dawa city is inhabited by people of diverse ethnic groups such as Amhara, Oromo, Somali, Harare, Tigray, Gurage, etc. who are living in harmony with each other. This has brought the co-existence of different cultures of these nations and nationalities, which is also one of the centers of attraction for tourists.

5 ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

5.1 INTRODUCTION

The proposed national program, i.e., Renewable Energy Guarantee Program (REGREP) is envisaging to contribute for sustainable provision of renewable energy in the country. The actual implementation sites of various projects under this program are not yet known. In this regard, the potential impacts described below are those anticipated at this time and indicative to serve as a guideline for a thorough assessment of environmental and social issues, and to develop broader relevant safeguards instrument(s) (such as environmental and social management plan (ESMP), Environmental and Social Impact Assessment (ESIA), Resettlement Policy Framework (RPF), Resettlement Action Plan (RAP), etc.

Given the nature and scale of the proposed projects under the REGREP and the respective activities over the construction and operation phases, both positive and negative impacts are expected to be generated and affect the nearby biophysical and social environment. In this regard, environmental and social impacts that could be emanated from program activities are expected to be limited. These may stem from ground disturbance due to installation of wind turbines and solar panels; noise, air and water pollution during installation storage, transportation, and distribution of solar panel and wind turbines, and aesthetic disturbance to the neat by community, acquisition of lands at various other location for the implementation of project related activities which can create resettlement issues.

Moreover, other potential impacts during construction and operation period of new equipment and facilities may include health and safety issues; air emission, solid waste, and wastewater; of course, considered as at a lower amount or lesser pollution than those could be arisen from old technologies and equipment.

The stated adverse effects associated with the construction and operation phases of the proposed program will be reversible in nature and no impact is anticipated that will lead to irreversible negative permanent change. It is foreseen that most the projects under REGREP are category B with the above noted typical impacts which are assessed as localized; varying from small to moderate scale and mitigation measures could be readily designed. In any case, all projects will be screened carefully case by case, to determine the appropriate category and environmental safeguard instruments to manage the potential impacts.

The following potential environmental and social benefits and impacts of Ethiopia Renewable Energy Guarantee Program (REGREP) components were identified through reviewing relevant documents, comprehensive stakeholder consultation process as well as field visit in selected regions/localities.

5.2 POSITIVE ENVIRONMENTAL AND SOCIAL IMPACTS

Understanding the nature of the proposed projects activities under the national program is expected to be environmental friendly and socially acceptable, as reflected by their characteristics to provide benefits to the whole nation in general and for the communities in projects implementation areas, in particular

Overall the REGREP could bring benefits to community members residing nearby, industries and the



environment by contributing to reduction of GHGs and pollutants, increases energy savings, and encourages the promotion of environmentally good practices at all sectors.

The project may involve the small construction for installation or replacement of energy efficient technologies and equipment that potentially contribute for environmental and social benefits. Therefore, the anticipated positive Environmental and Social impacts resulting from the Ethiopia Renewable Energy Guarantee Program (REGREP) are:

Scaling solar projects

- Solar power is a renewable energy source, which means it replenishes itself naturally and is at no risk for depletion.
- Using solar energy instead of fossil fuels to generate electricity offsets greenhouse gases, prevents carbon dioxide contamination, and reduces air pollution due to less or no production of greenhouse gases, such as carbon dioxide.
- Creates direct and indirect employment to the local community as well as people from other places,
- Contributes to the economic development of Ethiopia.

Wind energy development projects

Primarily, wind energy does not cause water or air emissions, and do not produce any kind of hazardous waste as well. Moreover, wind energy does not make use of natural resources like oil, gas that may result a damage to the environment through resource transportation and extraction and do not need consequent amounts of water during operation. Wind energy is not only a favorable electricity generation technology that reduces emissions (of other pollutants as well as CO₂, SO₂ and NO_x), it also avoids significant amounts of external costs of conventional fossil fuel-based electricity generation.

More and more use of wind energy should be made to prevent the problem of global warming.

Wind energy plants are considered a green power technology because it has only minor impacts on the environment. It is considered that wind energy is an ideal renewable energy due to pollution-free, infinitely sustainable form of energy; doesn't require fuel; no generation of greenhouse gases and toxic or radioactive waste; etc.

5.3 Negative Environmental and Social Impacts

This section addresses the typical environmental and social impacts that could be generated due to activities likely to be supported by REGREP. The information on impacts and mitigation measures is presented below in table 5.1. The table is not intended to be exhaustive in content but rather to indicate in general the scope of ESIA's and ESMP's for REGREP supported projects. It is entirely possible that additional impacts will be identified during impact assessment studies and the respective mitigation measures will be recommended.

Due to the different construction and operational activities of the proposed projects, limited negative environmental and social impacts are anticipated to affect the nearby biophysical and social environment. However, considering the nature and limited scale of the intended projects under the Program, those impacts that are expected to be generated from the construction and operation phase will be mitigated or avoided through implementation of appropriate means and best practices.

5.3.1 Impacts from Scaling Solar projects

Undoubtedly, the sun is an incredible energy resource, allowing the generation of electricity seemingly without toxic pollutants or an effect on global warming. Some argue that photovoltaics are the cleanest form of electricity generation and few go as far as to claim that it is the only form with no effect on the environment at all. This notion however is flawed, as solar power does have significant and multidimensional environmental impacts, during the construction, operation and decommissioning phase.



The major environmental impacts of solar power are associated with:

1. The visual impact
2. Noise intrusion
3. The use of land
4. The use of water
5. The use of natural resources
6. The use of hazardous materials
7. The life-cycle global warming emission

The scale and technology of the photovoltaic system has a direct effect on the level of each aforementioned impact. For example, building-integrated photo voltaics(BIPV) may require zero land use but may adversely affect the aesthetics of the site.

Visual Impacts

There will be some visual impacts depending on the type of the scheme and the surroundings of the solar cells. Utility-scale installations are a more complicated matter. The installation of a utility-scale installation at or near areas of natural beauty, tourist attractions, archeological sites, ecological areas and other similar locations is problematic and should be avoided.

- Adoption of standards and regulations for environmentally friendly design;
- Good installation practices;
- Proper siting and design are important factors, especially for large solar cell applications.
- Enough care should be taken for the usage of proper colors while assembling the solar cell modules
- Large installations need to be properly sited, usually outside residential and commercial areas as well. Abandoned areas and low-quality land usually are the most suitable sites for such installations.

Noise Intrusion

Solar cells do not make a noise during operation. But during the construction phase, there will be a little noise as usual in other construction activities.

- Noisy activities shall be scheduled to daytime hours
- Noise levels at sensitive receptors shall be measured regularly and whenever complaints arise
- In case of non-compliance with Ethiopian standards and international guidelines, noise control measures shall be implemented as appropriate (e.g. additional restrictions on working hours, or noise control devices in construction equipment and vehicles)

Land Use

Larger utility-scale photovoltaic electricity generation plants raise concerns about land degradation, loss of cultivable land, even that of habitat loss. Depending on the technology, site topography and location, estimates indicate that the generation of utility scale PV systems requires 12.000 m² to 40.000 m² per MW. Wind turbines require similarly large areas but there is greater opportunity to share land with other facilities, such as for agricultural use.

Studies suggest that the impact that utility scale PV systems have on land use may be minimized by:

- Placing them at location where the land quality is very low. These sites may be brown fields, abandoned mines or existing transportation/transmission corridors.
- Large-scale PV systems are generally suitable for use in isolated, deserted or other low land quality areas.



Water Use

The use of water becomes a problematic issue with concentrating solar thermal plants that, like any thermal energy generation plant, requires water for cooling. Photovoltaic panels however seemingly do not use water for the generation of electricity. However, water is required for their maintenance, in order for the systems to maintain their maximum performance. Specifically, water is necessary for the cleaning of the panels, the amount of which greatly varies depending on the location of the system. Furthermore, as with most manufacturing processes, water is also required during the manufacture of photovoltaic panels and other components that a photovoltaic system requires.

The ESIA study should provide a detailed assessment of the water requirements during the operations phase along with an adequate assessment of the existing available water resources.

- The project should make arrangements for water supply that are independent from the public utility in order to avoid exerting additional pressure on such services
- As the sites that have the highest potential for such plants usually are those with dry climates, careful evaluation of the trade-offs is essential.

Natural Resources Use

Aside from the production of current photovoltaic panels being an energy intensive process, it also requires very large quantities of bulk materials. Very large quantities of common minerals are required for the production of PV panels, such as iron, copper and aluminum. Aluminum and copper ores are not used by coal, petroleum or gas-fired energy generation stations at all, or are used in insignificant quantities. Iron is used in relatively large quantities by all conventional energy stations but still PV systems are estimated to require far greater quantities per produced kWh compared to all conventional forms of energy, including even coal-fired installations. Even though these materials are recyclable, the immense mineral depletion numbers should not be ignored. Studies report that 3.3 gr and 1.2 gr of iron and aluminum (Bauxite) ore are necessary per produced kWh. Such figures command the establishment of effective recycling programs if PV systems are to become a major energy contributor. Even though the required quantities are small, scarce materials such as Telluride, Indium, Cadmium and Gallium are toxic as well. Acquiring these materials can be a costly and difficult process, especially when these are toxic.

Therefore, it is required for the IPP to use whether any of the potential suppliers or manufacturers provide recycling services such that PV panels can be returned if they are damaged and/or at the end of the project life. In addition, it is highly recommended to use the best quality material which indirectly avoid/ reduce damage to the environment.

Hazardous materials

The manufacturing process of photovoltaic panels and associated components (e.g. inverters) contains a number of hazardous materials. The release of these hazardous materials to the environment is frequently considered to be the most critical negative environmental impact of both large and small PV systems [10]. Most are used to clean and purify the semiconductor surface of photovoltaic cells. These chemicals are similar to those used in the general semiconductor industry and usually include: Hydrochloric acid, Sulfuric acid, Nitric acid, Hydrogen fluoride, 1,1,1-trichloroethane and Acetone. The amount and type of chemicals used depends on the type of cell, the amount of cleaning that is needed, and the size of silicon wafer. If not handled and disposed of properly, these materials could pose serious environmental or public health threats. However, manufacturers have a strong financial incentive to ensure that these highly valuable and often rare materials are recycled rather than thrown away.

Therefore, IPP is required to ensure safe disposal of all hazardous waste, concrete and similar non-recyclable construction materials, and recycling of scrap metal. Many components of solar PV modules are recyclable and some solar module manufacturers provide recycling of the panels with purchase. Recycling will greatly reduce



potential adverse impacts associated with panel disposal.

Life-cycle global warming emissions

Undoubtedly, there are virtually zero global warming emissions during the operation of photovoltaic systems. However, emissions are generated through almost every other stage of the photovoltaic life cycle. Some of these stages include the manufacturing of the photovoltaic panels and other associated parts, their transportation, the installation and site alteration procedures, maintenance processes, even the recycling and decommissioning of defunct installations.

Ecosystem, (flora and fauna)

Attention during the planning, construction and operation phases can minimize the effects on vegetation, soil and habitat. Furthermore, the shade offered by the reflectors has a beneficial effect on the microclimate around the scheme and on the vegetation, too. Provided that such schemes are not deployed in ecologically sensitive areas or in areas of natural beauty, it is unlikely that any of the above changes would be considered as significant. Central concentrator power systems could pose a danger to birds, but operational experience shows that birds avoid any danger areas (possibly by being sensitive to air turbulence). Flying insects can also be burnt when flying close to the reflector's area. The loss of the insect population is insignificant.

Health and safety (occupational hazards)

The accidental release of heat transfer fluids (water and oil) from parabolic trough and central receiver systems could form a health hazard. The hazard could be substantial in some central tower systems, which use liquid sodium or molten salts as a heat-transfer medium. Indeed, a fatal accident has occurred in a system using liquid sodium. These dangers will be avoided by moving to volumetric systems that use air as a heat-transfer medium. Central tower systems have the potential to concentrate light to intensities that could damage eyesight. Under normal operating conditions this should not pose any danger to operators, but failure of the tracking systems could result in straying beams that might pose an occupational safety risk on site.

5.3.2 Impacts from Scaling Wind projects

In contrast to fossil fuels and nuclear power, wind turbines do not pollute our atmosphere with greenhouse gases, nor do they cause any problems for future generations with radioactive waste. Thus, wind power is considered environmentally benign. However, it still imposes some impacts on human life. In particular, the potential long-term effects, although minor, cannot be ignored. Most of the impacts associated specifically with the impact of wind are:

1. Adverse visual impacts or shadow flicker
2. Noise (proximity to dwellings)
3. Shadow Flicker
4. Ecological impacts (Birds and Habitat fragmentation)
5. Electromagnetic Interference (Radar, telecommunications facilities, or airports)
6. Impact on Human Activity and Micro-Climate

Visual Impact

As for the visual impact, people seem to evaluate it subjectively. Some people think that wind turbines are impressive looking and pleasant, while others have opposing views. The concern for the impact on visual environment is predominant in wind energy projects where the height of wind turbine is often found to be at a 50 meter, 80-meter, 100 meters, or more height. The movement of the wind turbine and the motion at which it moves can be harmful for the exposed sensitive receptors. The preferable locations for most of the high-density



wind areas are in the hilly regions or forested land, thus a higher probability of blocking or hampering scenic value of the place.

Noise Impact

The inherent impact of wind turbines on its environment is always limited to the immediate surroundings. The noise caused by operating onshore wind turbines, and their visual impact, can be a major annoyance in people's lives. Wind turbines cause noise in two main ways: mechanical noise and aerodynamic noise. The latter, although still lacking factual evidence of its impact, is considered to be a critical issue. Its low frequency may cause annoyance in people's lives.

Modern wind turbines are very quiet machines in relation to their power and through their manufacturers' continuing improvements keep getting quieter. The problem of noise is corrected either at the source or during the course of operation.

- Mechanical noise has been minimized at the design stage (side toothed gear wheels), or by acoustic insulation on the inside of the turbine housing. Also, mechanical noise can be corrected during operation by acoustic insulation curtains and anti-vibration support footings.
- Aerodynamic noise can be corrected by careful design of the blades by the manufacturers who make minimization of this type of noise a top priority.

Shadow Flicker

As the blades of a wind turbine rotate in sunny conditions, they cast moving shadows on the ground resulting in alternating changes in light intensity. This phenomenon is termed shadow flicker. Shadow flicker is different from a related strobe-like phenomenon that is caused by intermittent chopping of the sunlight behind the rotating blades. Shadow flicker intensity is defined as the difference or variation in brightness at a given location in the presence and absence of a shadow.

Shadow flicker can be a nuisance to nearby humans, and its effects need to be considered during the design of a wind-energy project. Even in the worst situations, shadow flicker only lasts for a short time each day—rarely more than half an hour. Moreover, flicker is observed only for a few weeks in the winter season. To avoid even limited periods of shadow flicker, a possible solution is to not run the turbines during this time. Obviously, another solution is to site the turbines such that their shadow paths avoid nearby residences.

Ecological Impacts (Flora and Fauna)

There are two major ways that wind-energy development may influence ecosystem structure and functioning through direct impacts on individual organisms and through impacts on habitat structure and functioning.

Impact on Birds

Wind turbines cause fatalities of birds and bats through collision, most likely with the turbine blades. Species differ in their vulnerability to collision, in the likelihood that fatalities will have large scale cumulative impacts on biotic communities, and in the extent to which their fatalities are discovered. Studies showed that collision problem probably worse for bats than for birds, because many bats appear attracted to moving rotor blades (for unknown reasons). Bats have naturally low reproductive rates, so scaled-up wind power insensitive sites could threaten some species.

The data are inadequate to assess relative risk to passerines and other small birds. It is possible that as turbines become larger and reach higher, the risk to the more abundant bats and nocturnally migrating passerines at these altitudes will increase. Determining the effect of turbine size on avian risk will require more data from direct comparison of fatalities from a range of turbine types.

Habitat disturbance and Fragmentation



Two critical questions concerning habitat-related impacts remain unanswered and center on 1) the extent to which strings of wind turbines effectively fragment grassland habitat, and 2) how inferences about avoidance of trees and tall anthropogenic structures by birds transfer to avoidance of wind turbines. There is a need to determine relationships of small scale (e.g., habitat disturbance) versus large-scale habitat impacts (e.g., habitat fragmentation needs investigation) on wildlife. It is important to quantify and predict not only changes in habitat structure, but also displacement impacts, particularly on forest-dwelling and shrub-steppe/ grassland birds.

The construction and maintenance of wind-energy facilities also alter ecosystem structure through vegetation clearing, soil disruption and potential for erosion, and noise. Alteration of vegetation, including forest clearing, represents perhaps the most significant potential change through fragmentation and loss of habitat for some species. Changes in forest structure and the creation of openings alter microclimate and increase the amount of forest edge. Plants and animals throughout an ecosystem respond differently to these changes. There might also be important interactions between habitat alteration and the risk of fatalities, such as bat foraging behavior near turbines.

To minimize or avoid such impacts, all necessary measures should be considered at the design phase and proper siting to avoid ecological sensitive areas.

- A primary goal of wind energy development should be to avoid high-risk sites that are determined based on the best science available. Criteria and standards for high-risk sites need to be established for different groups of species and any designated “critical habitats”;
- Developers of wind energy should be required to avoid impacts to these areas. Examples may include locations important to threatened or endangered species or in large, contiguous areas of unfragmented native habitat.
- Siting wind facilities in areas where habitat is of poor quality and/or already fragmented, will likely result in fewer habitat-related impacts, although these sites should be monitored to determine collision impacts

Electro Magnetic Interference

Through electromagnetic interference (EMI), wind-energy projects conceivably can have negative impacts on various types of signals important to human activities: television, radio, microwave/radio fixed links, cellular phones, and radar.

EMI is electromagnetic (EM) disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electronics or electrical equipment. It can be induced intentionally, as in some forms of electronic warfare, or unintentionally, as a result of spurious emissions and responses and intermodulation products. In relation to wind turbines, two issues are relevant: (1) possible passive interference of the wind turbines with existing radio or TV stations, and (2) possible electromagnetic emissions produced by the turbines.

There are several ways in which electromagnetic waves can deviate from their intended straight-line communication paths. These include:

Blocking the path with an obstacle, thus creating a “shadow” or area where the intended EM wave will not occur. To a large extent, the Bottom of Form “blocking” depends on the size of the obstacle as a function of the wave-length of the electromagnetic wave.

Refraction of the EM wave; Refraction is the turning or bending of any wave, such as a light or sound wave, when it passes from one medium into another with different refractive properties.

In the context of wind-energy projects, EMI often is discussed in relation to the following telecommunications facilities:

- Television broadcast transmissions (approx 50 MHz-1 GHz)
- Radio broadcast transmissions (approx 1.5 MHz [AM] and 100 MHz [FM])
- Microwave/radio “fixed links” (approx 3-60 GHz)
- Mobile phones (approx. 1 or 2 GHz)



- Radar

Impacts on Human Activity

The human impacts include aesthetic impacts; impacts on cultural resources, such as historic, sacred, archeological, and recreation sites; impacts on human health and wellbeing, specifically from noise and from shadow flicker; economic and fiscal impacts. This is not an exhaustive list of all possible human impacts from wind-energy projects.

Impact on Micro climate

Wind farms may affect weather in their immediate vicinity. This turbulence from spinning wind turbine rotors increases vertical mixing of heat and water vapor that affects the meteorological conditions downwind, including rainfall. Overall, wind farms lead to a slight warming at night and a slight cooling during the day time. This effect can be reduced by using more efficient rotors or placing wind farms in regions with high natural turbulence.

5.3.3 Common Impacts from Scaling Solar and Wind Projects

The proposed Renewable Energy projects under the proposed program will require excavations for laying foundation, water for construction and operation stage, area for storage of spare parts/ equipment etc. The physical environment would be used differently at construction and operation stages. The site climatic conditions are an integral part of the impact assessment, where the resource used for the project purpose will be used judiciously and conserving, replenishing techniques for these resources would be at utmost priority. The ESIA study should provide a detailed assessment for all the resources required for the project.

Impacts on Biological Environment

Wherever vegetation and/or forest land is acquired for the intended projects would require the appropriate clearance procedures to be adopted for conversion of land use / compensatory land allocation. As the proposed projects are expected to be sorted in lowlands with minimum vegetation cover, there is a high probability that these projects are likely to come up in remote / barren land parcels with minimal tree/vegetation cover. The protection of existing tree/other vegetation cover is crucial in such areas and should not lead to removal of trees.

This may lead to increased dust in these areas. Minimum alteration to existing ground cover in such sites is a chosen strategy. In case of Wind energy plants, the probability of high wind density falls under forest land with heavy tree coverage, all necessary precautions for safety buffer etc. should be considered while planning such power generation facilities.

The proposed Projects should be completely contained entities with controlled access thereby minimizing the risks of wild animals getting impacted in all aspects. The ESIA study shall establish the wildlife species movement corridors/ paths/ habitat if any applicable in and around the proposed site. The ESIA study shall establish the status of wildlife and other habitats including birds in vicinity of the proposed site and adequate mitigation measures to ensure no conflicts / poaching occurs during the various stage of project development.

Impact on Air quality

Excavation, clearing, leveling, and set grading activities, emission of CO, SPM from construction machineries, and vehicle movement on haul/access roads that increase dust particles, gaseous elements, and particulate matters in air, and other from the project activities would contribute a potential impact on the air quality of the area and became a causes for an increase in health disorders like bronchial and eye disorders.

Impact on Waste disposal

Waste management at the core project area shall be efficient and required to be implemented in an environmental friendly manner. Indiscriminate disposal of solid and liquid wastes including used and/or damaged solar panel,



malfunction wind energy accessories and left-over construction materials and cements, are expected to generate a potential impact on the nearby biophysical and social environment and health and safety of the workers, local community and the beneficiaries. This should be addressed promptly and wisely, through waste management best practice methods; conduct regular awareness creation and sensitization program for the proponent and community reside in the area about the potential negative impacts, health and safety risks, and proper waste management practices. Moreover, final domestic and/or other nonhazardous wastes, after proper segregation, must be disposed of safely at the designated waste disposal site.

Impacts on social service providing Infrastructure

Based on the reviews and consultation conducted during this ESMF study, the disruption/change in the built infrastructure environment (roads, sewage system, water supply, solid waste disposal etc.) may affect the settlements in its surroundings. As this is an often occurrence because the land acquisition is become in effect due to the intervene of this program, an ESIA will assess in detail and provide proper mitigation measures including the preparation of A/RAP, as applicable.

Impacts on Land, Livelihood, and Human Environment

Based on the assessment of sample projects of the REGREP, each MW of solar and wind energy requires land acquisition for the park area and associate facilities. The anticipated impact during the implementation of the proposed projects are temporarily or permanently expropriate land for stores, installation of equipment, construction activities, and core work area for both types of projects (scaling Solar and scaling wind energy). During the site visit and consultation with the stakeholders, the following social impacts are identified:

- Loss of agricultural land and grazing land in case of land acquisition,
- Loss of livelihood due to impacts on sources of earning;
- Impact on natural drainage leading to loss of water in downstream areas
- Impact on host community due to influx of construction workers.

The proposed projects would be fully fenced entities wherein access would be restricted. The proposed site may include tracks /pathways which are frequently used by the local villagers while performing their day-to-day activities. Such tracks need to be clearly identified during the ESIA stage in consultation with the local stakeholders so that the same can be included into the project layout plan or alternative route / tracks may be identified if it is unavoidable. This has been confirmed during the consultations and discussions made with pertinent officials at regional, Woreda and local levels and beneficiaries conducted for this ESMF study. For managing land acquisition related issues, a complementary RPF is prepared along with this ESMF.

Impact of labor Influx

At the peak of construction phase, it is expected that influx of people from outside of the project area. The influx of workforce will put additional pressure on existing resources. The workforce normally consists of solitary migrant males that can be potential risk for host population. Specifically, influx of labor force can lead to:

- Risk of conflict due to cultural differences/ shocks between the laborers and local community
- Risk of spread of communicable diseases due to interaction of the laborers and the local community
- Risk of Gender-Based Violence (GBV)
- Health hazard for host community due to lack of sanitation facilities and waste management.

Impact on Occupational health and safety

Occupational health and safety issues will arise during the project implementation periods. This may result in from improper use and lack of availability of the required Personal Protective Equipment (PPE). To ensure safe handling and use of PPE and address the occupational health and safety issue, availability and proper use of PPE by the project beneficiaries, contractors, laborer who are engaged in the construction, installation and



operation and maintenance of the proposed projects shall be in place and regularly monitored by the project coordination unit at all phases of the programs. In addition, fire risks may also be one of the causes during construction and operation stages and requires provision of regular training and awareness creation to crew members and IPPs staffs and engineers. For any incidents of leakage or spill during installation, which affect health of the workers due to pollution of the nearby surface and ground water, a well-designed temporary and/or permanent containment structure is required to clean-up and avoid accidental spills.

Impact on child labour

During project construction period, the contractor/IPP and other parties may use child labor due to lack of awareness and lesser attention to its implication. Therefore, contractors and other participating companies are not allowed to use child labor in any stage of the projects implementation. Contractor will be aware and enforce to respect the national Proclamation on labor No. 377/2003 that states children under age of 14 will not be employed and young workers (14 to 18 years) shall not perform work that is likely to jeopardize their health or safety.

Cultural Heritage

The proposed projects should not affect any cultural heritage. During project preparation and implementation period, it is important to ensure that the proposed projects do not influence a place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical or social significance or special value for present and future generations. To minimize or avoid such impacts, all necessary measures should be considered at the design phase and due attention should be paid during screening of the projects in consultation with relevant institutions. The relevant screening checklist is depicted in annex 2.

A summary of the likely issues and potential impacts & mitigation measures is presented in the table 6.1 below.



Table 5-1: Environmental and Social Impact and Mitigation Measures

| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|---|---------------|-------------|---|
| | | Scaling Solar | Wind energy | |
| Environmental Impacts | | | | |
| Land Use | Temporary and Permanent changes in land use due to the installation and construction of structures such as access road, site office, erection of towers, solar panel, wind turbines etc. | √ | √ | <ul style="list-style-type: none"> • On completion of construction activities, land used for temporary facilities such as stockyard, batching plant and labor camps should be restored to the extent possible. • Leveling and grading operations will be undertaken with minimal disturbance to the existing contour thereby maintaining the general slope of site. |
| Soil | <ul style="list-style-type: none"> • Site clearing and site preparation activities (vegetation clearing, road and drainage construction) will result in loss of vegetation cover (grass and shrubs) and topsoil which could lead to soil erosion. • Decrease of soil quality due to loss of vegetation cover • Erosion of loose soil during monsoon windy periods • Removal of top soil at project sites; • Sedimentation of nearby water bodies due to excessive soil erosion and run-off; • Storage and handling of hazardous materials (e.g., fuel and lubricant) and waste generated from operation of construction equipment and machinery | √ | √ | <ul style="list-style-type: none"> • Soil should be ploughed in compacted areas after completion of construction work Stripping of top soil, excavation, and access road construction should not be carried out during the monsoon season or during heavy winds to minimize erosion and run-off. • Excavation and vegetation clearance will be limited in extent and defined temporary and permanent access routes to be established to avoid damaging the soil structure in the wider area. • During erection of towers, special attention should be paid to protect water bodies from sedimentation which is caused by erosion and landslide risks and made some distance between water bodies and tower pads, and the soil excavated for the erection of towers should be used for refilling and should not be left exposed to wind and water for long period of time, in order to protect the excavated soil from erosion, leave the remaining soil as a bench under the erected tower. • Chemicals and used oil should be collected in sealed containers and finally be disposed off according to the national law. Lubricants should not be spilled near watercourses, awareness creation among the |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|---|---------------|-------------|--|
| | | Scaling Solar | Wind energy | |
| | and their maintenance may lead to soil contamination due to leaks/ spillage; | | | community and work force, provision of adequate personal protective equipment/PPE/. Orientation should be given to all workers. |
| Ambient Air Quality | <ul style="list-style-type: none"> • Fugitive dust emissions due to movement of machinery and vehicles • Dust emissions due to operation of batching plant, excavation and back-filling activities etc. • Site clearing, leveling, excavation and grading, unpaved roads, storage piles and material transfer points, which include both fallout dusts and high levels of respirable particulates • Emissions (NOx, SOx, PM) from heavy trucks, generators and compressors; and Construction equipment and material • hauling could potentially affect traffic flow increase vehicular emissions. • Site preparation, road and drainage construction, excavation for tower erection and transmission line construction would generate dust which would temporarily degrade air quality. • Exposure to dust and other gaseous emissions may impact the health of the local people and construction workers. | √ | √ | <ul style="list-style-type: none"> • Dust generated by excavation and emissions from vehicle minimize by covering stockpiles, spraying water to minimize dust releasing in case of windy and dry weather, undertaken the vehicle movement according to the contractor plan and limited the vehicles speed , maintain construction equipment regularly , burning of waste generated at the construction and domestic solid waste will be stored in a covered container and periodically collected by functional agency to avoid bad odor. Contractors shall ensure that workers switch off plant and equipment when not in use, in order to avoid the release of emission of pollutants. • Vehicle engines need to be properly maintained and should have a valid Pollution Under Control (PUC). • Diesel generators should be restricted to emergencies and power back up only to minimize air emissions. |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|---|---------------|-------------|---|
| | | Scaling Solar | Wind energy | |
| Ambient Noise Quality | <ul style="list-style-type: none"> • Noise generation due to movement of vehicles, heavy earth moving vehicles and machineries • Temporary elevated noise levels from equipment and vehicular traffic during mobilization of equipment and personnel to site • Noise generation due to operation of Wind Turbine Generators / WTGs/ • Noise from wind turbines arises mainly from two sources: <ul style="list-style-type: none"> • i) mechanical noise caused by the gearbox and generator; and • ii) Aero dynamic noise caused by interaction of the turbine blades with the wind. | √ | √ | <ul style="list-style-type: none"> • Noise impact is insignificant and temporary in nature; to minimize the impact, noise generating construction time and material transportation will be scheduled during day time hours from 7: 00 pm to 6:00 am and all vehicle and equipment are will be turning off their engines in rest time. • Workers in the vicinity of strong noise should use ear plugs. |
| Occupational Health and Safety | <ul style="list-style-type: none"> • During construction, health and safety of workers and the public is at risk. Injury, near-misses, and fatalities for labor contracted on site. • Occupational health hazards due to dust and noise pollution | √ | √ | <ul style="list-style-type: none"> • In order to minimize or avoid impacts on public, health and safety contractors should provide adequate safety orientation to workers and local communities, the vehicle speed should be reduced and slow in construction site and residential area, warning signs should be put on around the construction sites and road near the construction sites; an employ flag persons arrange to control traffic at the project sites when construction equipment is entering or leaving the work area , fencing around the construction sites to protect illegal entrance . • Personal Protective Equipment (PPEs) • Including safety shoes, helmets, goggles, ear muffs, and face masks |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|--|---------------|-------------|--|
| | | Scaling Solar | Wind energy | |
| | <ul style="list-style-type: none"> • Safety risk due to wrong handling of construction machinery, working at heights and falling objects; | | | <p>should be provided as necessary.</p> <ul style="list-style-type: none"> • Excavated areas should be temporarily fenced to avoid access to outsiders and wildlife • Safe drinking water supply should be provided for the workers. • An up-to-date first aid box should be provided at all construction sites and a trained person should be appointed to manage it. • The nearest hospital, ambulance, fire station, and police station should be identified in the implemented emergency management plan. |
| Visual impact | <p>The characteristics of wind developments may cause impact on disturbance of landscape which ultimately affect the visual effects. These characteristics include:</p> <ul style="list-style-type: none"> • the turbines (size, height, number, material and color), • Access and site tracks, substation buildings, compounds, gridconnection, anemometer masts, and transmission lines. • The installation of the solar panels, erection of buildings, etc. will result in a major alteration to the visual landscape. • Solar panel implementation and excavation of soil could result in minor change of the aesthetics of the project areas. This may also affect the visual amenity of nearby houses and surrounding communities. | √ | √ | <ul style="list-style-type: none"> • visual impact is very specific to the site at a wind farm, several • characteristics in the design and sitting of wind farms have been identified to minimize their potential visual impact • To minimize interruption of visual quality, solar panel should be placed at the right direction and with no reflection of light that affect the neighbors' visual quality. • Disposal of excavated soils, unused concrete, wooden timber, nails etc., and liquid wastes should be managed and disposed of in appropriate way to ensure safe and acceptable aesthetic beauty to the beneficiary family and nearby residents. |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|---|---------------|-------------|--|
| | | Scaling Solar | Wind energy | |
| Solid waste | <ul style="list-style-type: none"> Waste generated will include excavation waste and cleared vegetation. During site clearing, waste will be stockpiled in laydown areas on site. Impact on soil due to improper management of domestic solid waste generated. Solid waste comprising food waste, debris, and loose materials is anticipated during construction. Other waste from construction and installation activities include packaging, scrap metal, and contaminated soil from fuel or chemical spills. Solar barriers and pannels at their disposal time² | √ | √ | <ul style="list-style-type: none"> Proper receptacles or designated areas should be closed, and periodic disposal should be ensured Construction and demolition waste should be stored separately and be periodically collected by an authorized treatment and storage facility Hazardous waste should be properly labelled, stored on site at a location provided with impervious surfaces and in a secondary containment system All waste should be stored in a shed that is protected from the elements (wind, rain, storms, etc.) and away from natural drainage channels. The IPP should select, durable and best recyclable batteries; use best environmental friendly technologies while selecting solar PV panels e.g., Avoid using PV panels containing Cadmium (Cd) Repair if the panel is defective; or use a special land fill to dispose out of use panels. |

²Solar panels are made up various components and each component has different properties as seen with respect to hazardous/non-hazardous and recyclable/non-recyclable. Currently there are no regulations for governing the recycling of solar panels and the recycling process varies by the manufacturer. The mSost commonly recycled components of the solar panels are glass (cover), aluminum frame and solar cells and hence do not pose any threat to the surroundings. Sometimes small quantities of 4 valuable metals such as copper and steel are also recovered at the end-of-life of solar panels. “The ethylene vinyl acetate encapsulant and polyvinyl fluoride substrate are typically not recoverable and are removed through a thermal process. If not properly decommissioned, the greatest End-of-life health risk from crystalline solar modules arises from lead containing solders. Under the right conditions it is possible for the lead to leach into landfill soils and eventually into water bodies.” (Good Company, 2010).



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|---|---------------|-------------|--|
| | | Scaling Solar | Wind energy | |
| Surface water | <ul style="list-style-type: none"> • Runoff from site preparation activities could result in an increase in turbidity and organic load of surrounding water bodies. This will adversely affect the water quality and aquatic organisms. • Surface water contamination due to improper disposal | √ | √ | <ul style="list-style-type: none"> • Proper cover and stacking of loose construction material at batching plant and project site to prevent surface runoff. • Planning of toilets, soak pits and septic tanks and waste collection areas should be away from natural drainage channels. |
| Ground water | <ul style="list-style-type: none"> • Ground water resources may be impacted from spills and leaks of hazardous substances such as fuel and oil because of improper storage and handling of these chemicals. | √ | √ | <ul style="list-style-type: none"> • Laborers should be given training towards proactive use of designated areas/bins for waste disposal and use of toilets. Open defecation and random disposal of waste should be strictly prohibited |
| Ecological resources: Flora | <ul style="list-style-type: none"> • Potential impacts on vegetation include removal of native and cultivated vegetation during site clearing and conversion of natural habitats to an industrial environment (loss of habitat). Site preparation activities are expected to result in moderately severe impacts on habitat and biological resources at various locations across the project area • | √ | √ | <ul style="list-style-type: none"> • Unnecessary disturbance to vegetation due clearance of and off-roading movement of vehicle, fuel wood procurement, unchecked expansion of labor camps and destruction of floral resources should be prohibited • Project components should be planned such that they are sufficiently away from water bodies and any heavily vegetated areas to reduce the impact on local wildlife. • Strict no hunting, poaching or trapping of wildlife policy should be communicated and enforce by the contractor. • |
| Ecological resources: Fauna | <ul style="list-style-type: none"> • Site clearing will also destroy wildlife habitat and cause migration out of the project area. Some of the displaced | | | <ul style="list-style-type: none"> • Avoid sites that require cutting or substantially pruning a sensitive species and indigenous trees, an old tree or known bird-nesting tree. Ensure no sensitive fauna and flora species are found nearby. The ecological |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|--|---------------|-------------|--|
| | | Scaling Solar | Wind energy | |
| | <p>wildlife may return to areas surrounding the site after construction</p> <ul style="list-style-type: none"> • Wind turbines cause fatalities of birds and bats through collision, most likely with the turbine blades. Species differ in their vulnerability to collision, in the likelihood that fatalities will have large scale cumulative impacts on biotic communities <p>For utility-scale PV facilities, it has been hypothesized that migratory waterfowl and shorebirds can be attracted by the reflective surfaces of solar panels which can resemble bodies of water (referred to as the “lake effect”). Birds may then collide with project structures as they attempt to land on the panels. Another hypothesis is that glare and polarized light from PV facilities may attract insects, which, in turn, could attract foraging birds (Horváth et al. 2009, Horváth et al. 2010).</p> <p>It should also be recognized that the light reflection from PV panels has been greatly reduced in recent years due to improved anti-reflective materials that maximize light absorption. Furthermore, the grey literature (non-peer reviewed studies) contain preliminary evidence that solar farms do not cause bird mortality and are instead capable of supporting a healthy assemblage of birds</p> | | | <p>influences of wind-energy facilities are complex, and can vary with spatial and temporal scale, location, season, weather, ecosystem type, species, and other factors.</p> <ul style="list-style-type: none"> • If access roads are created in key crossing paths for smaller mammals then culverts of alternate paths should be provided to prevent road kills. • Waste materials should not be left uncovered as it will attract birds and other fauna to the wind farm boundary. |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|--|---|---------------|-------------|---|
| | | Scaling Solar | Wind energy | |
| | with observations of birds perching on solar arrays. | | | |
| Socio-economic Impacts | | | | |
| Demography/Population | <ul style="list-style-type: none"> • There will be an influx of workers to the area during the construction phase. • Migrant workforce is expected to come to project construction sites that may put pressure on local resources – water, health care services, daily consumables, food etc. | √ | √ | <ul style="list-style-type: none"> • This impact is likely to have minimal effect due to the relatively small number of local employment opportunities. Change in population and demographic characteristics of the community are likely to be minimal. • Ensuring proper health-check-ups of all laborers employed at the project site; • Providing separate toilet facilities for men and women at the accommodation as well as site; and Facilitating healthcare services and medical care in case of sickness. |
| Displacement | <ul style="list-style-type: none"> • The project will be set-up on cultivated land, which would require the resettlement and relocation of the existing inhabitants who lives on their farms. | √ | √ | <ul style="list-style-type: none"> • Detail compensation and other related issues are covered in the complementary RPF which is prepared based on national framework and the industry good practices guidelines. • public buildings, a medical clinic, clean water provision, good sanitation and electricity and they will require resettlement assistance and livelihood restoration |
| Livelihood (Loss of Agricultural land and Grazing land) | <ul style="list-style-type: none"> • Some existing farmlands will be acquired for the project. This will lead to loss of livelihood for some families. | √ | √ | <ul style="list-style-type: none"> • Land is the main asset and source of livelihood for farmers residing in the project area. Compensation payment should be undertaken for the affected crops according to the World Bank OP 4.03 and associated Performance Standard PS-5, Ethiopian expropriation of land holdings for public purposes and compensation payment-Federal Proclamation No. 455/2005 and Council of Ministers, Regulation No. 135/2007, on the payment of compensation for property |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|---|---------------|-------------|---|
| | | Scaling Solar | Wind energy | |
| | <ul style="list-style-type: none"> Existing gender gaps could be exasperated if women’s livelihoods not adequately compensated | | | <p>situated on landholdings expropriated for public purposes.</p> <ul style="list-style-type: none"> Provide alternative grazing land near by If available, Develop additional suitable benefit as an alternative social development activity in consultation with the community Ensure focus on recognizing women’s livelihoods which may be more informal. |
| Influx of labor | <ul style="list-style-type: none"> Workers will be moving to villages from other neighboring area. There might be possible negative impact by labor influx in such areas. Workers’ accommodations may need to be constructed on-site. Workers’ accommodations require provision of potable water and availability of wastewater, and solid waste disposal services. This may result in impacts on community infrastructure, health, and safety. The influx of labor to the construction areas and their interactions with the local communities may create access for the spread of communicable diseases and price increases in the area. Food prices on local markets might increase, security issues might arise and women from local communities might be | √ | √ | <ul style="list-style-type: none"> Most of these communicable diseases would be of temporary nature except for HIV/ AIDS. The contractor shall adopt the project office LIMP and implement the Labor Influx Management Plan, as required. ESIA should take an approach to control the spread of STIs. Health education programs, control of illegal/illicit drugs and other socially condemned activities near the project site need to be considered. Moreover, mechanisms need to be put in place to prevent and minimize Gender Based Violence(GBV) and Violence Against Children (VAC). Such mechanism should include working with the contractors to prevent sexual harassment in the workplace and GBV and VAC in the project affected communities(for example through code of conducts), strengthening grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response. |



| Project activities and Environmental and social aspects | Environmental and Social Impacts | Program Name | | Mitigation Measures |
|---|---|---------------|-------------|--|
| | | Scaling Solar | Wind energy | |
| | at risk of Sexually Transmitted Diseases (STDs) and unwelcomed/ unplanned pregnancies. | | | |
| Vulnerable/ Underserved Peoples | <ul style="list-style-type: none"> The development of infrastructure in underserved people's territories may constitute a risk for the customs and cultural traditions of these populations. | √ | √ | <ul style="list-style-type: none"> Adverse impacts on Affected Communities of Indigenous Peoples should be avoided where possible. Where alternatives have been explored and adverse impacts are unavoidable, the client will minimize, restore, and/or compensate for these impacts in a culturally appropriate manner commensurate with the nature and scale of such impacts and the vulnerability of the affected communities of underserved Peoples. |
| Sexually Transmitted Infections /STIs/ | <ul style="list-style-type: none"> The project might create chance for transmission of STD including HIV/AIDS. The arrival of workers to the construction areas and their relations with the local communities might create possibility for the transmission of sexually transmitted infections like HIV/AIDS. | √ | √ | <ul style="list-style-type: none"> Impacts will be mitigated through awareness creation on sexually transmitted infections, control of activities near the project site through distribution of condoms and trainings on STD's and HIV/AIDS. . |



6 ESMF PROCESS & ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING

6.1 PROJECT SCREENING, APPRAISAL, APPROVAL AND IMPLEMENTATION

6.1.1 Guiding Principles

The Government of Ethiopia (GOE) wishes to involve the private sector in the development, design, finance, procurement, construction, installation, ownership, operation, maintenance and insurance (together "Develop", and "Development" shall be construed accordingly) of solar and wind energy generation facilities.

According to the World Bank Safeguard screening criteria, the proposed program (REGREP) is categorized as Environmental category "B" and the project will most likely not require a full scale ESIA³. However, Environmental and Social Assessment (ESA) is necessary for identification and development of measures aimed at avoiding, offsetting, and/or minimizing environmental and social impacts to levels that are acceptable during preparation, implementation, and operation of the proposed projects. Given the proposed project is developed by IPPs the required ESA will follow the principles and requirements of WB performance standards.

The overall guiding principles of the proposed program operations and implementations are the following, but not limited to: -

- The planning processes shall take for a complete understanding and prioritizing the potential sites.
- A detail feasibility study of projects based on the potential survey;
- Proper stakeholder engagement process and preparation of project environmental and social studies;
- Prepare or request a power purchase agreement and select a private investor with international competitive bidding approach;
- Conforming to specific requirements and standards;
- Ensuring no harm or minimum impact to the nearby social and biophysical environment that can be mitigated easily by employing best practices;
- Ensuring sound implementation of the recommended mitigation measures;
- The planning and implementation process will integrate ESA and/or ESMP or other relevant environmental and social safeguards instruments;
- Proposed projects will undergo for environmental and social impacts screening;
- Promoting adequate and timely technical support to EEP, IPPs, National, Regional and Woreda Water, Mines and Energy Offices and Regional and Woredas environment offices which in turn will do the same to the communities;
- Promoting supervision and monitoring of implementation of projects by all relevant parties including EEP and MoWIE with the support from the respective environmental offices at the national, regional, and local level; and
- Throughout process, close attention to gender issues in consultation, data collection, and design of opportunities and mitigation measures e.g. GBV.

The overriding guiding principle to the implementation of the proposed program is through site potential and involvement of private investors/independent power producers (IPPs). The implementation of environmental and social safeguards management and screening process will be attained through the procedures and steps described below in Figure 9-2 along with project implementation cycle.

6.1.2 Procedures and Steps

This ESMF highlights the proposed program planning focus to ensure the implementation of project activities under REGREP are environmentally friendly and socially acceptable with no harm principle through applying best practices and implementation of sound mitigation measures.

As stated above, given the scale and nature of the proposed program components (Scaling Solar and Scaling Wind) are categorized under environmental assessment "category B". Category B projects are likely to

³It should be noted that any project that would be considered as category 'A' will not be granted by the two Programs



have detrimental site-specific environmental and/or social impacts that are less adverse than those of Category A projects. Likely impacts are few, site-specific, largely reversible, and readily minimized by applying appropriate management and mitigation measures or incorporating internationally recognized design criteria and standards. Most program-based operations and regional or sector program loans designed to finance a set of projects approved and implemented by the borrower or IPPs are included in this category unless the nature, scale, or sensitivity of the intended pipeline of projects involves either a high level of environmental and social risk or no such risk.

Although, the nature of the proposed program is categorized under category B, understanding of the sensitivity and magnitude of the proposed site/receiving environment with its biophysical and socioeconomic nature is very crucial. This may bring the impact to be significant and may demand the preparation of ESIA. Therefore, the assessment and identification of environmental and social impacts associated to the specific project is equally important during the program studies to avoid sensitive areas and take steps to ensure that projects stay within proposed environmental “category B”. In this regard, to ensure the anticipated adverse impacts are small in scale and managed accordingly with best practice methods, every potential project that will be funded under REGREP will require environmental and social screening process.

The screening checklist guides the impact assessment in identifying key environmental and social issues and impacts associated with projects prior to the final project design (Annex 2). The Environmental and social screening asks key questions on matters that are of environmental and social importance to the Project. By responding “Yes”, “No”, “Unknown” or “NA” (Not Applicable).

When planning a project, there is a list of issues that must be considered. If these issues are considered early in the project cycle, the project will be more sustainable and accepted by the local community. These relate to:

- Natural hazards
- Preservation of cultural property
- Preservation of land use/impact of adjoining uses
- Preservation of species and natural spaces
- Community and gender equality issues
- Building issues
- Construction issues
- Waste management issues – solid, hazardous and sewage
- Location considerations
- Public and occupational health and safety

Checklists are identifying issues within each of the above environmental and social concerns that needs to be considered as part of the project planning and design. The list is intended to guide the impact assessment (IA) in identifying key environmental and social issues and impacts that may be associated with projects under the program, prior to the project design. Adverse impacts of the program activities on the local environment or to the community and vice versa may be minimized through changes to project design and/or the use of mitigation measures to lessen negative effects.

Step One: Project Identification

During the identification of projects under the REGREP, IPP shall undertake self-screening of the envisioned REGREP project using the screening form (*Environmental and Social Screening Form (see annex 1 &2)*). In this way the IPP will identify whether the contemplated REGREP project is eligible for support under the Program so that the selected site is feasible from safeguard point of view. If not the case the IPP will be able to find alternative location before they proceed.

Anticipated impacts and the respective mitigation measures under environmental and social impact and mitigation measures described in section 6 of this ESMF will be used by private sector independent power producers (IPPs) to contemplate potential environmental and social impacts resulted due to the implementations of each scaling solar and scaling projects under the program.

Given numerous projects’ applications are likely to be submitted for production of power through the proposed program (Scaling Solar and Scaling Wind), the preliminary/initial environmental examination is required to carry out to obtain an indicative initial information on socioeconomic and environmental setting of the proposed project. Considering the scale and nature of the proposed projects and the significance importance of identified environmental and social concerns, if the environmental and social impacts assessment is required, projects will not be approved and commenced until the environmental and social impact assessment has been prepared, approved, and disclosed.

After the preliminary project identification and or site potential study, EEP will secure land from the respective regional government. Subsequently, the technical and preliminary environmental examination will also be prepared.

Based on the investment demand of the GoE on different type of project under the proposed program, applications/proposals for power purchase request will be submitted to EEP by Independent Power Producers (IPPs) for any interested projects based on the call from EEP at national level.

Prior to going to the sites, a desk appraisal of the proposed projects activity plans will be carried out to confirm that all proposed applications for the wind and solar project with competitive bidding contain the required information pertinent to risk guaranty and for identification of environmental and social safeguards issues. Depending on the type of projects and to ensure that all pertinent environmental and social issues are identified, desk appraisal will be conducted by the EEP (see figure 9-1 and 9-2).



Figure 6-1: Scaling solar and wind energy development project activity screening process flowchart

Step Two: Desk appraisal

Prior to sites visits, a desk appraisal of the proposed projects activity plans will be carried out to confirm that all proposed applications for the wind and solar project with competitive bidding contain the required information pertinent to risk guaranty and for identification of environmental and social safeguards issues. Depending on the type of projects and to ensure that all pertinent environmental and social issues are identified, desk appraisal



will be conducted by EEPs (see figure 9-1 and 9-2).

Step Three: safeguards screening and preliminary/ initial environmental review

EEP with the support from the national and Regional level environmental and energy offices or woreda level administrations, as required undertake screening of proposed project activities for identifying initial environmental and social issues associated with project activities. This would help to ascertain that the likely social and/or environmental impacts are identified. This screening will be carried out by using the *Environmental and Social Screening Form* (see annex2).

Completion of this screening form will facilitate the identification of potential environmental and social impacts, determination of their significance, assignment of the appropriate environmental category, proposal of appropriate mitigation measures, and conduct any further environmental assessment work, if necessary. Suitably qualified experts of EEP with, national and regional energy and environmental offices will conduct the screening. If limitation of the required expertise observed, training will be provided to equip the experts with the necessary skill.

The assignment of the appropriate environmental category to a Solar and Wind project installation and construction activities will be based on the information provided in the environmental and social screening form (see annex 2).

Step Four: Submission of screening and IEE report to MoWIE

After thorough screening of the national level applications/proposals, EEPs will require to submit a report for safeguards screening/Initial Environmental Examination (IEE) results, and recommendations to MoWIE for further review, clearance, and approval. EEP review the screening report and facilitate the process to support IPPs to get in touch and linked with MoWIE.

Step Five: Review of screening and or IEE report and appraisal by MoWIE

The MoWIE will review the screening results, recommendations, and the proposed mitigation measures, and provide feedbacks on the specific screening endeavors and broader issues. The reviewing process at this level will consider that the proposed project activities which may require additional safeguards instruments, i.e. ESIA.

As required, after review of the screening results, the project nature might require a field appraisal mission to the location of the project implementation to obtain additional or more detailed information. Moreover, if the desk appraisal and screening undertaking indicates that the proposed project may have environmental and/or social concerns that are not adequately addressed in the current documentation, or if the application meets certain criteria (see Table 9-1 below), MoWIE will require a field appraisal before the project can be considered further. The filed appraisal will be arranged with EEP

Table 6-1: Sample Criteria for Requiring a Field Appraisal

| Criteria | Field Appraisal |
|---|---|
| 1. Land must be acquired for a project, an individual or community's access to land or available resources is restricted or lost, or an individual or family is displaced | Determines the number of affected/displaced people and level and scope of impact, as per the criteria and procedures detailed in the RPF document Resettlement Action Plan/Abbreviated Resettlement Action Plan/ (RAP/ARAP) may then be required. |
| 2. A project may affect a protected area or a natural habitat | Determines if the project will adequately avoid adverse effects on the protected area or natural habitat, as provided for in the ESMF (Please see project exclusion list under annex 1 |
| 3. A project may have an impact on ecologically sensitive ecosystems | A field appraisal determines the scale and level of impact. The application may need to be revised to describe how the -project |



| Criteria | Field Appraisal |
|--|--|
| (e.g. of impact on wetlands) | will avoid or minimize adverse impacts to ecologically sensitive areas. This may require a distinct Environmental and Social Management Plan (ESMP) on top of the ESIA as outlined in this ESMF. |
| 4. A project may involve, or result in: <ul style="list-style-type: none"> • Diversion or use of surface waters; • * Wells or water points. | A field appraisal determines the scale and potential adverse effects, and may include an ESMP as outlined in Chapter six of the ESMF |
| 5 A project may be situated in the area of which <ul style="list-style-type: none"> • Underserved people are present • Social unrest or dispute area • Identified cultural importance | A field appraisal determines the scale and potential adverse effects, and may include specific ESMP as outlined in Chapter six of the ESMF |

Note: these criteria should be updated based on field experience in implementing projects.

Depending on the field appraisal mission, the appraisal might reconsider the need for development of an ESMP for the project. IPPs will be responsible for ensuring that the required ESMP is conducted as per the safeguards requirements of the World Bank Group policies and standards. The ESMP/ESIA will be prepared by a team of experts from the IPPs including the environmental and social safeguards specialist (to be recruited by the IPPs) or by an independent consultant as deemed necessary. If a team of IPPs are opted, they have to be given the necessary training on ESMP/ESIA procedures, safeguard policies and performance standards, and ESIA guidelines before conducting the environmental and social impact study.

The ESMP/ESIA report should consist of i) description of the project activity (with location), the environmental baseline, the impacts, mitigating measures, and recommendations for implementation and monitoring of the mitigating measures, among others (see Annexes 3 and 4) for detail information on the contents of the ESMP/ESIA report. EEP and MoWIE will supervise further the environmental and social safeguards preparation and implementation work by IPPs, which may be included in the preparation of project ESMP, RAP/ARAP, as the situation may require. A copy of the ESMP/ ESIA report will also be submitted to the World Bank for review, comments, and clearance.

Step Six: Review by the World Bank

The World Bank will review and provide comments and inputs to IPPs on the draft site-specific safeguard instruments (ESMP/ESIA).

Step Seven: Submission of ESIA/ESMP to MoWIE

Once all the requisite documentation has been compiled, and after incorporating the World Bank comments and inputs, with the support from EEP, IPPs will make recommendations and submit the ESIA/ESMP to MoWIE for final clearance and approval.

Step Eight: Approval of projects by MoWIE

As stated in step four, the completed screening form along with any additional planning reports will be forwarded to MoWIE. The first step in the approval process is to determine if all the relevant information has been provided and is adequate. MoWIE will check if the beneficiaries and screening team have thoroughly considered all



environmental and social issues with regards to the identification of potential adverse effects arising from the project as well as mitigating measures to adequately address negative impacts.

Projects may not be eligible for risk grant, if they have potentially a negative impact on physical cultural resources, or significant impacts on natural habitats, forests, and other. Lists of such projects that may not be granted by the program are described in annex 1.

Although the propose program has no activity, which affects cultural resources, in case of any events of the potential chance find of physical cultural resources, the contract for construction or installation of solar panels or wind energy is required to include reference to procedures to follow as per chance find procedures annexed in this ESMF (annex 8).

MoWIE, will review the instruments (ESIA/ESMP) and make decision by approving the project activity (*with or without conditions relating to implementation*); recommending to re-design (*with required and/or recommended amendments*); or rejecting the project activity (*with comments as to what is required to submit as an acceptable report*). As part of the appraisal, the project's corresponding ESIA/ESMP has to be made publicly available.

Steps Nine: Submission of approval decision report to IPPs by MoWIE / Regional Environmental offices

ESIA/ESMP review should be done in the given period (shortest possible time) to avoid delays in project implementation. The result of the review and final approval will besubmitted to IPPs as soon as completed⁴The Review report to be submitted to IPP should include but not limited to-

- The decision on each project activity whether an ESMP/ESIA is required or not;
- If an ESMP is required, the recommended scope of the ESMP that clearly indicating the aspects to be seriously addressed, the skills required and duration of the ESMP;
- If an ESMP is not required, include guidance on special needs such as technical guidelines on any of the project activities; and
- Approval without conditions for those projects with no potential adverse impacts.

Step Ten: Documentation and Projects Effectiveness

IPP, after receiving the decision report from the MoWIE or Regional level environmental offices, will compile the documentation comprises of the decisions on environmental and social safeguards screening for further processing of grant/loan effectiveness. Once the documentation is finalized, EEP will communicate with the Private Investors/IPP's to notify the effectiveness of the project implementation with all requirements during project implementations.

Steps Eleven: Implementation

EEP will inform IPPs to start the construction activities and implementation of the project, as per the proposal and decisions and requirements provided by MoWIE. At the time of implementation of the proposed projects, the potential environmental and social impacts are clearly identified. A management plan will be formulated and implemented. Implementation of environmental and social mitigation measures will be done concurrently with the other project activities and in line with sector guidelines and checklists that will be provided. In each project area, EEP and regional and woreda administration, andenergy and environmental offices will be required to make their contribution to environmental and social mitigation measures upfront. As much as possible local communities will also participate fully in project implementation.

Steps Twelve: Supervision and Monitoring

The EEP, MoWIE, Regional relevant offices (Energy and Environment) will carry out supervision and monitoring, in consultation with and support from the World Bank.

⁴(Note: The final documents will be disclosed at EEP/IPP's website and World Bank external web site as appropriate. The local level disclosure of the final ESIA/ESMP will be carried out using appropriate language and culturally sensitive manner.).

Steps Thirteen: Annual auditing

As stated in the ESMF, the annual auditing and End-of-program evaluation is the responsibility of IPPs. The assignment will be annual auditing and end-of program evaluation at the end of programs by independent consultants or a joint team of experts from EEP and MoWIE, as required.

Steps Fourteen: End -of-Program Evaluation

End-of-program evaluation is the responsibility of both EEP and IPPs. The assignment will be and end-of program evaluation at the end of programs by independent consultants or team of experts from MoWIE, as required

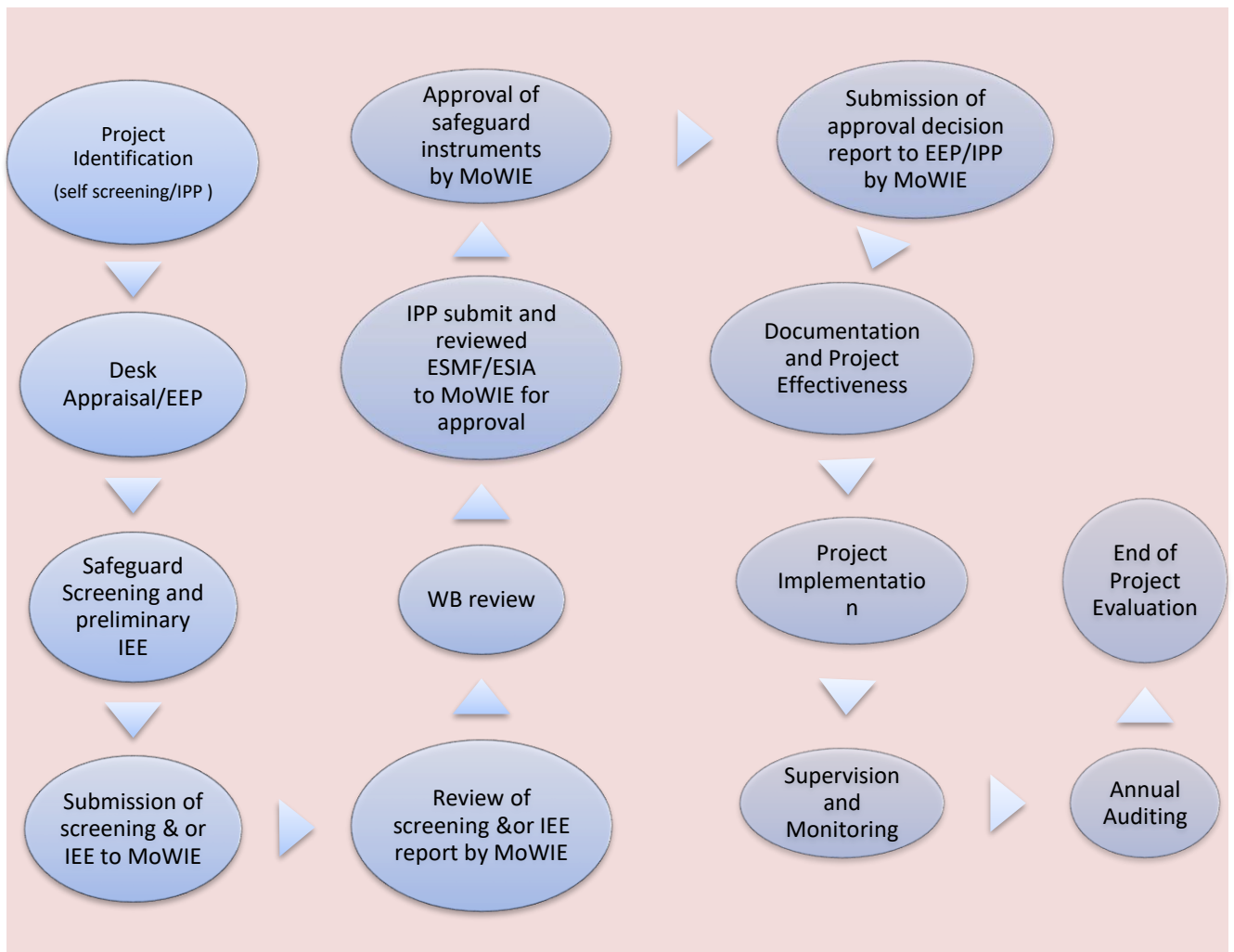


Figure 6-2: Typical Project Implementation cycle under the proposed REGREP

6.2 ROLES & RESPONSIBILITIES OF MAJOR ACTORS

Different institutions and stakeholders are responsible and play a role during the design and implementation of the projects under the proposed REGREP. It should, however, be noted that the degree of influence of the various actors do vary both in terms of spatial and temporal dimension. The different actors expected to be the major players during design and implementations of the proposed program are the followings:



- Ministry of Water, Irrigation and Energy(MOWIE)
- Ethiopian Electric Power (EEP)
- Ministry of Environment, Forest and Climate Change (MoEFCC)
- Independent power producer (IPP)
- Supervision/Resident Engineer (S/RE)
- Regional Governments/City Dire Dawa Administration
- Regional, Zonal and woreda Water, Mines and Energy Offices
- Woreda Administrations
- Regional and woreda Environmental Offices
- Authority for Research and Conservation of Cultural Heritage (ARCCH)
- The Community; andNGOs locally based.

6.2.1 Ministry of Water, Irrigation and Energy (MoWIE)

The Ministry of Water, Irrigation, and Energy is the regulatory body for the energy sector. The Ministry of Environment, Forest and Climate Change (MoEFCC) –Former EPA delegated the MoWIE, dated December 2010, for review and clearance of environmental and social safeguards instruments, which are prepared for the energy and water sector development projects. This delegation provided power to enforce the national proclamations and regulation related to environmental and social safeguards at all phases of project implementation.

The Environment and Climate Change Directorate (ECCD) established under the MoWIE in 2011 to bring environmental protection and sustainable development, secure public welfare, benefit and participation and facilitates development activities within the scope of the program. The Directorate is also responsible to ensure the enactment of environmental and social safeguards legal frameworks and adequate care has been taken by the IPP at all phases of the program execution. The ECCD has two sections (Climate Change and EIA unit) and both units are staffed with experts like environmentalist and sociologists, etc.

Concerning the proposed REGREP, the Ministry is responsible to check and oversee the program activities compliance with the environmental and social safeguards policies of the country. Based on the delegation from MoEFCC/EPA, the Ministry will review the project ESIA, ESMP and other safeguards documents,provide their comments and recommendations to be included in the final document before approval of the project. Major responsibilities are:

- Establishes and lead steering committee at federal level pertaining to the REGREP.
- Provides training and undergoes awareness raising campaigns through various forms of media and other means.
- Provides overall technical support/assistance for both scaling solar and scaling wind projects
- Review and provide approval and clearance for safeguards instruments prepared for the proposed program
- Oversee all the environmental and social activities related to the project.
- Collects reports from EEP and pertinent regional bureaus and closely works with them for the successful implementation of the program and considers the reports for further actions.
- Undertakes grassroots supervision, monitoring and provides feedback to concerned parties.

6.2.2 Ethiopian Electric Power (EEP)

According to Council of Ministers (COM) regulation No,302/2013 EEP has defined its long-term strategies so as to support the endeavors of the Federal Government of Ethiopia in promoting social and economic progress in all parts of the country. EEP will be the primary counterpart agency for the REGREP. EEP would also be responsible for providing any credit-enhancement mechanisms (such as LCs) to the investors, possibly supported by Bank guarantees. Finally, as the buyer of the energy services of the IPPs, EEP would be responsible for ensuring that the IPPs adhere to the WB guidelines regarding fiduciary and safeguards management, results monitoring, sustainability, etc.

The Environment and Social offices under EHS&Quality Directorate is a functional section to oversee and ensure sound implementation of environmental and social safeguards measures over the program implementation period. The major task of the Environment and Social office (E&S) is to conduct periodic safeguards monitoring during construction and operation phase of the program, preparation, and implementation of Environmental, and Social Impact Assessment (ESIA), ESMP, and A/Resettlement Action Plan (A/RAP) and to oversee the overall IPP's safeguards management activities. The office ensures whether the IPP comply with the approved environmental and social management plan and undertaking the appropriate mitigation measures accordingly.

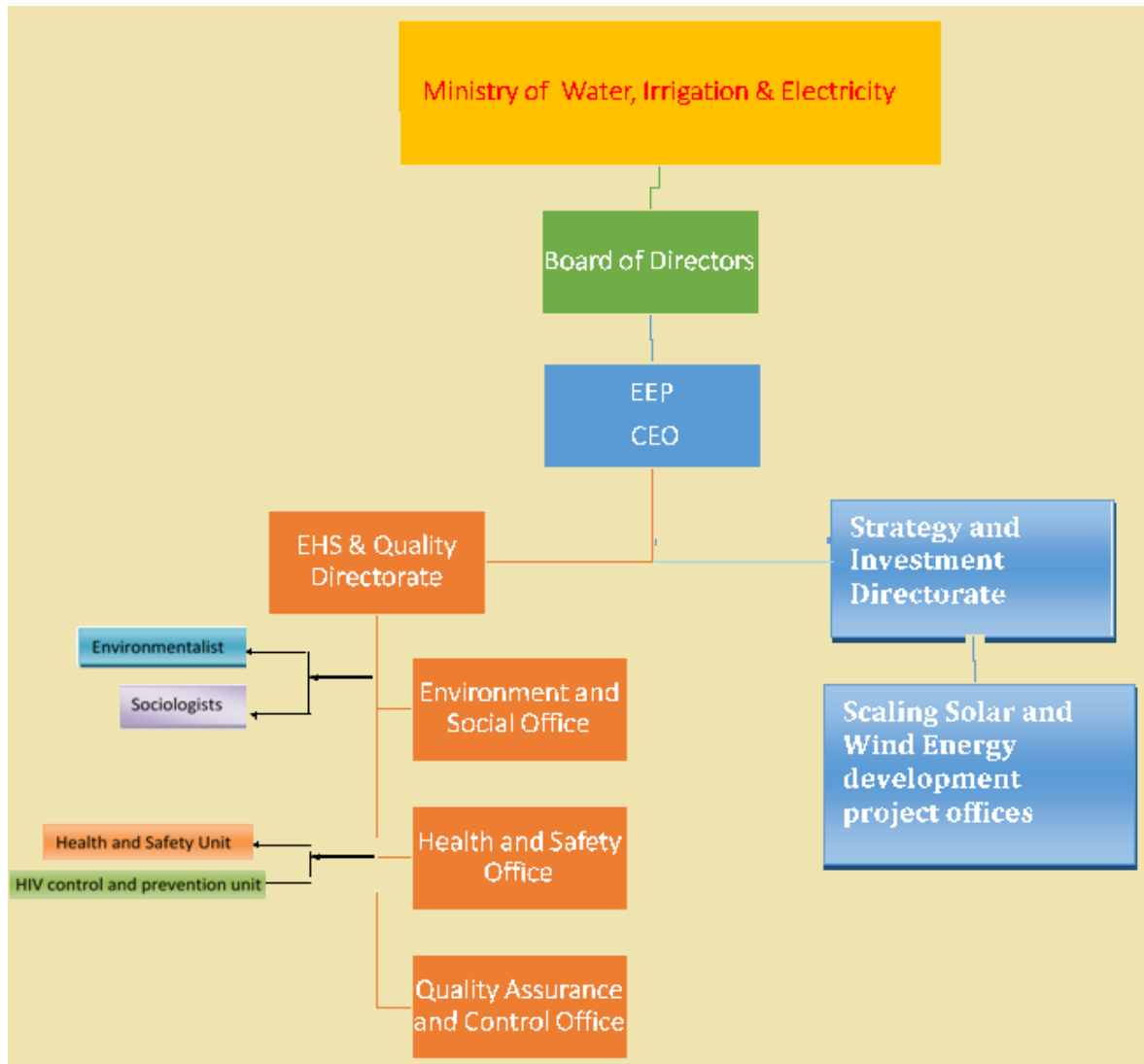


Figure 6-3: Simple chart on Organizational Structure of EEP in relation to safeguard management program



| IPP | EEP | MoWIE | World Bank |
|--|--|---|--|
| <ul style="list-style-type: none"> ✓ Conduct self-screening activity ✓ Conduct draft ESIA, RAP ✓ Submit the draft ESIA and RAP to EEP, MoWIE, WB for comment ✓ Final submission to MoWIE for final clearance and approval. ✓ Prepare Site Specific ESMP and other site-specific management plans. ✓ Prepare and implement Environmental and social management System /ESMS/ ✓ Provide compensation payments to implement RAP and LRP ✓ Disclose the final ESIA/RAP/ESMP on IPP's web site. ✓ Implement, regular monitoring and reporting to EEP / MoWIE | <ul style="list-style-type: none"> ✓ Undertake preliminary screening and Scoping study ✓ Prepare an ESMF and RPF used as guide for other tools. ✓ Undertake implementation supervision⁵ ✓ Disclose the final ESMF/RPF/ESIA/RAP/ESMP on EEP web site. ✓ Facilitate capacity building activities for IPP to implement the projects. ✓ Provide regular reporting to MoWIE and WB | <ul style="list-style-type: none"> ✓ Check and oversee the program activities compliance with the environmental and social safeguards policies of the country. ✓ Review draft instruments prepared by EEP and IPP. ✓ Provide clearance, and approval of the safeguard instruments ✓ Prepare IPP safeguard monitoring evaluation ✓ Facilitate capacity building activities for IPP to implement the projects. | <ul style="list-style-type: none"> ✓ Review the draft instruments prepared by EEP and IPP. ✓ Disclose the final ESIA/RAP on WB external website. ✓ Facilitate capacity building activities of IPP and EEP to Effective implementation of the project. |

Figure 6-3: Roles and responsibility for Project Implementation under the proposed REGREP

⁵EEP has more experience for safeguard implementation so far therefore, other than supervision monitoring smooth communication and experience sharing will be expected during IPP projects implementation.



6.2.3 Ministry of Environment, Forest and Climate Change (MoEFCC)

The rights and obligations of the Environmental Protection Authority (EPA) reestablished under the existing Proclamation No. 295/2002 will be transferred to the newly Ministry of Environment and Forest in 29th July 2013 by Proclamation No 803/2013.

Ministry of environment, forest, and climate change has the following powers and duties:

- Coordinate measures to ensure that the environment objectives provided under the constitution and the basic principles set out in the environmental policy of Ethiopia are realized
- Establish a system for environmental impact assessment of public and private projects, as well as social and economic development policies, strategies, laws and programs;
- Prepare a mechanism that promotes social, economic and environmental justice and channel the major part of any benefit derived thereof to the affected communities to reduce emissions of greenhouse gases that would otherwise have resulted from deforestation and forest degradation;
- coordinate actions on soliciting the resources required for building a climate resilient green economy in all sectors and at all governance levels as well as provide capacity building support and advisory services;
- Establish a system for the evaluation of the environmental impact assessment of investment projects submitted by their respective proponents by the concerned sectoral licensing organ or the concerned regional organ prior to granting a permission for their implementation in accordance with the Environmental Impact Assessment Proclamation
- Take part in the negotiations of international environmental agreements and, as appropriate, initiate a process of their ratification;
- Establish an environmental information system that promotes efficiency in environmental data collection, management and use;
- Promote and provide non-formal environmental education program and cooperate with competent organs with a view to integrating environmental concerns in the regular educational curricula.

6.2.4 Independent Power Producer (IPP)

Independent Power Producer (IPP) is the main responsible entity for the overall implementation of the project including preparation, construction, and operation activities. During preparation phase, IPP is also required to prepare the necessitated safeguards instruments, including ESIA, RAP and the corresponding implementation of mitigation and enhancement measures recommended in these safeguards documents (ESIA, RAP, other). In this regard, IPP shall perform, but not limited to the followings:

- Environmental and social management measures are considered over the project implementation phases, design, construction, operation and decommissioning phases.
- Regular site supervision to manage sound implementation of environmental and social safeguards management and measures over the project period.
- Establish an environmental and social management unit (ESMU) staffed with qualified safeguards experts.
- Prepare and submit social and environmental safeguards implementation and monitoring report to EEP and WB.
- Establish coordination mechanism among the different parties, such as community members, woreda administrations, environment and energy offices, etc.



6.2.5 The Contractor

The Contractor is responsible to incorporate environmental and social safeguards management measures stated under the project ESMP. The pertinent information from the ESMP will be included in the project contract under the environmental and social clauses and the ESMP document will be annexed and part of the bidding and contract agreement document. The contractor will also require preparing the contractor Environmental and Social Management Plan (CESMP) in-line with the recommendations of the respective project ESIA and IFS's PSs. The Contractor is accountable for the implementation of these instruments (CESMP/ESMP/ESIA) and required to establish an EHS unit staffed with qualified environmental and/ or social safeguards specialists. After preparing the ESMPs it needs to be approved by the Supervision Engineers and submitted to Bank of clearance and public disclosure before starting physical activities. The IPPs shall also provide training and undergo awareness raising campaigns on safeguards management for crew members and staffs.

6.2.6 The Supervision/Resident Engineer (S/RE)

The S/RE under the power producing company is responsible for the day-to-day monitoring of the Program implementation, including implementation of environmental and social management during construction. By contractual arrangement, the Supervision or Resident Engineers will be responsible for adequate inclusion implementation of the environmental and social safeguards clauses in the contract document and the corresponding supervisory responsibility to confirm sound implementation of all site environmental and social management and monitoring recommendations. The S/RE approves or rejects, as the case may be, the proposals and undertakings of the contractor in relation to the requirements of the contract documents.

6.2.7 Regional Governments and City Administration energy and environment offices

- Establish a steering committee (or strengthen existing ones, if any) for the overall strategic guidance;
- Provide training on implementation of ESMF, installation and maintenance of Solar panels and wind energy development, as requested by IPPs
- Support, follow-up, monitor and evaluate the overall implementation of safeguards instruments and the projects under the proposed program at hand in their respective regions;
- Organize a coordinated field visit with the relevant institutions such as Environment office, IPPs, EEP for joint supervision and support; and,
- Report to the MoWIE on a monthly, quarterly, biannually and annually basis, as applicable.
- Ensuring that the ESIA is properly and effectively implemented during all phases of the project. The regional relevant offices will work closely with representatives from IPP. They will take lead role in the implementation of land acquisition and compensation activities in their respective localities.

6.2.8 Woreda Administration

- Assist the IPPs on the implementation of the program
- Establish a task force/steering committee at Woreda level;
- Organize the Woreda taskforce/steering committee and chair the meeting related to the implementation of the programs; and,
- In cases of land expropriation, facilitate the process of valuation and compensation committee meetings and payment of compensation.

6.2.9 Authority for Research and Conservation of Cultural Heritage (ARCCH)

The Authority will be informed whenever there are significant known or unknown cultural heritage sites in the project areas for further investigation, recommendation, and management, particularly for chance find cultural resources.

6.2.10 The Community

The Community has the right to be consulted to ensure the overall project acceptability and sustainable implementation of the program. In general, the community should be involved at different stages of the Project



implementation. A focus will be placed on especially engaging relevant women's groups to ensure both men and women are informed about project activities.

6.2.11 Local NGOs working around the program implementation location

In project areas where there exists NGOs involved in energy-related interventions, IPP/EEP may approach them for possible contributions especially for the sustainability of the Project. NGOs are important specifically during the operation phase of the Project

6.3 . Environmental and Social Management Plan (ESMP)

6.3.1 Introduction

An Environmental and Social Management Plan (ESMP) which is discussed under this section is key generic document focused on identification of impacts and the respective measures to be implemented over program implementation phase. The ESMP ensures the project impacts are minimized to an acceptable level during implementation of the project designed under the REGREP. Thus, ESMP becomes the document for warranting that all the preceding analysis is used to preserve/improve the quality of the overall biophysical and socioeconomic environment within the program influence area.

The general objective of the ESMP is to develop procedures and plans to ensure that the mitigation measures will be carried out during the preconstruction, construction, operation and decommissioning phases of the proposed REGREP.

The purpose of the ESMP is to identify and document environmental and social impacts, mitigation and enhancement measures and monitoring procedures to be undertaken. This safeguards instrument allows the proposed programs to reduce potential impacts generated from the implementations of projects by integrating environmental and social procedures and mitigation plans in the project implementation programs.

The ESMP should be project specific, clearly and concisely describing adverse impacts, selected management measures to bring it to an acceptable level and timelines for implementing these measures. It should also clarify roles and responsibilities among the various stakeholders including IPPs, Contractors etc. A contract specific ESMP would facilitate integration with the bidding documents for the Developer.

This generic ESMP serves as a pertinent instrument to guide the project proponents/IPP's and other implementers to develop and carryout effective mitigation measures, design, and conduct sound environmental and social monitoring programs. The ESMP describes the probable adverse impacts, selected management measures to bring it to an acceptable level and timelines for implementing the defined measures. Moreover, it plays a vital role in identifying the roles and responsibilities of each institutions, stakeholders including power developer, contractors, etc. and the required capacity building components for implementing parties that warrants to sustainable developments of the proposed projects. In accordance with the above objectives, the ESMP should be prepared and adopted in the following approach:

- Examine the project in terms of its major activities and identify the aspects associated with the project construction which generate environmental impacts;
- Identify the environmental issues associated with the major activities;
- Develop mitigation measures for the aspects identified as having environmental impacts;
- Incorporate environmental mitigation measures into construction/installation and operation schedules and activities, develop corrective actions and ensure monitoring;
- Develop further environmental provisions through a series of project Site Environmental and Social Management Plans and procedures;
- Define the specific actions required, roles and responsibilities for these actions, timetable for implementation, and associated costs;
- Describe capacity building and training requirements for the implementation of the ESMP; and
- Define a proposed institutional structure to govern the implementation of the ESMP.



A project specific ESMP will be prepared once projects are identified and that must be integrated with the bidding document. The building blocks of an ESMP are:

- Potential adverse impacts identified and mitigation measures to be adopted, together with conditions within which one or other measure would apply and their integration with phases – Pre-construction, Construction/ Implementation and Operation;
- Enhancement plans for positive impacts;
- Monitoring Plan with indicators, mechanisms, frequency, locations;
- Budgetary allocations for all the above activities;
- Institutional arrangements for each activity and mitigation measures;
- Implementation schedules for each activity and its integration with the project implementation timelines; and
- Reporting procedures, including for redressing grievances related to environmental and social issues.

The site specific ESMP would need to be prepared for specific projects as and when identified based on ESIA.

An ESMP document should include:

- Lists of all project related activities and impacts, for each stage of the development of Projects, i.e., for the design, construction and maintenance stages;
- A list of regulatory agencies involved and their responsibilities;
- Specific remedial and monitoring measures proposed for each stage;
- A clear reporting schedule, including discussion of what to submit, to whom, and when;
- Cost estimates and sources of funding for both one-off costs and recurring expenses for implementation of the ESMPs.

ESMP shall deal with the construction, operations, and decommissioning stage of the project. The extent and timing of mitigation actions should be based on the significance of the predicted impacts. Some mitigation measures can be incorporated into the design of the project and can largely resolve the potential impacts of a project, e.g., drainage, access roads. Other measures require an on-going implementation plan to ensure that proposed actions are carried out at the correct times, that environmental and social safeguards measures such as slope protection, borrow area reclamation, are maintained, and that prompt remedial actions are taken when the initial measures are not fully effective.

Environmental and social management activities during the implementation of project will be governed by the possible negative impacts associated with the projects construction and installation activities and the respective mitigation measures stated under the environmental and social impact and mitigation measures section of this ESMF. These mitigation measures could be used as either safety, social or physical measures to avoid/mitigate the anticipated impacts on biophysical and social environment within and around the project area.

The Environmental, social and safety management specification as part of the project contract document shall contain all the necessary clauses relevant to the project. The contract document shall be a binding legal document to be signed by the contractor and IPP.

Tables 6.1, 7.1 and 8.1 presents an indicative environmental and social management and monitoring plan, which can be used to adapt in the preparation of ESMP during the implementation of the proposed Projects.

A summary of the likely issues and potential impacts & mitigation measures is presented in the following table 7.1 to guide preparation of upcoming ESMPs as more projects get identified. The generic ESMP is only a guideline document and would require addressing the project anticipated impacts & proposing mitigation measures. A template for the preparation of ESMP is annexed in this ESMF (see Annex 5)

6.3.2 Application of Environment, Health and Safety (EHS) Guidelines

The Environment, Health, and Safety (EHS) Guidelines of April 2007, shall be applied for (i) general EHS, which includes occupational health; (ii) Geothermal Resource Appraisal; and (iii) Electrical Power Distribution. The EHS Guidelines can be easily found on www.ifc.org. These guideline requirements must be



integrated in the ESMPs.

The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. The General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines which provide guidance to users on EHS issues in specific industry sectors. A complete list of industry sector guidelines can be found at: www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines.



Table 6-3: Generic Environmental and Social Management Plan

| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|--|------------------------------|---|---|-----------------------------|---|---|--|--------------------|
| | PC | C | O | PC | C | O | | |
| Loss of land / and other physical assets including communal grazing land | √ | √ | √ | √ | √ | √ | <ul style="list-style-type: none"> Carrying out analysis of alternatives to avoid / minimize involuntary taking of land and other physical assets. Provide alternative grazing land near by if available, Develop additional suitable benefit as an alternative social development activity based on proper consultation with affected community Detail compensation and other related issues are covered in the complementary RPF which is prepared based on national framework and the industry good practices guidelines. | • IPPs |
| Temporary and Permanent changes in land use | | √ | √ | | √ | √ | <ul style="list-style-type: none"> On completion of construction activities, land used for temporary facilities such as stockyard, batching plant and labor camps should be restored to the extent possible. | • IPPs/Contractors |
| | | | √ | | | √ | <ul style="list-style-type: none"> Leveling and grading operations will be undertaken with minimal disturbance to the existing contour thereby maintaining the general slope of site and proper location and sitting decisions. | • IPP |
| Soil Erosion; Alteration of natural drainage; | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Construction facilities to be placed 500 meters from water bodies, natural flow paths; | |
| | | | √ | | √ | | <ul style="list-style-type: none"> Minimize cut & fill operations, the site clearing, and grubbing operations should be limited to specific locations only. Any disruption of socially sensitive areas with regard to | |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|---------------|------------------------------|---|---|-----------------------------|---|---|--|---|
| | PC | C | O | PC | C | O | | |
| | | | | | | | <p>human habitation and areas of cultural significance will be avoided.</p> <ul style="list-style-type: none"> The existing slope and natural drainage pattern on the site should not be altered. Trees on private lands are felled or damaged during construction operations, compensation shall be paid to the owner as determined by the relevant institutions. The contractor shall ensure that site preparation activities do not lead disruption of activities of the local residents. Compacted areas after completion of construction work, construction should not be carried out during the monsoon season or heavy winds. Excavation and vegetation clearance will be limited in extent and defined temporary and permanent access routes to be established Soil excavated for the erection of towers should be used for refilling and should not be left exposed to wind and water for long period of time. Chemicals and used oil should be collected in sealed containers and finally be disposed off according to the national law. | <ul style="list-style-type: none"> Contractors/IPP |
| | | √ | √ | | √ | √ | | <ul style="list-style-type: none"> Contractors/IPP |
| Visual impact | | | | | √ | √ | <ul style="list-style-type: none"> impact is very specific to the site at a particular wind farm, several characteristics in the design and sitting of wind farms have been identified to minimize their potential visual impact | Contractors |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|---|------------------------------|---|---|-----------------------------|---|---|---|---|
| | PC | C | O | PC | C | O | | |
| | | √ | √ | | | | <ul style="list-style-type: none"> Solar panel should be placed at the right direction and with no reflection of light that affect the neighbors' visual quality. Disposal of excavated soils, unused concrete, wooden timber, nails etc. and liquid wastes should be managed and disposed of in appropriate way to ensure safe and acceptable aesthetic beauty to the beneficiary family and nearby residents. | |
| Noise from construction and operation works | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Noise impact is insignificant and temporary in nature; to minimize the impact, noise generating construction time and material transportation will be scheduled during day time hours from 7: 00 pm to 6:00 am and all vehicle and equipment are will be turning off their engines in rest time. Workers in the vicinity of strong noise should use ear plugs. Construction activity shall be restricted to daytime as far as possible to avoid disturbance to surrounding areas. Wherever required, personal protective equipment such as ear plugs, earmuffs, helmets etc. should be provided to the persons working in high risk areas. | <ul style="list-style-type: none"> Contractors |
| air quality impact/Dust | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Contractors shall ensure that workers switch off plant and equipment when not in use, in order to avoid the release of emission of pollutants. | Contractors/IPP |
| | | √ | | | √ | | <ul style="list-style-type: none"> Construction machinery shall be properly maintained to minimize exhaust emissions of CO, SPM and Hydrocarbons. | Contractors |
| | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Dust generated as a result of clearing, levelling and site grading operations shall be suppressed using water sprinklers. Dust generation due to vehicle movement on haul roads / access roads shall be controlled through regular water | Contractors/IPP |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|---|------------------------------|---|---|-----------------------------|---|---|---|------------------|
| | PC | C | O | PC | C | O | | |
| | | | | | | | sprinkling. <ul style="list-style-type: none"> • Vehicle engines need to be properly maintained and should have a valid Pollution Under Control (PUC) and emissions from vehicle minimize by covering stockpiles, • Undertaken the vehicle movement according to the contractor plan and limited the vehicles speed. • Diesel generators should be restricted to emergencies and power back up only to minimize air emissions. | |
| Safety Issues Exposure to safety related risks | | √ | √ | | √ | √ | <ul style="list-style-type: none"> • Prevent entry of unauthorized personnel and proper storage and control of hazardous materials on site. • The site shall be secured by fencing and manned at entry points • Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites | IPPs/Contractor |
| Impacts on biodiversity | √ | | | √ | | | <ul style="list-style-type: none"> • Avoid sites that require cutting or substantially pruning sensitive species and indigenous trees, an old tree or known bird-nesting tree. • Ensure no sensitive fauna and flora species are found nearby. | IPPs/Contractors |
| | | √ | | | √ | | <ul style="list-style-type: none"> • Make sure that pruning should be practiced only to remove branches that obstructs the panel and when cutting is necessary. Avoid the cutting of sensitive tree species and bird-nesting trees | IPPs/Contractors |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|---|------------------------------|---|---|-----------------------------|---|---|--|---|
| | PC | C | O | PC | C | O | | |
| Heat or light reflection | | √ | √ | | | | <ul style="list-style-type: none"> Follow the standard of placing the roof top solar panel in north-south direction and conduct regular monitoring of the impacts, if any non-conformance exists correct promptly | <ul style="list-style-type: none"> Contractors/IPP |
| Chemical Impacts | √ | | | √ | | | <ul style="list-style-type: none"> Identify suppliers that have products, particularly solar panels and inverters, which comply with ISO or other industry best practice standards and follow-up and monitor the products at a regular interval. . | <ul style="list-style-type: none"> Contractors EEP |
| Surface and ground water | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Proper cover and stacking of loose construction material at batching plant and project site | <ul style="list-style-type: none"> Contractors/IPP |
| Water for Construction Conflicts with existing users due to scarcity of resource base. | √ | √ | | √ | √ | | <ul style="list-style-type: none"> Planning of toilets, soak pits and septic tanks and waste collection areas should be away from natural drainage channels. A detailed assessment of the available resources and consent of the local community for withdrawal of water from existing surface water sources shall be taken. If ground water is withdrawn, adequate approvals from the water bureau or basin administrations department need to be undertaken before setting up bore wells. IPP will develop a mechanism to use its own water source if possible | <ul style="list-style-type: none"> Contractors IPPs |
| solid and liquid waste | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Laborers should be given training towards proactive use of designated areas/bins for waste disposal and use of toilets. Open defecation and random disposal of waste should be strictly prohibited | <ul style="list-style-type: none"> Contractors/IPP |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|---|------------------------------|---|---|-----------------------------|---|---|--|---|
| | PC | C | O | PC | C | O | | |
| | | | | | | | <ul style="list-style-type: none"> Waste materials should not be left uncovered as it will attract birds and other fauna to the wind farm boundary | |
| Ecological resources | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Unnecessary disturbance to vegetation due to off-roading, fuel wood procurement, unchecked expansion of labor camps and destruction of floral resources should be prohibited | <ul style="list-style-type: none"> Contractors/IPP |
| | | √ | | | √ | | <ul style="list-style-type: none"> If access roads are created in key crossing paths for smaller mammals then culverts of alternate paths should be provided. | <ul style="list-style-type: none"> Contractors |
| Demography/Population | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Ensuring proper health-check-ups of all laborers employed at the project site; Providing separate toilet facilities for men and women at the accommodation as well as site; and Facilitating healthcare services and medical care in case of sickness. | <ul style="list-style-type: none"> Contractors/IPP |
| Displacement | √ | √ | | √ | √ | | <ul style="list-style-type: none"> The project developer to compensate, either in cash or in kind as per the national law and WB PS. Detail compensation and other related issues are covered in the complementary RPF which is prepared based on national framework and the industry good practices guidelines. | <ul style="list-style-type: none"> IPP Woreda/City administration |
| | √ | √ | | √ | √ | | <ul style="list-style-type: none"> public buildings, a medical clinic, clean water provision, good sanitation and electricity and they will require resettlement assistance and livelihood restoration | <ul style="list-style-type: none"> IPP Woreda/City administration |
| Impartiality/discrimination to employment opportunities | √ | | | √ | | | <ul style="list-style-type: none"> Encourage and consider the employment of local labor for semi-skilled and unskilled people including women, ensure that criteria are set for prioritization of likely beneficiary | <ul style="list-style-type: none"> IPP Contractors |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|---|------------------------------|---|---|-----------------------------|---|---|--|---|
| | PC | C | O | PC | C | O | | |
| | | | | | | | households including poor and female headed ones where there is more demand. | • Woreda/City administration |
| <ul style="list-style-type: none"> • Loss of Livelihood • Loss of Access rights | √ | | | √ | | | <ul style="list-style-type: none"> • Compensation payment should be undertaken for the affected crops, for the Private Sector Activities OP4.03 WB, PS 5 (Land Acquisition and Involuntary Resettlement) and Ethiopian expropriation of land holdings for public purposes and compensation payment-Federal Proclamation No. 455/2005. • Preferable employment with developer • Alternative livelihood options and training for skill enhancement • Project to ensure through analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided. | <ul style="list-style-type: none"> • EEP • IPPs |
| Underserved people | | | | | | | <ul style="list-style-type: none"> • Adverse impacts on Affected Communities of Indigenous Peoples should be avoided where possible. Where alternatives have been explored and adverse impacts are unavoidable, the client will minimize, restore, and/or compensate for these impacts in a culturally appropriate manner commensurate with the nature and scale of such impacts | • Contractors, |
| Sexually Transmitted Infections /STIs/ | | | | | | | <ul style="list-style-type: none"> • Awareness creation on sexually transmitted infections, control activities near the project site through distribution of condoms and providing trainings in relation to STI's and HIV/AIDS. | • Contractors |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|---|------------------------------|---|---|-----------------------------|---|---|--|--|
| | PC | C | O | PC | C | O | | |
| Occupational health and safety related problems | | √ | √ | | √ | √ | <ul style="list-style-type: none"> • Make PPE available at the site and support, advice and monitor the proper use of PPE by the EEP, contractors, and laborers. Ensure the presence of onsite temporary spill containment structure | <ul style="list-style-type: none"> • Contractors/IPP |
| Inappropriate waste management | √ | √ | | √ | √ | | <ul style="list-style-type: none"> • Conduct regular awareness creation and sensitization program for the proponent and communities that reside in the area about the potential negative impacts, health and safety risks, and proper waste management practices. • Domestic and/or other non-hazardous wastes, after proper segregation, have to be disposed of at the designated area without any impact to the environment. | <ul style="list-style-type: none"> • Contractors |
| Road safety and traffic management plan | | | | | | | <ul style="list-style-type: none"> • The movement of heavy machinery and equipment’s shall be restricted to defined routes. • Proper signage’s to be displayed at major junctions. • Road diversions and closures to be informed well in advance to the local residents. • Vehicular movement to be controlled near sensitive locations viz. schools, colleges, hospitals identified along designated vehicular transportation routes. | <ul style="list-style-type: none"> • IPPs • Contractor |
| Base Camp Construction Activity – Labor Camp Management Conflicts with the local residents | | | | | | | <ul style="list-style-type: none"> • Preparation of a waste management plan covering the following aspects • Construction and commissioning of solar park • Temporary accommodation facilities for labor • Waste generation from equipment maintenance / vehicles on-site. | <ul style="list-style-type: none"> • EEP • IPPs |



| Impacts | Scaling Solar Project Phases | | | Scaling wind Project Phases | | | Proposed Mitigation measures | Responsibility |
|-----------------|------------------------------|---|---|-----------------------------|---|---|---|--|
| | PC | C | O | PC | C | O | | |
| | | | | | | | <ul style="list-style-type: none"> The scrap material generated from erection of structures and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. Hazardous waste viz. waste oil etc. will be collected and stored in paved and bounded area and subsequently sold to authorized recyclers. Applicability of the Hazardous Waste Management Rules | |
| Influx of labor | √ | √ | | √ | √ | | <ul style="list-style-type: none"> Most of these socially communicable diseases would be of temporary nature except for HIV/ AIDS. The contractor shall adopt the project office LIMP and implement Labor Influx Management Plan, as required. | <ul style="list-style-type: none"> Contractors IPP |
| | | √ | | | √ | | <ul style="list-style-type: none"> Health education programs on illegal/illicit drugs and any other socially condemned activities near the project site. | <ul style="list-style-type: none"> Contractors |
| | | √ | √ | | √ | √ | <ul style="list-style-type: none"> Moreover, mechanisms need to be put in place to prevent and minimize Gender Based Violence (GBV) and Violence against Children (VAC). Such mechanism should include working with the contractors to prevent sexual harassment in the workplace and GBV and VAC in the project affected communities(for example through code of conducts), strengthening grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response. | <ul style="list-style-type: none"> Contractors/IPP |

Notes- PC- Preconstruction, C- Construction, O- Operation



6.4 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

The process of environmental and social monitoring is a continuing process throughout the life of the proposed programs from project installation and construction phase up to operation and decommissioning phase. Its purpose is to establish benchmarks so that the nature and magnitude of anticipated environmental and social impacts can be continually assessed ensuring the achievement of ESMF objectives. Monitoring of ESMF could be continuous during project implementations or periodic review as annual monitoring/auditing to determine and guarantee the effectiveness of ESMF measures and procedures.

The objectives of monitoring are:

- i. To alert program implementers and IPPs by providing timely information about the success or otherwise of the environmental management process outlined in this ESMF in such a manner that changes can be made as required to ensure continuous improvement to environmental and social management process (even beyond the project's life).
- ii. To make a final evaluation in order to determine whether the mitigation measures incorporated in the technical designs and the EMP have been successful in such a way that the pre-project environmental and social condition has been restored, improved upon or is worse than before and to determine what further mitigation measures may be required.

The Environmental and Social Monitoring Plan for scaling Solar and Scaling wind projects is depicted in Table 6.4, see below.

Table 6-2: Environmental and Social Monitoring Plan for Scaling Solar and wind development projects

| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|---|------------------------------|---|---|---------------------------------|---|---|--|---|----------------------|--|
| | PC | C | O | PC | C | O | | | | |
| Temporary and Permanent changes in land use | | √ | √ | | √ | √ | On completion of construction activities, land used for temporary facilities such as stockyard, batching plant and labor camps should be restored to the extent possible | number of site recorded as restored | IPPs/ Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during construction phase |
| | | | √ | | | √ | Leveling and grading operations will be undertaken with minimal disturbance to the existing contour thereby maintaining the general slope of site. | Number of Maintain general project site | IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during construction phase |
| Soil Impacts | | | √ | | | √ | Compacted areas after completion of construction work, construction should not be carried out during the monsoon season or heavy winds. | number of compacted general site | Contractors /IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during Construction phase |
| | | √ | | | √ | | Excavation and vegetation clearance will be limited in extent and defined temporary and permanent access routes to be established | Number of Access rod | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| | | √ | | | √ | | Soil excavated for the erection of towers should be used for refilling and should not be left exposed to wind and water for long period of time. | number of site recorded as beautified | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|---------------|------------------------------|---|---|---------------------------------|---|---|---|---|-----------------|---|
| | PC | C | O | PC | C | O | | | | |
| | | | | | | | | | | during PC &C phase |
| | | √ | √ | | √ | √ | Chemicals and used oil should be collected in sealed containers and finally be disposed off according to the national law. | Number of sites identified for disposal of wastes | Contractors/IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| Visual impact | | | | √ | √ | | impact is very specific to the site at a particular wind farm, several characteristics in the design and siting of wind farms have been identified to minimize their potential visual impact | Number of proper location and siting decisions | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| | | √ | √ | | | | Solar panel should be placed at the right direction and with no reflection of light that affect the neighbors' visual quality. Disposal of excavated soils, unused concrete, wooden timber, nails etc., and liquid wastes should be managed and disposed of in appropriate way to ensure safe and acceptable aesthetic beauty to the beneficiary family and nearby residents. | Number of appropriately installed solar panels | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|---------------------|------------------------------|---|---|---------------------------------|---|---|---|--|----------------|---|
| | PC | C | O | PC | C | O | | | | |
| Ambit noise quality | | √ | | | √ | √ | noise generating construction time and material transportation will be scheduled during day time hours from 7: 00 pm to 6:00 am and all vehicle and equipment are will be turning off their engines in rest time. Workers near strong noise should use ear plugs. | Measurement of Noise pressure level in dB(A) near noise resources Number of Posted scheduled Workers with ear plugs at work site | • Contractors | Site HSE Officer regularly during construction phase and EEP’s Environment and Social office quarterly during PC &C phase |
| Ambient air quality | | √ | √ | | √ | √ | Contractors shall ensure that workers switch off plant and equipment when not in use, to avoid the release of emission of pollutants. | Incident report | Contractors | Site HSE Officer regularly during construction phase and EEP’s Environment and Social office quarterly during PC &C phase |
| | | √ | | | √ | | Vehicle engines need to be properly maintained and should have a valid Pollution Under Control (PUC) and emissions from vehicle minimize by covering stockpiles, spraying water to minimize dust releasing in case of windy and dry weather, undertaken the vehicle movement according to the | Log of respiratory tract infection among workers | Contractors | Site HSE Officer regularly during construction phase and EEP’s Environment and Social office quarterly during PC &C phase |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|--------------------------|------------------------------|---|---|---------------------------------|---|---|---|--|------------------|--|
| | PC | C | O | PC | C | O | | | | |
| | | | | | | | contractor plan and limited the vehicles speed. | | | |
| | | √ | √ | | √ | √ | Diesel generators should be restricted to emergencies and power back up only to minimize air emissions. | periodical monitoring data | Contractors /IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C &O phase |
| Impacts on biodiversity | √ | | | √ | | | Avoid sites that require cutting or substantially pruning sensitive species and indigenous trees, an old tree or known bird-nesting tree. Ensure no sensitive fauna and flora species are found nearby. | Sensitive habitats and species found nearby the project site | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC phase |
| | | √ | | | √ | | Make sure that pruning should be practiced only to remove branches that obstructs the panel and when cutting is necessary. Avoid the cutting of sensitive tree species and bird-nesting trees | Number of trees removed | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| Heat or light reflection | | √ | √ | | | | Follow the standard of placing the roof top solar panel in north-south direction and conduct regular monitoring of the impacts, if any non-conformance exists correct promptly | Solar panel placing with the required direction (N-S) | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during construction phase |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|------------------|------------------------------|---|---|---------------------------------|---|---|---|--|-----------------|---|
| | PC | C | O | PC | C | O | | | | |
| Chemical Impacts | √ | | | √ | | | Identify suppliers that have products, particularly solar panels and inverters, which comply with ISO or other industry best practice standards and follow-up and monitor the products at a regular interval. | Number of identified suppliers having certificate for national and international standards | Contractors EEP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| Surface water | | √ | √ | | √ | √ | Proper cover and stacking of loose construction material at batching plant and project site | Visual observation of waterlogging due to drainage disruption. | Contractors/IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| | √ | √ | | √ | √ | | Planning of toilets, soak pits and septic tanks and waste collection areas should be away from natural drainage channels. | Number of sites identified for disposal of wastes away from natural drainage channels. | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| Ground water | | √ | √ | | √ | √ | Laborers should be given training towards proactive use of designated areas/bins for waste disposal and use of toilets. Open defecation and random | Awareness level of | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|-----------------------|------------------------------|---|---|---------------------------------|---|---|--|--|-----------------|--|
| | PC | C | O | PC | C | O | | | | |
| | | | | | | | disposal of waste should be strictly prohibited | onsite workers Onsite Sanitation status | | during C &O phase |
| Ecological resources | | √ | √ | | √ | √ | Unnecessary disturbance to vegetation due to off-roading, fuel wood procurement, unchecked expansion of labor camps and destruction of floral resources should be prohibited | Number of trees planted, | Contractors/IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| | | √ | | | √ | | If access roads are created in key crossing paths for smaller mammals then culverts of alternate paths should be provided. | site visited and no. records of crossing paths and provide alternate paths | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during construction phase |
| | √ | √ | | | √ | √ | Waste materials should not be left uncovered as it will attract birds and other fauna to the project boundary. | Visual observation of Usage of labeled and covered bins. | Contractors/IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC, C&O phase |
| Demography/Population | | √ | √ | | √ | √ | Ensuring proper health-check-ups of all laborers employed at the project site; Providing separate toilet facilities for men and women at the accommodation | List of health-check-ups Sanitation | Contractors/IPP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|---|------------------------------|---|---|---------------------------------|---|---|--|---|---|---|
| | PC | C | O | PC | C | O | | | | |
| | | | | | | | as well as site; and Facilitating healthcare services and medical care in case of sickness. | status of onsite office building | | during PC &C phase |
| Displacement | √ | √ | | √ | √ | | The IPP to compensate and detail compensation and other related issues are covered in the complementary RPF which is prepared based on national framework and the industry good practices guidelines., | Verify compensation in cash or kind | <ul style="list-style-type: none"> • EEP • Woreda/City administration | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| | √ | √ | | √ | √ | | public buildings, a medical clinic, clean water provision, good sanitation and electricity and they will require resettlement assistance and livelihood restoration | Planning documents prepared (e.g. ARAP/RAP, ESMP) Restoration plan | <ul style="list-style-type: none"> • EEP • Woreda/City administration | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| Impartiality/discrimination to employment opportunities | √ | | | √ | | | Encourage and consider the employment of local labor for semi-skilled and unskilled people including women, ensure that criteria are set for prioritization of likely beneficiary households including poor and female headed ones where there is more demand. | Number of local labor employed | <ul style="list-style-type: none"> • Contractors • Woreda/City administration | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|--|------------------------------|---|---|---------------------------------|---|---|---|--|----------------|---|
| | PC | C | O | PC | C | O | | | | |
| Land based Livelihood | √ | | | √ | | | Compensation payment should be undertaken for the affected crops according to the World Bank Performance Standard 5, Ethiopian expropriation of land holdings for public purposes and compensation payment-Federal Proclamation No. 455/2005. | Number of timely compensated PAPs | EEP | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| Underserved people | √ | | | √ | | | Adverse impacts on Affected Communities of Indigenous Peoples should be avoided where possible. Where alternatives have been explored and adverse impacts are unavoidable, the client will minimize, restore, and/or compensate for these impacts in a culturally appropriate manner commensurate with the nature and scale of such impacts | Number of restore and compensate underserved peoples | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during PC &C phase |
| Sexually Transmitted Infections /STIs/ | √ | √ | | √ | √ | | Awareness creation, education program and campaign on sexually transmitted infections, control of informal sector activities near the project site and through distribution of condoms. | Number of awareness creation, education program and campaign Number of condom distributed | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C & O phase |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|---|------------------------------|---|---|---------------------------------|---|---|--|---|----------------|---|
| | PC | C | O | PC | C | O | | | | |
| Occupational health and safety related problems | | √ | √ | | √ | √ | Make PPE available at the site and support, advice and monitor the proper use of PPE by the EEP, contractors, and laborers. Ensure the presence of onsite temporary spill containment structure | Number of PPE distributed Workers with PPE at work site | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C & O phase |
| Inappropriate waste management | √ | √ | | √ | √ | | Conduct regular awareness creation and sensitization program for the proponent and communities that reside in the area about the potential negative impacts, health and safety risks, and proper waste management practices. | Number of awareness creation and sensitization conducted | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C & O phase |
| | √ | √ | | √ | √ | | Domestic and/or other non-hazardous wastes, after proper segregation, have to be disposed of at the designated area without any impact to the environment. | Visual observation of waste segregation and storage conditions and usage of labelled and covered bins, insect repellents etc. | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C & O phase |



| Impacts | Scaling Solar project Phases | | | wind development Project Phases | | | Mitigation measures | Parameters to be monitored | Responsibility | Frequency |
|-----------------|------------------------------|---|---|---------------------------------|---|---|---|--------------------------------|----------------|---|
| | PC | C | O | PC | C | O | | | | |
| Influx of labor | √ | √ | | √ | √ | | Most of these socially communicable diseases would be of temporary nature except for HIV/ AIDS. The contractor shall adopt the project office LIMP and implement the Labor Influx Management Plan, as required. | Labor Influx Management Plan | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C & O phase |
| | | √ | | | √ | | Health education programs, control of illegal/illicit drugs and other socially condemned activities near the project site need to be considered. | Number of health education | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C & O phase |
| | | √ | √ | | √ | √ | Gender Based Violence (GBV) and Violence Against Children (VAC). Such mechanism should include working with the contractors to prevent sexual harassment in the workplace and GBV and VAC in the project affected communities (for example through code of conducts), strengthening grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response. | Number of reported alert cases | Contractors | Site HSE Officer regularly during construction phase and EEP's Environment and Social office quarterly during C & O phase |

Notes- PC- Preconstruction, C- Construction, O- Operation

7 ESMF MONITORING, ANNUAL AUDIT, REPORTING AND SUBMISSION

7.1 ESMF Monitoring

Monitoring is a continuing process at all phases of the program phases that are program design, construction, operation, and decommissioning phases. The purposes of this monitoring activities are to establish benchmarks on safeguards so that the nature and magnitude of anticipated environmental and social impacts can be continually assessed and managed and confirm the achievements of ESMF objectives. Therefore, ESMF Monitoring within the program period is become a regular practice or it could be periodic review like annual monitoring/auditing during program implementations period that to determine and guarantee the effective implementation of measures and procedures stated under this ESMF.

The general objectives of monitoring are

- i) To alert program implementers (IPPs) and other main counterparts of the program (MoWIE, EEP) by providing timely information about the success or otherwise of the status of implementation of environmental and social management process outlined in this ESMF in such a manner that changes can be made as required to ensure continuous improvement to national scaling solar and scaling wind projects' environmental and social management process (even beyond the specific project's life under the program).
- ii) To make final evaluation the helps to determine whether the enhancement and mitigation measures incorporated in the technical designs and the corresponding project ESMPs have been successfully annexed in the contract document and implemented. In addition to ensure the pre-project environmental and social settings have been restored, improved upon or if worse than before, to determine what level and type of further mitigation measures are required.

The ESMF monitoring indicators that are used as a tool to monitor the program implementation include the following, but not limited to:

- Number of field appraisals conducted;
- Number of ESIA/ESMPs, A/RAPs and other instruments developed;
- Number of written warnings of violations of ESMPs issued to IPPs, and Contractors in case of non-compliances;
- Number of recommendations provided from the WB missions, annual review and monitoring and those recommendation that have been successfully implemented by the beginning of the following year;
- Number of chance find procedures for physical cultural resources invoked, if applicable;
- Number of IPP staffs, by sex, trained regarding the implementation of this ESMF and other safeguards instruments; and,
- Number of staff, by sex, drawn from different institutions at federal, regional and Woreda levels attending training course in ESMF, RPF, A/RAP, ESMP, ESIA, and other safeguards instruments.

7.2 Annual Audit

Annual Audit is an independently commissioned environmental and social audit that will be carried out on an annual basis, as required. Annual Audit of the ESMF implementation will be undertaken by independent external consultants. The reviews amongst other things will assess the performance of program activities against safeguards procedures described in this ESMF, the need for future training, and existing status of implementation of environmental and social safeguards measures to address the corresponding impacts due to implementation of REGREP. Guidelines for annual reviews is depicted in annex 9.

The Annual Audit also provides a strong incentive for IPP, EEP and MoWIE to ensure that the ESMF is implemented and the project ESMPs and other required safeguards instruments are developed and implemented, as recommended. An Annual Audit Report will include a summary of the environmental and social safeguards performance of the REGREP, based on the project ESMPs and measures indicated in the ESMF; presentation

of compliance and progress in the implementation of the project ESMPs; and a synopsis of the environmental monitoring results from individual project monitoring measures (as set out in the project ESMPs), at project level.

The main tasks of the audit study will consider, but not limited to:

- Description of the project, Objective, Scope and Criteria of the Audit;
- Verify the level of compliance by the proponent/IPP with the conditions of the environmental management and social management plan;
- Evaluate the proponent's knowledge and awareness of and responsibility for the application of relevant legislation;
- Review existing project documentation related to all project facilities and designs under REGREP;
- Examine monitoring programs, parameters and procedures in place for control and corrective actions in case of emergencies;
- Examine records of incidents and accidents and the likelihood of future occurrence of the incidents and accidents;
- Inspect areas where project equipment and materials are stored and disposed of and give a record of all significant environmental risks associated with such activities;
- Examine and seek views on health and safety issues from the project staffs, the local and other potentially affected communities; and
- Prepare a list of health, safety, environmental and social including gender concerns of past and on-going activities.

The suggested annual report template for a Project is depicted in annex 8. IPP must submit on time annual audit report to MoWIE, EEP, and WB.

7.3 End-of-program evaluation

Based on the comprehensive annual reviews, an end-of-program evaluation will take place, dealing on more details with some of the issues raised in the annual reviews and the impact of the capacity development activities provided to the GoE relevant ministries and institutions officials and staffs. The evaluation will be performed as per the OECD/DAC criteria of relevance, effectiveness, efficiency, impact, and sustainability⁶.

7.4 Reporting Procedure

During the implementation of the Project, reports mainly originate from the S/RE's who is taking care of the day-to-day progress of the works. The S/RE's submit reports to the IPPs, and EEP's Environment and Social Office for their follow-up and review and comments. EEP will submit copies of reports to the Ministry of Water, Irrigation, and Energy (MoWIE) and the World Bank. The feedback of reports from Project office should be provided to the S/RE's within the time stipulated in the contract document.

7.5 Submission / Clearance and disclosure of ESMF

The ESMF document will be submitted to the Ministry of Water, irrigation and Energy, and the World Bank parallel for their comments and approval. The disclosure of ESMF will be released on IPPs', EEP's and MoWIE's website and in the World Bank's external web site and announced on the Ethiopian newsletters or massmedia to the public, as applicable.

8. Public consultation and Public Disclosure Plan

⁶For more information on the OECD/DAC criteria, please refer to <http://www.oecd.org/dac/evaluationofdevelopmentprograms/daccriteriaforevaluatingdevelopmentassistance.htm>

8.1. Introduction

For the successful identification and assessment of project specific environmental and social impacts, implementation and monitoring of the respective mitigation or enhancement measures and a continuous consultative process is required. MoWIE and EEP has the responsibility to ensure sound stakeholders consultation are conducted by IPPs with all relevant parties to achieve the program objectives that benefit the beneficiaries and other stakeholders. Through consultations, all parties, IPPs, EEP will create a bridge of communication between the Public, Private sector and the Government, which will improve the efficiency and transparency for the execution of the projects. This public consultation plan (PCP) forms part of the ESMP that will be prepared by IPPs and is the same for projects under the program.

8.2. Public Consultation Plan

For the successful identification and assessment of project specific environmental and social impacts, implementation and monitoring of the respective mitigation or enhancement measures and a continuous consultative process is required. EEP has the responsibility to ensure sound stakeholders consultation shall be conducted by IPPs with all relevant parties to achieve the program objectives that benefit the beneficiaries and other stakeholders. Through consultations, all parties, IPPs, EEP will create a bridge of communication between the Public, Private sector and the Government, which will improve the efficiency and transparency for the execution of the projects. This public consultation plan (PCP) forms part of the ESMP that will be prepared by IPPs and is the same for projects under the program.

8.2.1. Objectives of the Public Consultation Plan

This plan provides a framework for achieving effective stakeholder involvement and promoting greater awareness and understanding of issues so that the project is carried out effectively within budget and on-time to the satisfaction of all concerned parties. The objectives of the public consultations are to provide EEP, MoWIE, and IPPs with:

- Status of implementation of the identified measures;
- A sense of the concerns, priorities and aspirations of the stakeholders and implementing parties as they implement the measures;
- Information to shape the project as it progresses;
- Whenever possible, to recommend and implement specific recommendations and proposals; and,
- Provide the participating regions including Woredas with a forum to interact constructively and make progress towards solutions and actions; and feedback from EEP and MoWIE on information received and steps to follow.

IPPs that will be involved in projects implementation shall establish a platform for coordination among stakeholders to strengthen and improve the efficiency and transparency of the execution of the planned projects activities, which is supported by the Constitution and other proclamation of the country.

It is also a plan within NSSWED implementation, to improve consultation for the most vulnerable groups and their communities so that they could benefit even more from the projects activities. More effective use can be made of women's groups, youth groups and community conversations targeting women, traditional leaders, and other vulnerable groups. Involving these groups, with meaningful representation and participation in public forums will be endorsed as part of projects implementation.

Generally, public and stakeholders' consultation anticipates attaining the following:

- Develop and maintain avenues of communication between the program and stakeholders to ensure that their views and concerns are incorporated into program design and implementation with the objectives of reducing or offsetting negative impacts and enhancing benefits from the program;

- Inform and discuss about the nature and scale of adverse impacts and to identify and priorities of the remedial measures for the impacts in a more transparent and direct manner;
- Include the attitudes of the community and officials who will be affected by the program so that their views and proposals are mainstreamed to formulate mitigation and benefit enhancement measures;
- Create a sense of the concerns, priorities and aspirations of the stakeholders and implementing parties as they implement the proposed measures and actions;
- Increase public awareness and understanding of the program, and ensure its acceptance; and
- Inform relevant authorities of the impacts, solicit their views on the program and discuss their share of the responsibility for the smooth functioning of the overall projects activities.

8.2.2. Guiding Checklist for Consultation and Participation during REGREP Implementation

- Identify and involve all stakeholders, especially people affected; in the consultative and participative process.
- Develop a participatory strategy for projects activities planning, implementation, and M&E.
- List detail requirements for information campaigns and dissemination and develop procedures for PAPs to negotiate their entitlements.
- Involve stakeholders in decision-making at all stages of projects implementation.
- Establish a time line to complete activities such as an information campaign, compensation types and levels, entitlements, and relocation sites and schedules.
- Establish a participatory compensation and resettlement management strategy.
- Use and support Community Based Organizations (CBOs), and be sensitive to issues concerning community consultation and participation.
- Establish procedures for grievance redress.

Please see annex 18 for sample public consultation and disclosure plan. Some conflict management strategies during the consultation process: *f*

- outline the mandate and authority for consulting; *f*
- validate objectives and problem definition with participants;
- describe the level and type of participation and consultation process to participants; *f*
- share expectations for the consultation process with participants and encourage participants to share their expectations;
- determine the potential for a satisfactory resolution of the problem; *f*
- let participants express their points, without telling them what they think, know or feel (e.g., do not say “I know how you feel”, but rather say “I can see this is something that concerns you”); *f*
- understand how important the issue is for participants, and whether the conflict needs to be resolved or can be set aside momentarily; *f*
- separate the problem into components and develop solutions for each; *f*
- see if participants should be directed to the proper authority, such as in another government department or a provincial agency; *f*
- determine whether the department has made a commitment to work with the other authorities on the issue; and *f*
- Determine whether participants are willing to explore alternative solutions.

8.3. Public Disclosure Plan

8.3.1. Objectives of the Public Disclosure Plan

This plan provides a framework for achieving effective stakeholder involvement and promoting greater awareness and understanding of issues so that the project is carried out effectively within budget and on-time to

the satisfaction of all concerned parties. The objectives of the public consultations are to provide the EEP, MoWIE, IPPs with:

- Status of implementation of the identified measures;
- A sense of the concerns, priorities and aspirations of the SH and implementing parties as they implement the measures;
- Information to shape the programs of the project as it progresses;
- Whenever possible, to recommend and implement specific recommendations and proposals; and,
- Provide the participating regions including Woredas with a forum to interact constructively and make progress towards solutions and actions; and feedback from EEP and MoWIE on information received and steps to follow.

A variety of methods of communication should be used to reach the majority of stakeholders. The project should select those that are most appropriate and have a clear rationale for their choices. The plan should include a statement welcoming comments on the proposed engagement plan and suggestions for improvement. For remote stakeholders, it may be necessary to provide for an additional newspaper outlet or separate meeting, or additional documents that should be placed in the public domain. The public domain includes:

- ✓ Newspapers, posters, radio, television;
- ✓ Information centers and exhibitions or other visual displays;
- ✓ Brochures, leaflets, posters, nontechnical summary documents and reports;
- ✓ Official correspondence, meetings;
- ✓ Website, social media.

The strategy should include means to consult with project-affected stakeholders if there are significant changes to the project resulting in additional risks and impacts.

Moreover, the World Bank Group Performance Standard 1 requires the disclosure of relevant information regarding the all the safeguard reports i.e., ESIA, RAP and ESMP reports to make available to any affected communities and stakeholders. Therefore, they required to be approved and disclosed priority to appraisal according to Bank policies and normal procedures. The Bank disclosure of the document will be after the in country disclosure of the same by EEP. The disclosure should be both in IPP, EEP and if necessary MoWIE's website and other relevant site where it can be accessed by the public, including affected groups and NGOs and subsequently at the World Bank external web site.

9. CAPACITY BUILDING

9.1. Introduction

Effective implementation of the Environmental and Social Management Framework will require technical capacity of implementing institutions. Project implementing bodies need to understand inherent social and environmental issues and values and be able to clearly identify the indicators. A capacity needs assessment was inbuilt to identify the critical needs for social and environmental screening, impact identification, mitigation, monitoring, and evaluation during the preparation of this ESMF.

The suggestions on training and capacity development requirements under this section are based on the recent field observations on similar power projects e.g., Adama wind II, and consultations with various stakeholder during field visits, which was conducted as part of the preparation of this ESMF.

This section sets out training and capacity building program to support the implementation of this ESMF. It states the detail training and capacity development requirement for IPP, EEP and, MoWIE staffs and other regional and Woreda level relevant implementing parties, who will be directly or indirectly engaged in the proposed REGREP.

It is noted that trainings on core project activities are considered by many institutions with less consideration of environmental and social management activities. In some cases, environmental and social safeguards personnel are recruited, but the provision of continuous training and technical capacity on environmental and social safeguards principles and instruments for these staffs in particular and within respective companies or institutions in general is not satisfactory. Therefore, it is essential to plan and carry out trainings on safeguards and create awareness to the public and stakeholders at different levels, such as federal, regional, local, IPPs, NGOs, and grassroots stakeholders. The exercise will be customized according to each level's needs to ensure adequacy in implementation of the ESMF.

To ensure proper implementation of environmental and social screening, and mitigation measures, as well as implementation of the projects in a sustainable manner, MoWIE/EEP/PPs will undertake a program of environmental training and institutional capacity building. The objective of the training under this ESMF is to:

- Ensure that relevant IPPs, regional and Woreda government staff, and other stakeholders at national, regional and local levels are able to understand the environmental and social impacts, and respective mitigation measures associated with the program.
- Ensure that regional and Woreda officials, energy and safeguards experts in each region have the capacity to assist IPPs to appraise, approve and supervise implementation of Projects;
- Support representatives and leaders of community members, institutions and associations at local levels to prioritize their needs, and to play a role during identification, preparation, implementation and management of environmental and social aspects associated with program activities; and
- Provide sensitization and awareness creation for local representatives, committees, elders regarding environmental and social aspects indicated in safeguards instruments such as ESMP, ESMF, RPF, and A/RAP and their implementations of these instruments to ensure environmentally friendly and socially acceptable.

9.2. Training

Training should be planned for staffs drawn from various direct implementers and counterparts such as IPPs, EEP, MoWIE particularly on national environmental policies and World Bank Group environmental and social safeguards policies and standards and use of the screening and other pertinent checklists. Annual follow-up training is also required to ensure their up-to-date capacity on safeguards implementation. The training will take place in Addis Ababa, Regions, and respective Woredas, as required.

Technical training, awareness creation, and sensitization will also be required for experts/technicians and officials from the following institutions and other community members such as women group, clan leaders and elders. These include: EEP; MoWIE; Regional and woreda environment and energy offices; IPPs; Representatives from community members; clan leaders and elders; Women's groups; and NGOs.

The proposed training plan will focus on:

- WB safeguards policies and performance standards.
- Stakeholder engagement, consultation, and partnerships.
- EIA law, procedures, & guidelines and enforcing mechanisms.
- Application, review, implementation, and enforcement of ESMF tools (Screening checklists, ESMP, ESA).
- Environmental and social safeguards implementation reporting, monitoring, and follow-up.
- Technical aspects of scaling solar and scaling wind energy development under REGREP
- Identification of impacts and mitigation measures and development of site specific environmental and social plans.
- Development of A/RAP, LRP.

The training and capacity building activities which are proposed to support ESMF implementation include:

- A general training and awareness/sensitization for relevant stakeholder at all levels and local communities on the contents and implementation of requirements of this ESMF.
- In-depth training for the EEP, energy project team members at the regional on the ESMF implementation, including all aspects of environmental management, ESIA, ESMP, A/RAP, LRP, public consultation, and integration of environmental management into project development planning.

The program will design safeguards training on environmental and social issues associated with the program and on the specific screening procedures and implementation of mitigating measures described in the ESMF for EEP, IPP, and MoWIE safeguards and other relevant staffs. The training arrangement will be envisaged induction training and annual follow-up training, as required to provide an opportunity for IPP, EPP and MoWIE safeguards staffs to conduct regular monitoring and supervision of the performance of the project, particularly on safeguards.

The MoWIE/EEP in coordination with regional experts will undertake training courses on environmental and social safeguards issues, possible adverse impacts of projects, effective consultation approaches, and grievance redress mechanisms developed for the program at all levels. The regional and Woreda energy experts will be organizing other training/awareness sessions for the communities and beneficiaries, into which these aspects will be integrated.

Based on the annual detailed training plans, EEP, environment and social Team in collaboration with regional and Woreda level energy experts will conduct selection of participants.

Table 9-1 sets out the specific training requirements of each of these participants which are categorized in the following:

- 1) **Technical training (T)-In -depth training** to a level that allows trainees to go on to train others, including technical procedures where relevant;
- 2) **Sensitization (S)**, in which the trainees become familiar with the issues to a sufficient extent that it allows them to demand their precise requirements for further technical assistance; and
- 3) **Awareness creation trainings (A)**, in which the participants acknowledge the significance or relevance of the issues, though they have not in-depth technical knowledge of the issues.

Table 9-1: Training and Sensitization Requirements

| Topics | Participants | | | |
|---|---|--|--|---|
| | Environmental and social; specialists & related experts at EEP, IPP and MoWIE | Staffs from Regional and Woreda Energy and environment offices | Staff from National and regional Line Ministries and Bureau (MoLSA, BOLSA) | Elders, clan leaders, Representatives from community members and women's groups |
| ESIA/ESMP Procedure guideline preparation and implementation of ESMP | T | T | S | A |
| Integrating environmental and social management aspects into development planning | T | T | S | NA |
| Public consultation, citizen/stakeholders engagement and partnerships | T | T | A | A |
| Technical and operational aspects of solar and wind energy development | T | T | S | NA |
| Application of ESMF and respective tools (Screening checklists, ESMP, EA), their review, implementation, and enforcement. | T | T | S | A |
| National and International standards on environmental and social management issues | T | S | A | NA |
| EIA law, procedures, & guidelines and enforcing mechanisms | T | T | A | A |
| Development and implementation of ESMPs | T | T | S | A |
| World Bank Group Safeguard policies and performance standards, implementation and enforcement | T | T | A | A |
| Environmental reporting, monitoring and follow-up of ESMF | T | T | A | A |

T = detailed training, S = sensitization to the issues, A = raised awareness, NA=not applicable

As stated above a more detailed and specific training module will be developed and delivered to IPP's, MoWIE's, EEP's environmental and social expert on environmental and social impacts associated with the program is required. This training will include regular updates and refresher modules delivered during ESMF implementation. The sensitization/awareness training will aim to build the capacity, create awareness, and sensitize on the requirements and key aspects of ESMF for a broad audience comprises of experts and officials from IPP, EEP and MoWIE.

Training to EEP, IPPs, and regional level staffs on issues of environmental and social management, is required in the form of induction training followed by regular refresher courses and updates. Specialists in the MoWIE and MoEFCC in collaboration with Regional Energy and Environment team members will provide training to Woreda energy experts, as required. A cascade model of training will be adopted with regular oversight from the Regional and national level.

Table 9-2: Proposed Training Packages

| Audience | Training Component | Duration | Potential Trainers |
|---|--|--|---|
| Energy Coordination Team under EEP, safeguard specialists and related experts at IPP, EEP and MoWIE | All training topics listed under table 9-1. | 2-day workshop for the first year and 1-day refresher courses annually | <ul style="list-style-type: none"> • Consultant • MEFCC • WB safeguard Team • Other relevant institutions. |
| Regional Energy project team | All training topics listed under table 9-1, except sensitization workshop on National and International standards on environmental and social management issues. | 1-day workshop for the first year and 1/2-day refresher courses annually | <ul style="list-style-type: none"> • Consultant • MEFCC, • Regional Environmental and Forest Bureaus (or related institutions) • EEP • MoWIE • WB safeguard Team. |
| Woreda Energy project team | All training topics listed under table 9-1, except sensitization workshop on National and International standards on environmental and social management issues. | 3-day workshop for the first year and 1/2-day refresher courses annually | <ul style="list-style-type: none"> • Regional WME, • Regional Environmental and Forest Bureaus (or related institutions). |
| Beneficiaries, PAPs, Elders, community representatives and women's groups | Sensitization and raised awareness on relevant topics stated under table 9-1. | 1-day sensitization workshop as required | <ul style="list-style-type: none"> • Woreda environment, EEP, IPPs, WME and environment offices. |

| Audience | Training Component | Duration | Potential Trainers |
|--|--|--|---|
| Staff from National and regional Line Ministries and Bureaus | Sensitization and raised awareness for most of the topics stated under table 12-1. | 1-day sensitization workshop per region as required, 1/2-day refresher courses, as needed | <ul style="list-style-type: none"> • MoEFCC staff • WB safeguard Team • EEP • MoWIE. |
| Contractors' and consultants' Staffs, | Training, sensitization, and raised awareness stated under table 12-1. | 1-day awareness raised workshop during project implementation period, 1/2-day refresher courses, as needed | <ul style="list-style-type: none"> • EEP, MoWIE, • MEFCC • WMEB • WB safeguards Team, |

An indicative agenda for a one (1) day training workshop on ESMF implementation and integration of environment and social management concerns into development planning is provided in table 9-3. Accordingly, IPP and EEP in collaboration with Regional Water, Mines, and Energy Bureaus will develop the training agenda during the planned training period. The training programs will also include refresher courses in all of the topics identified.

Table 9-3: Sample-training agenda for a day

| Session | Content |
|--|--|
| Introduction to Environmental and Social Management Plans | This session will introduce participants to the theory and application of ESMF as a decision-making tool. It will outline the principles of ESMF and provide clear definitions on ESMP practice terminology (e.g. classification of impacts, natural resource base (water, soil, land, biodiversity, air, etc., mitigation and monitoring) and social baseline (employment, social, health, etc.). |
| World Bank Group Safeguard Policies and Performance standards and national legislation | This section will discuss the relevant principal World Bank group safeguard policies and performance standards and application under the program. In addition, the applicable GoE legislation will be discussed in terms of the relevant environmental and social laws and policies, which apply to activities under the program. |
| Screening of the proposed program components (scaling solar and scaling Wind projects) | A list of potential activities to be financed under the projects will be discussed. Application of the screening checklist will be explained using case studies. |
| Impact identification | Potential impacts related to various types of activities will be discussed, in terms of their significance (adverse or minimal, positive or negative), magnitude (long term versus short term), and impact category (localized or cumulative). |

Table 9-4 sets out the estimated budget requirements which will be updated by IPP EHS unit and relevant experts from the Environment offices of EEP. A contingency is included to cater for training of new staffs from EEP, IPP, MoWIE, and regional energy project team in occasions where the first appointed team member has resigned and for re-training of non-performers.

Table 9-4: Estimated Budget for training activities

| Training activity | Duration [days] | Cost/participant/day* [USD] | No. of participants | Estimated Total Cost |
|--|-----------------|-----------------------------|---------------------|----------------------|
| Safeguards Specialists and other related experts at EEP, MoWIE and IPPs | | | | |
| National training course | 2 | 50 | 10 | 1000 |
| Annual follow up training for five years | 1 | 50 | 10 | 2500 |
| Regional and Woreda Energy teams | | | | |
| Initial training | 1 | 50 | 50 | 2500 |
| Annual follow up training for five years | 1/2 | 50 | 50 | 12500 |
| Line and sector Ministries and community representative from implementing Woredas | | | | |
| Initial training/Workshop | 1/2 | 50 | 100 (2 round) | 5000 |
| Trainers | | | | |
| National and Regional level trainings twice within five years | 2 | 100 | 3 | 1200 |
| Lump sum cost for Woreda and Kebele level trainings | | | | 2000 |
| Training facilities | | | | |
| **Lump sum stationery, banner, hall rent, entertainment, facilitator and others | | | | 10000 |
| Total | | | | 36700 |
| Contingency 10% | | | | 3670 |
| Grand Total | | | | 40370 |

* Inclusive of participants' transport and per Diems and, if applicable, trainers' (regional energy experts and in the case of initial training of Woreda energy team members transport and per Diems.

**The lump sum cost which will be described later during preparation of training proposals should also include costs of stationery materials, handouts, refreshments, and if there are costs for facilitators.

At the national level, the training activities in Environmental and Social Impact Assessment including environmental project screening and implementation of ESMF can be conducted by Ministry of Environment, Forest and Climate Change or private consultants under the supervision of the EEP with the support of the MoWIE. This will have to be done before the implementation of the project, so as to apply the knowledge/skills during implementation of the projects. Skills in the screening process will be very useful for assessing the environmental implications of the Project activities at the outset.

9.3. Technical assistance

Given the projects under scaling solar and scaling wind projects are expected to be small-scale and have limited impacts that can be easily mitigated, IPP with the support from EEP's EHS office will be able to provide the required technical assistance on environmental and social safeguards management and implementation of ESMF to contractors, woreda energy experts, as required. In order to strengthen the capacity of IPP and to ensure sound implementation of ESMF and other project environmental and social safeguard instruments, EEP and IPPs will have environmental and social safeguard specialists over the program period to implement and provide support on safeguards management activities applicable to the program.

10. IMPLEMENTATION SCHEDULE

This ESMF describes the process to ensure environmental and social concerns are adequately addressed over the program implementation period such as identification, preparation, approval, and implementation of projects. This section sets out the reporting systems and schedules for ESMF implementation adherence to the program implementation period.

To comply with various technical and performance standards, the proposed project activities to be supported under these REGREP shall comply with this Environmental and Social Management Framework. The implementation, monitoring, and reporting arrangements for the ESMF have been worked out within the overall institutional structure for implementation of the proposed program activities. The implementation schedule for the ESMF is outlined in table 13-1 and takes all account of program activities related to the proposed measures (enhancement and mitigation), the monitoring program, consultations, and institutional arrangements.



Table 10-1: Implementation schedule for ESMF

| No. | PROJECT ACTIVITIES | 2018-2019 | | | | 2019-2020 | | | | 2020-2021 | | | | 2022-2023 | | | | 2023-2024 | | | | REPORTING DEADLINES |
|-----|---|-----------|---|---|---|-----------|---|---|---|-----------|---|---|---|-----------|---|---|---|-----------|---|---|---|---|
| | | Quarter | | | | Quarter | | | | Quarter | | | | Quarter | | | | Quarter | | | | |
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | |
| 1 | Recruitment of safeguards specialists by IPP | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • Immediate after contract signing: staff are recruited and before commencement of program activities |
| 2 | Various Capacity Development Programs, as stated in this ESMF | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • ESMP before project approval and/or after finalizing screening of projects • Annually at every year of 4th quarter |
| 3 | Development of Site-specific ESMPs | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • Developed ESMP and site management plans |
| 4 | Development of Site Specific Work plans | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • Work plans |
| 5 | Technical Assistance | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • Annually |
| 6 | ESMF implementation, monitoring and supervisions | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • Every quarter |
| 7 | Annual Audit/ reviews of ESMF | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • Annually by the end of 4th quarter |
| 8 | End-of-Program evaluation | | | | | | | | | | | | | | | | | | | | | <ul style="list-style-type: none"> • Annually at the end of 5th year of 4th quarter |

11. BUDGET REQUIREMENT FOR ESMF IMPLEMENTATION

The summary of estimated budget requirement for the implementation of the ESMF is depicted in table 11-1 below. The environmental and social mitigation and management cost is not included in the ESMF budget, as it will be covered directly or indirectly by the programs, i.e. through inclusion of cost for mitigating measures in contract documents.

As discussed above the ESMP will be prepared to be used by the IPPs, Contractor, and EEP over the program implementation period as a source of actions items and information regarding environmental and social impacts, management and monitoring. The budget includes the recruitment of environmental and social specialists to supervise the safeguards management and to develop site specific Environmental and Social Management Plans (ESMPs) and other relevant instruments, as required for the proposed program components. Every year an independent consultant is also required for a period of at least one month to undertake environmental and social audit that will be mainstreamed within the scope of the Programs' Annual Audit.

Note: The budget estimation is done for five years ESMF implementation period; that shall be amended accordingly throughout the project life span; EEP will cover the implementation budget of this ESMF as shown in the estimated below.

Table 11-1: Summary of estimated ESMF budget

| Activity | Description | Total cost [USD] |
|-------------------------------|--|-------------------------|
| Capacity development | As per table 9-4 For Five years | 40370 |
| ESMF Monitoring | Lump sum for five years quarterly monitoring | 60,000 |
| Annual Audit /reviews of ESMF | Based on four annual reviews (the last annual review is replaced by the end-of-program evaluation) (as per chapter 11) | 40,000 |
| GRM implementation | Lump sum for five years | 20000 |
| Recruitment safeguards staffs | Lump sum for two safeguards specialist for five years | 50000 |
| End-of-Program evaluation | An evaluation of the impact of the ESMF and the projects (as per chapter 11) | 20,000 |
| Total | | 230,370.00 |
| Contingence (10%) | | 23,037.00 |
| Grand Total | | 250,740.00 |

12. FEEDBACK AND GRIEVANCE REDRESS MECHANISM (GRM)

12.1. Feedback and Grievance Mechanism

Grievance redressing mechanism is designed in view of the fact that REGREP program activities may upset the existing balance in society. The resettlement operation will touch upon property issues, means of livelihood, and organization of social and spatial aspects that influence proximity to a set of environmental, economic, social, and spiritual assets. Therefore, the grievance redressing system has been designed in such a way that it functions in a flexible manner and the implementing agency has to incline to a pro-poor approach in all its decisions. The GRM will have a working place and adequate budget for implementation.

Grievances will be actively managed and tracked to ensure that appropriate resolution and actions are taken. A clear time schedule will be defined for resolving grievances, ensuring that they are addressed in an appropriate and timely manner, with corrective actions being implemented if appropriate and the complainant being informed of the outcome.

The purpose of a Grievance redressing mechanism is to establish a way for individuals, groups, or communities affected by the program activities to contact responsible body if having an enquiry, a concern, or a formal complaint. Grievance handling mechanism should address affected persons' concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected persons.

Grievances may arise from members of communities who are dissatisfied with (i) the eligibility criteria, (ii) community planning and resettlement measures, (iii) actual implementation, or (iv) issues related to environmental and social concerns and (v) GBV related aspects. This chapter sets out the measures to be used to manage grievances.

The grievance procedure does not replace existing legal processes. Based on consensus, the procedures will seek to resolve issues quickly to expedite the receipt of entitlements, without resorting to expensive and time-consuming legal actions. If the grievance procedure fails to provide a result, complainants can still seek legal redress procedure.

A local Grievance Redress Committee (GRC) will be established, consisting of representatives from PAPs, EEP representative, representative of the IPP, representative from City Municipality/ Woreda/ Kebele Administration, Woreda Justice Office, elders or influential personalities other than the displaced persons, and the Church/Mosque Administration. The Committee will be headed by City/Woreda Administrator. Grievances should be settled amicably whenever possible. That is, positive discussions are made to convince the affected PAPs in the presence of the GRC. However, if the resolution of a case requires additional payment or any form of relocation of resources, the report shall be sent to the appropriate administrative executive for consideration. If the administrator agrees to the recommendation, he/she shall instruct the resettlement Unit to implement the amended provision; on the other hand, if the recommendation of the GRC is such that it upsets legal frameworks, the aggrieved party may be advised to pursue the case in a normal law court.

According to Proclamation No.455/2005, Article 11, subarticle 1: *"In rural areas and in urban centers where an administrative organ to hear grievances related to urban land holding is not yet established, a complaint relating to the amount of compensation shall be submitted to the regular court having jurisdiction."*

In urban areas, a PAP who is dissatisfied with the amount of compensation may complain to an administrative organ and if the PAP is still not satisfied, may appeal to the regular appellate court or municipal appellate court within thirty days from the date of the decision.

The grievance redressing procedure is developed to meet Ethiopian government legal requirements relating to grievance resolution and international requirements for grievance management and is in line with IFC's Performance Standards.

A set of forms which will be used for recording grievances and the actions taken are prepared for the proposed program as listed below (shall be translated in local language) detail information is indicated in the RPF

document.

- a) Grievance Statement Form
- b) Grievance Receipt Acknowledgement Form
- c) Grievance Investigation Form
- d) Grievance Investigation Outcome Form

The grievance mechanism applies to all complaints related to Renewable Energy Guarantee Program (REGREP) program activities; and comprised of the following steps:

Outline of REGREPGrievance Redress Mechanism Steps

- **Step 1 – Receive and Record Compliant**(using the Grievance Receipt Standard Form)
- **Step 2 – Review Complaint and Allocate Actions**(Complaints are screened, and actions then be allocated to investigate and resolve grievance or refer matter to next level)
- **Step 3 – Notify Complainant of Proposed Resolution** (notify the complainant that the complaint has been received (this must happen within 7 days), how it is being dealt with, by whom and an approximate estimate of how long the process might take.
- **Step 4 – Take Action and Update Complainant** (undertake the proposed actions for resolution and update complainant when it is complete).
- **Step 5 – Close out & Lessons Learnt**(occurs when both parties are happy with proposed solution).
- **Step 6 – Update Project Grievance Records (ongoing)** (using standard forms, grievances will be maintained and stored including for information for any outstanding actions)
- **Step 7 – Reporting** (to concerned/ defined parties).

12.2. World Bank (WB) Grievance Redress Service

Communities and individuals who believe that they are adversely affected by a WB supported program, may submit complaints to existing program-level grievance redress mechanisms or the WB Grievance Redress Service (GRS).The GRS ensures that complaints received are promptly reviewed in order to address program-related concerns. Program affected communities and individuals may submit their complaint to the WB independent Inspection Panel which determines whether harm occurred, or could occur, because ofWB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the WB’s attention, and WB Management has been given an opportunity to respond. For information on how to submit complaints to the WB’s corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>.

A detailed feedback and grievance redress mechanism (GRM) will be prepared by the IPPs. It will be ensuring that the grievance mechanisms will include the necessary procedures for disclosure and resolution of environmental and social related grievances of each Project.

The grievance mechanism will detail procedures on how grievances related to proposed projects are dealt with, including how, when and where project information is disclosed, who will receive and respond to grievances, when grievances are referred to higher levels, and how grievances are ideally resolved. It is anticipated that the grievance mechanism will contain procedures for addressing grievances at different levels, including at Kebele, Woreda, zone, region, and national level with multiple lines of reporting and special attention to grievance channels for vulnerable groups. In case of any request, it is anticipated that grievances can be put forward both in writing and orally.

Based on the Bank’s Grievance Redress Service (GRS), project-affected communities and individuals may submit complaints regarding a Bank-financed project to the project grievance redress mechanism, appropriate local grievance mechanism, or the World Bank’s corporate Grievance Redress Service (GRS). Annex 11 describes the generic grievance redress mechanism process that can be applied to the proposed REGREP.

13. REFERENCE

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14. ANNEXES

**Annex 1: Exclusion List**

| Project that are not eligible for funding are those that will |
|--|
| Projects that would be Category A based on the World Bank categorization. |
| Projects that would physically displace (relocation of houses) More than 50 households. |
| Block the access to water points etc. used by others |
| Cause encroachment to, and adversely affect, Protected area of natural habitats (e.g., wildlife reserves; parks or sanctuaries; protected areas; natural habitat areas, forests and forest reserves, wetlands, national parks or game reserve; any other ecologically/environmentally sensitive areas) |
| Impact on physical cultural resources (archaeological sites; religious monuments or structures; natural sites with cultural values; cemeteries; graveyards; graves; and other sites of significance) |
| Located in protected areas and ecologically sensitive sites |
| Would not disadvantage or give advantage to community members. |
| Contravene international and regional conventions on environmental and social issues |
| Cause large-scale physical disturbance of the site or the surroundings |



Annex 2: Environmental and Social Screening Checklist for Screening of Impacts scalping solar and wind energy project under REGREP

This section outlines the selection criteria and associated Environmental and Social Assessment procedures to be applied when screening projects under the proposed REGREP. This form is to be used by the EEP to screen all proposed projects under the Program.

Annex 2.1: Project information for screening potential safeguards impacts (Form 1)

I: Basic Data:

Name of the Program:

Projects Name:

Projects Location:

Name of the IPPs:

Address:

Civil Works to be constructed:

Proposed Date for Commencement of Work:

Technical Specifications Reviewed: Yes _____ No _____

EEP Team Representative and Address:

Site Selection:

II: Site Description

| Site Features | Description |
|---|-------------|
| Physical description of the site (Easting, Northing, Alt, etc. | |
| Proximity to existing water points, wells and other water resources | |
| Presence and type of vegetation | |
| Description of current land use | |
| Name of owner or user of the land/project site | |

**Completeness of project Application:****Does the project application document contain, as appropriate, the following information?**

| Issues to be considered | Yes | No | N/A |
|--|------------|-----------|------------|
| Description of the proposed project and where it is located | | | |
| Reasons for proposing the project | | | |
| The estimated cost of construction and operation | | | |
| Information about how the site was chosen, and what alternatives were considered | | | |
| A map or drawing showing the location and boundary of the project including any land required temporarily during construction | | | |
| The plan for any physical works (e.g. layout, buildings, other structures, construction materials) | | | |
| Any new access arrangements or changes to existing road layouts | | | |
| Any land that needs to be acquired, as well as who owns it, lives on it or has rights to use it | | | |
| A work program for construction, operation and decommissioning the physical works, as well as any site restoration needed afterwards | | | |
| Construction methods | | | |
| Resources to be used in construction and operation (e.g. materials, water, energy) | | | |
| Information about measures included in the Projects plan to avoid or minimize adverse environmental and social impacts | | | |
| Details of any permits required for the project | | | |

**Annex 2.2: Project eligibility checklist for EEP, IPPs at the National/Regional/Woreda level (Form 2)****Name of the Program:****Name of the project:****Location of the project: Region:** _____ **Zone:** _____ **Woreda:** _____

Kebele: _____

Person(s) who did the eligibility checklist

| Name | Organization | Signature | Date |
|------|--------------|-----------|------|
| 1. | | | |
| 2. | | | |

| Answer the following questions to determine whether the project is eligible or not* | | |
|---|-----|----|
| Will the project | Yes | No |
| cause large-scale physical disturbance of the site or the surroundings | | |
| block the access to or use of water points etc. used by others | | |
| located in protected areas and other ecologically sensitive ecosystems | | |
| create encroachment and/or cause significant adverse impacts to critical natural habitats (e.g., wildlife reserves; parks or sanctuaries; protected areas; forests and forest reserves, wetlands, national parks or game reserve; any other ecologically/environmentally sensitive areas) | | |
| significant impact on physical cultural resources (archaeological sites; religious monuments or structures; natural sites with cultural values; cemeteries; graveyards; graves; and other sites of significance) | | |
| Have risk on and/or exclude some members of a community, including vulnerable and minority groups | | |
| Contravene international and regional conventions on environmental and social issues | | |

* Please see Chapter 6&7 (and relevant government proclamations and standards) to avoid any subjective impact analysis of projects. This simple checklist can be used by EEP, IPPs as a format for fast track eligibility checking of identified program activities (see also Annex 1).

**Eligibility Recommendations:**

It should be noted that if your answer is “YES” to any of the questions above, your project is not eligible and has to be rejected unless the features can be avoided by change of design and/or other appropriate mitigation measures.

Project is eligible and approved:

Project is not eligible and rejected, and requires further action:

Screening supervised and approved by:

1. Name Position Signature Date:

Annex 2.3. Screening checklist for projects with environmental and social concerns (needing special attention) (Form 3)

Name of the Program:

Name of the project:

Location of the project: Region: _____ **Zone:** _____ **Woreda:** _____

Kebele: _____

Person(s) who did the eligibility checklist

| | Name | Organization | Signature | Date |
|----|------|--------------|-----------|------|
| 1. | | | | |
| 2. | | | | |

A. Projects of environmental and social concern

| Feature of environmental and social concern: Will the project | Yes | No | Comments |
|---|-----|----|----------|
| Involves land acquisition, or loss of assets, or access to assets on the land | | | |
| Have chemical wastes, disposal and pollution issues | | | |
| Displace individuals, families or businesses | | | |
| Encroach any sensitive area, like wetlands, national parks | | | |
| Located in or near an area where there is an important historical, archaeological or cultural heritage site | | | |



| | | | |
|--|--|--|--|
| Have risk of causing the contamination of drinking water | | | |
|--|--|--|--|

If the projects have any of the above features ('Yes' answers), the concerned focal person/expert, within the EEP, notifies the Mookie, Regional Environmental offices to make sure that the necessary procedures and guidelines are followed as per chapters 6 and 7 and Annexes 3 and 4. In addition, the projects have to be screened for any potential environmental and social concern as per the checklist given below (Annex 2.2).

RecommendationsProject needs special attention: Project does not need special attention:

Additional comments

Screening supervised and approved by:

Name Position Signature Date:

1 _____

B. Checklist for environmental and social impact rating for project activities or projects of environmental and social concerns.

Impact rating will be considered both in terms of consequence of impacts and probability of impacts as depicted in Chapter 6 of this report to avoid subjective impact analysis.

| No. | Type of activity – Will the Project: | If Yes, Rate of Impacts | | | | |
|-----|--|-------------------------|-----|--------|------|---------|
| | | None | Low | Medium | High | Unknown |
| A | | | | | | |
| 1 | Build or rehabilitate any rural roads? | | | | | |
| 2 | Build or rehabilitate any electric energy system? | | | | | |
| 3 | Build or rehabilitate any structures or buildings? | | | | | |
| 4 | Be located in or near an area where there is an important historical, archaeological, or cultural heritage site? | | | | | |



| | | | | | | |
|----------|---|--------------------------------|------------|---------------|-------------|----------------|
| 5 | Be located within or adjacent to any areas that are or may be protected by government (e.g. national park, national reserve, world heritage site) or local tradition, or that might be a natural habitat? | | | | | |
| 6 | Depend on water supply from existing reservoirs, weir, or other water diversion structure? | | | | | |
| B | Environment – Will the Project: | If Yes, Rate of Impacts | | | | |
| | | None | Low | Medium | High | Unknown |
| 7 | Have risk of causing the contamination of drinking water? | | | | | |
| 8 | Cause poor water drainage and increase the risk of water-related diseases such as malaria or bilharzias? | | | | | |
| 9 | Be located within or nearby environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species? | | | | | |
| 10 | Create a risk of increased soil degradation or erosion? | | | | | |
| 11 | Produce, or increase the production of, solid or liquid wastes (e.g. water, medical, and domestic or construction wastes)? | | | | | |
| 12 | Affect the quantity or quality of surface waters (e.g. rivers, streams, wetlands), or groundwater (e.g. wells)? | | | | | |
| 13 | Cause serious and unavoidable safety hazards to the community | | | | | |
| 14 | Result in the production of solid or liquid waste, or result in an increase in waste production, during construction or operation? | | | | | |
| C | Environment – Will the Project: | If Yes, Rate of Impacts | | | | |
| | | None | Low | Medium | High | Unknown |
| 15 | Require that land (public or private) be acquired (temporarily or permanently) for its development? | | | | | |



| | | | | | | |
|----|---|--|--|--|--|--|
| 16 | Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests) | | | | | |
| 17 | Displace individuals, families, or businesses? | | | | | |
| 18 | Result in the temporary or permanent loss of crops, fruit trees, or household infrastructure such as granaries, outside toilets and kitchens? | | | | | |
| 19 | Result in the involuntary restriction of access by people to legally designated parks and protected areas? | | | | | |

**To avoid subjective analysis of impact significance (low, medium or high), please use the criteria given below on "Summary of site sensitivity."*

When considering the location of a Project, rate the sensitivity of the proposed site in the following table according to the given criteria. Higher ratings do not necessarily mean that a site is unsuitable. They do indicate a real risk of causing undesirable adverse environmental and social effects, and that more substantial environmental and/or social planning may be required to adequately avoid, mitigate, or manage potential effects. The following table should be used as a reference.

Summary of site sensitivity

| Issues | Site Sensitivity | | |
|--|---|--|---|
| | Low | Medium | High |
| Sensitive Natural habitats (Wetland, national parks) | No natural habitats present of any kind, No critical hot spot biodiversity area, fragile ecosystem | No critical natural habitats; other natural habitats occur | Presence of critical natural habitats present. hot spot biodiversity area, fragile ecosystem with in declared protected area |
| Water quality and water resource availability and use | Water flows exceed any existing demand; low intensity of water use; potential water use conflicts expected to be low; no potential water quality issues | Medium intensity of water use; multiple water users; water quality issues are important | Intensive water use; multiple water users; potential for conflicts is high; water quality issues are important Intensive water use; multiple water users; potential for conflicts is high; water quality issues are important |
| Natural hazards vulnerability, floods, soil stability/ erosion | Flat terrain; no potential stability, erosion problems; no known tcanic/seismic, flood risks | Medium slopes; some erosion potential; medium risks from volcanic/seismic/ flood/ hurricanes | Mountainous terrain; steep slopes; unstable soils; high erosion potential; volcanic, seismic or flood risks |



| Issues | Site Sensitivity | | |
|---|---|--|---|
| | Low | Medium | High |
| Cultural property Physical cultural resources | No known or suspected cultural heritage sites | Suspected cultural heritage sites; known heritage sites in broader area of influence | Known heritage sites in project area |
| Involuntary resettlement | No economic or physical displacement | If it displaces less than 200 people | If it displaces greater than 200 people |
| Land acquisition | No land acquisition | If the activity takes less than 20% of households land | If the activity takes more than 20% of households land |

Summary of assessment (based on field visit):

Environmental Category (A, B or C) of the project activity/ project (with justification):

Sub project activities requiring ESMP:

For any subproject activities identified as expansion inside the existing site, such as:- camp site expansion, quarry site expansion, significant excavation or demolishing environmental and social impacts: impacts due to wildlife conflicts (human casualties, livestock or crop losses), social or environmental impacts due to increased labor force or labor influx (e.g. increased work load or increased exposure to risks etc.), negative environmental impacts such as increased waste or greenhouse gas emissions.

Recommendation

The Project can be considered for approval. The application is complete, all significant environmental and social issues are resolved, and no further Project planning is required: **Approved without condition** (*Project activity is not of environmental and social concern and approved*)

Safeguards instrument(s) required:

Partial ESIA:

Rejected; reasons for rejection:

Others (specify):

A field appraisal is required.



CERTIFICATION

I/We certify that I/we have thoroughly examined all the potential adverse effects of this Project. To the best of our knowledge, the Projects plan as described in the application and associated planning reports (e.g. ESMP, RAP/ARAP/WMP/SMP.), if any, will be adequate to avoid or minimize all adverse environmental and social impacts.

A Field Appraisal report will be completed and added to the Project file.

Name of desk appraisal officer (print):

Signature:Date:

MoWIE/Regional Environmental offices representative

Name:

Position:.....

(signature):

Date:

Desk Appraisal by Review Authority:.....

Note: A field appraisal must be carried out if the Project:

- Needs to acquire land, or an individual or community’s access to land or available resources is restricted or lost, or any individual or family is displaced.
- May restrict the use of resources in a park or protected area by people living inside or outside of it.
- May affect a protected area or a critical natural habitat.
- May encroach onto an important natural habitat, or have an impact on ecologically sensitive ecosystems (e.g. rivers, streams, wetlands)
- May adversely affect or benefit an underserved and vulnerable people.
- Involves or introduces the use of pesticides.
- Involves, or results in: a) diversion or use of surface waters; b) construction or rehabilitation of latrines, septic or sewage systems; c) production of waste (e.g. slaughterhouse waste, medical waste); d) new or rebuilt irrigation or drainage systems; or e) weirs, reservoirs or water points.
- Any others to be clarified/checked at the project site (please mention them):



Annex 3: Suggested Environmental and Social Field Appraisal Form for a Project

Name of the Program:

NAME OF PROJECT:

Application Number:

PART 1: IDENTIFICATION

- 1. Project Name: (.....)
- 2. Project Location: (.....)
- 3. Reason for Field Appraisal:
- 4. Date(s) of Field Appraisal:
- 5. Field Appraisal Officer and Address:
- 6. Extension Team Representative and Address:
- 7. Community Representative and Address:

PART 2: DESCRIPTION OF THE PROJECT

8. Project Details:

PART 3: ENVIRONMENTAL AND SOCIAL ISSUES

9. Will the project:

Yes

No

* Need to acquire land?

* Affect an individual or the community's access to land or available resources?

* Displace or result in the involuntary resettlement of an individual or family?

If "Yes", tick one of the following boxes:

- The Resettlement Action Plan (RAP/ARAP) included in the Project application is adequate. No further action required.
- The RAP/ARAP included in the Project application must be improved before the application can be considered further.
- An RAP/ARAP must be prepared and approved before the application can be considered further.

10. Will the project:

Yes

No

* Encroach onto an important natural habitat?

* Negatively affect ecologically sensitive ecosystems?

If "Yes", tick one of the following boxes:

- The Environmental and Social Management Plan (ESMP) included in the Project application is adequate. No further action required.
- The ESMP included in the Project application must be improved before the application can be considered further.
- An ESMP must be prepared and approved before the application can be considered further.

11. Will this project involve or result in:

Yes

No



- * Diversion or use of surface waters?
- * Production of waste?
- * New or rebuilt irrigation or drainage systems?

If "Yes", tick one of the following boxes:

- The application describes suitable measures for managing the potential adverse environmental effects of these activities. No further action required.
- The application does not describe suitable measures for managing the potential adverse environmental effects of these activities. An ESMP must be prepared and approved before the application is considered further.

12. Will this project rely on water supplied from an existing reservoirs or weir?

Yes
No

If "Yes", tick one of the following boxes:

- The application demonstrates that a dam safety report has been prepared, the dam is safe, and no remedial work is required. No further action is required.
- The application does not demonstrate that a dam safety report has been prepared, the dam is safe, and no remedial work is required. A dam safety report must be prepared and approved before the application is considered further.

15. Are there any other environmental or social issues that have not been adequately addressed?

Yes
No

If "Yes", summarize them:

.....

And tick one of the following boxes:

- Before it is considered further, the application needs to be amended to include suitable measures for addressing these environmental or social issues.
- An ESMP needs to be prepared and approved before the application is considered further.

PART 4: FIELD APPRAISAL DECISION

- The Project can be considered for approval.** Based on a site visit and consultations with both interested and affected parties, the field appraisal determined that the community and its proposed project adequately address environmental and/or social issues as required by the ESMF.
- Further Project preparation work is required before the application can be considered further.** The field appraisal has identified environmental and/or social issues that have not been adequately addressed. The following work needs to be undertaken before further consideration of the application:

All required documentation such as an amended application, ESMP, RAP/ARAP/WMP/SMP, will be added to the Projects file before the Projects is considered further.

Name of field appraisal officer (print):

Signature: **Date:**

Annex 4: Guideline for the preparation of site specific ESMP

ESMPs should demonstrate that proposed environmental and social management and monitoring activities will encompass all major impacts and how they will be integrated into project supervision. The ESMP should also describe proposed measures, methods, and actions to facilitate public consultation. It is important that the ESMP identify linkages to other social and environmental safeguards plans to relate to the project, such as plans to deal with resettlement issues. Given the scale and nature of the project and the significance of the potential anticipated impacts, EEP and IPPs in collaboration with Regional Water, Mines and Energy Bureaus are responsible for preparing a project specific ESMP for identified projects in a format suitable for inclusion as technical specifications in the contract of each project beneficiaries, if applicable and required. ESMPs should be finalized and approved after considering comments from the Ministry of Water, Irrigation and Energy (MoWIE) at the national level and from Regional Environmental offices at regional level. The World Bank safeguards team will review and provide comments on draft site-specific instruments (if required) and monitor safeguards compliance, among others. Given below are the important elements that constitute an ESMP:

- i) **Description of the sub project:** Scale nature and type of projects implemented under the proposed programs are summarized.
- ii) **Description of Project implementation area:** The Biophysical and social environmental setting of the specific project implementation area are summarized
- iii) **Impacts:** Predicted adverse environmental and social impacts (and any uncertainties about their effects) for which mitigation is necessary should be identified and summarized.
- iv) **Description of Mitigation Measures:** Each measure should be briefly described in relation to the impact(s) and conditions under which it is required. These should be accompanied by and/or referenced to designs, development activities, operating procedures, and implementation responsibilities. Proposed measures and actions to facilitate public consultations should be clearly described and justified. Feasible and cost-effective measures to minimize adverse impacts to acceptable levels should be specified with reference to each impact identified. Further, the ESMP should provide details on the conditions under which the mitigation measure should be implemented. The ESMP should also indicate the various practicable measures applicable to the proposed projects at each project phases (design, construction and/or operation). Efforts should also be made to mainstream environmental aspects wherever possible.
- v) **Description of monitoring program:** The ESMP identifies monitoring objectives and specifies the type of monitoring required; it also describes performance indicators which provide linkages between impacts and mitigation measures identified in the ESA report, parameters to be measured (for example: national standards, extent of impacted area to be considered, etc.), methods to be used, sampling location and frequency of measurements, and definition of thresholds to signal the need for corrective actions. Monitoring and supervision arrangements should be agreed by the Bank and the borrower to: ensure timely detection of conditions requiring remedial measures in keeping with best practice; provide information and the progress and results of mitigation and institutional strengthening measures; and, assess compliance with National and World Bank environmental safeguard policies and IFC performance standards
- vi) **Institutional arrangements:** Institutions responsible for implementing mitigation measures and for monitoring their performance should be clearly identified. Where necessary, mechanisms for institutional coordination should be identified, as often, monitoring tends to involve more than one institution. This is especially important for projects requiring cross-sectoral integration. The ESMP specifies who is responsible for undertaking the mitigation and monitoring measures, e.g., for enforcement of remedial actions, monitoring of implementation, training, financing, and reporting. Institutional arrangements should also be crafted to maintain support for agreed enforcement measures for environmental protection. Where necessary, the ESMP should propose strengthening the relevant agencies through such actions as: establishment of appropriate organizational arrangements; appointment of key staff and consultants.

- vii) **Implementing schedules:** The timing, frequency and duration of mitigation measures and monitoring should be included in an implementation schedule, showing phasing and coordination with procedures in the overall project implementation/operations manual. Linkages should be specified where implementation of mitigation measures is tied to institutional strengthening and to the project legal agreements, e.g. as conditions for loan effectiveness or disbursement.
- viii) **Reporting procedures:** Feedback mechanisms to inform the relevant parties on the progress and effectiveness of the mitigation measures and monitoring itself should be specified. Guidelines on the type of information required and the presentation of feedback information should also be highlighted.
- ix) **Cost estimates and sources of funds:** Implementation of mitigation measures mentioned in the ESMP will involve an initial investment cost as well as recurrent costs. The ESMP should include cost estimates into the Project design, bidding and contract documents to ensure that the contractors will comply with the mitigation measures. The costs for implementing the ESMP will be included in the Project design, as well as in the bidding and contract documents. It is important to capture all costs – including administrative, design and consultancy, and operational and maintenance costs – resulting from meeting required standards or modifying project design.

To ensure unique identification and to cater for changes in administrative borders or names, the ESMP further requires entering of GPS coordinates of the location, if applicable.

For each potential impacts of the project, corresponding mitigation measures, and who is responsible for implementation is indicated. For each potential environmental and social impact, there can be more than one mitigation measure. Responsibility for implementation of mitigation measures will typically rest with the contractor and/or IPPs during construction and operation phase.

The monitoring section of the ESMP prescribes indicators for monitoring the environmental and social impact and the effects of mitigation measures. The responsibility for this will typically rest with the EEP, IPPs. A template for ESMP is depicted in annex 5.

**Annex 5: Suggested Environmental and Social Management Plan (ESMP) Template for a Project**

| | | | | | |
|-------------------------------|--|---------------------------------|--|---------------|--|
| Project identification | | | | | |
| Project title/Name | | | | | |
| Region | | Zone | | Woreda | |
| Kebele/community | | Location GPS coordinates | | | |

| |
|---|
| Description of the project activity |
| Description of potential environmental and social impacts; |
| Description of planned mitigation measures and monitoring along with institutional responsibilities and capacity/training requirements |

| Environmental and Social Management Plan-Mitigation | | | | | |
|--|-------------------------|------------------------------|---|---------------------------------------|-------------|
| Project Phase | Project activity | Environmental Impacts | Mitigation/ enhancement measures | Institutional responsibilities | Cost |
| Pre-construction | | | | | |
| Construction | | | | | |
| Operation and maintenance | | | | | |
| Total mitigation costs | | | | | |

| Environmental and Social Management Plan-Monitoring | | | | | | | |
|--|----------------------------|-----------------------------------|-----------------|---------------------|------------------|---------------------------------------|-------------|
| Project Phase | Mitigation measures | Parameters to be monitored | location | measurements | frequency | Institutional responsibilities | Cost |
| Pre-construction/ | | | | | | | |



| | | | | | | | |
|---|--|--|--|--|--|--|--|
| activities | | | | | | | |
| Construction/ activities | | | | | | | |
| Operation and maintenance/ activities | | | | | | | |
| Total monitoring costs | | | | | | | |

Annex 6: Procedures for Chance Find of Physical Cultural Resources

Given the proposed projects activities under the REGREP are implemented in area where potential land acquisition is required, the project activity may have an impact on cultural resources, particularly for unknown cultural heritage. The Project activities are required to comply all the requirements under the Bankpolicy OP/BP 4.03 and during inception period the Performance standard (PS 8) was considered applied to the program, expecting that unforeseen impacts might occur during the construction activities of projects. Within the scope of the proposed Programs, any project activities that will impact the cultural resources are not eligible for funding (for a list of projects that are not eligible for funding, please refer to Annex 1). In case of any possibility of chance find of physical cultural resources, most notably during excavation as part of construction activity, the chance find procedures is one of the instruments to be used during the Program implementation period.

Such physical cultural resources may take the form of work of art, building structures, graves or other sites of importance, including sites of archaeological, historical, or religious significance.

All chance finds of such physical cultural resources will lead to temporary suspension of all activity that will adversely impact the cultural resource. Contractors will include detailed procedures for ensuring the protection of the cultural resources, including cessation of activities until the significance of the find has been determined and until appropriate mitigating measures has been implemented. This Annex contains standard provisions to be annexed to contract documents that potentially will lead to chance finds of physical cultural resources, as required. Therefore, the attachment outlined below will be annexed to the contract document to manage in case there is the possibility of chance find of physical cultural resources.

Attachment to contracts in case of potential chance find of physical cultural resources

If the Contractor discovers archaeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor/Masons shall:

- 1: Excavation in sites of known archaeological interest should be avoided and as stated in annex 1, such projects are not eligible for funding. Where historical remains, antiquity or any other object of cultural, historical or archaeological importance (including graveyards) are unexpectedly discovered during construction in an area not previously known for its archaeological interest, the following procedures should be applied:
 - a) Stop the construction activities in the area of the chance find.
 - b) Delineate the discovered area.
 - c) Secure the area to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible national and regional authorities and the Ministry of Culture and Tourism to take over.
 - d) Notify EEP environmental and social safeguards specialist who in turn will notify the MoWIE and EEP respective relevant institutions to contact the responsible local authorities and the Ministry of Culture and Tourism immediately (less than 24 hours).
 - e) The Ministry of Culture and Tourism will be in charge of protecting and preserving the area until deciding on the proper procedures to be carried out. This might require an evaluation of the findings to be performed by the archaeologists of the relevant Ministry Culture, and Tourism (within 1 week). The evaluation of the findings will take in consideration various criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values as decided by the Ministry of Culture and Tourism.
 - f) Decisions on how to handle the finding are taken by the responsible authorities and the Ministry of Culture and Tourism (within 2 weeks). This could include changes in the location of the project layout (such as when the finding is irremovable remains of cultural or archaeological importance), conservation, preservation, restoration and salvage.



- g) Construction or rehabilitation work will resume only after authorization is provided by the responsible local authorities and the Ministry of Culture and Tourism concerning the safeguard of the heritage.
 - h) Authorization to resume work shall be communicated to the contractor and/or regional and Woreda energy experts in writing by the Ministry of Culture and Tourism.
- 2: In case of delays incurred indirect relation to any physical cultural resources findings not stipulated in the contract (and affecting the overall schedule of works), the contractor/masons may apply for an extension of time. However, the contractor will not be entitled to any kind of compensation or claim other than what is directly related to the execution of the physical cultural resources findings works and protections.

Annex 7: Guidelines for Annual Reviews/Audit

Objectives:

The objectives of annual reviews of ESMF implementation are two-fold:

- a) To assess the REGREP performance in complying with ESMF procedures, learn lessons, and improve future performance; and
- b) To assess the occurrence of, and potential for, cumulative impacts due to scaling solar and wind energy development projects.

The Programs management is expected to use the annual reviews to improve on procedures and capacity for integrating natural resources and environmental/social management into proposed program operations. It is also be a principal source of information to Bank supervision missions.

Scope of Work:**ESMF Performance Assessment**

The overall scope of the performance assessment work is to:

- a) Assess the adequacy of the project approval process and procedures based on interviews with Project participants, Project records, and the environmental and social performance of a sample of approved projects;
- b) Assess the adequacy of ESMF roles and responsibilities, procedures, forms, information resource materials, etc.;
- c) Assess the needs for further training and capacity building;
- d) Identify key risks to the environmental and social sustainability of projects; and
- e) Recommend appropriate measures for improving ESMF performance.

The following tasks will be typical:

- a) Review project preparation and approval (e.g. applications; management; screening checklists; ESMPs, A/RAPs, appraisal forms; approval documents), as well as related studies or reports on wider issues of natural resources and environmental management in the country.
- b) On the basis of this review, conduct field visits of a sample of approved projects to assess the completeness of planning and implementation work, the adequacy of environmental/social design, and compliance with proposed mitigation measures. The sample should be large enough to be representative and include a substantial proportion of projects that had (or should have had) a field appraisal according to established ESMF criteria. Projects in sensitive natural or social environments should especially be included.
- c) Interview national, regional and Woreda officials responsible for project appraisal and approval to determine their experience with ESMF implementation, their views on the strengths and weaknesses of the ESMF process, and what should be done to improve performance.

Improvements may concern, for example, the process itself, the available tools (e.g. guidelines, forms, and information sheets), the extent, and kind of training available, and the amount of financial resources available.

- d) Develop recommendations for improving ESMF performance.

Cumulative Impacts Assessment

This part of the annual review assesses the actual or potential cumulative impacts of projects with other projects or development initiatives on the environment, natural resources and community groups, if applicable. Cumulative impacts result from a number of other activities that, on their own, have minimal impacts, but over

time and in combination generate a significant impact. For example:

- a) Decline in groundwater levels or quality due to the abstraction of waters from limited natural water sources or wells and the introduction of numerous other small-scale project affecting the available water potential in the area;
- b) Overwhelmed or illegal waste and dumping sites due to the inappropriate disposal of increasing amounts of waste materials; and
- c) Attraction of migrant populations to communities that have successfully introduced improved social infrastructure (such as schools, health facilities or water sources) resulting in depletion of resources (e.g., supplies, water), etc.

The function of this assessment is primarily as an "early warning" system for potential cumulative impacts that might otherwise go undetected and unattended to. It will be largely based on the observations of people interviewed during the fieldwork, and trends that may be noticed by regional or Woreda officials. Where cumulative impacts are detected or suspected, recommendations will be made to address the issue, perhaps through more detailed study to clarify matters and what should or can be done about them.

Qualifications for Undertaking Annual Reviews:

The annual reviews shall be undertaken by an individual consultant, or small team, with experience relevant to the likely issues to be encountered (e.g. environmental and natural resources management, land acquisition and resettlement, livelihood restoration, community and occupational safety issues). They should also be familiar with the methods and practices of effective community consultation, and with typical methods and processes for preparing, appraising, approving, and implementing small-scale community development projects.

Timing:

Annual reviews should be undertaken after the annual ESMF report has been prepared and before WB supervision of the Project, at the closing of each year of the programs. It is expected that each review would require 3 to 4 weeks of work (interviews, examination of projects), and that the review report would be completed within 2 weeks of completing the fieldwork.

Outputs:

The principal output is an annual review report that documents the review methodology, summarizes the results, and provides practical recommendations. Distinct sections should address;

- a) ESMF performance and
- b) Cumulative impacts.
- C) Measures to be taken

Annexes should provide the detailed results of the fieldwork, and summarize the number of approved projects by state and their characteristics according to the annual report format.

Copies of the annual review report should be delivered to the REGREP management, MoWIE, to each national and regional office directly or indirectly responsible for appraisal, approval, and implementation of projects, and to the World Bank. The project management (EEP) may also want to host national or regional workshops to review and discuss the review findings and recommendations.



**Annex 8: Suggested Annual Review Report Template for a Project**

Name of the Program:

Name of the Project:

Application Number:

1. Name of Project site, Region, Woreda or Local Government:

2. Name and Position of Authority or person prepare annual review report:
3. Reporting Year:
4. Date of Report:
5. Project (s):

Please enter the numbers of Project activities in the following table.

| Types of Project Activities | Approved this year | Application included an ESMF checklist | Field Appraisal | ESMP | ARAP | RAP | Specific TA |
|--------------------------------|--------------------|--|-----------------|------|------|-----|-------------|
| Scaling Solar | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Wind Energy Development | | | | | | | |
| | | | | | | | |
| | | | | | | | |

6. Were there any **unforeseen environmental or social problems** associated with any Project approved and implemented this year? If so, please identify the Project (s) and summarize the problem (s) and what was or will be done to solve the problem (s). Use a summary table below.

| Project | Problem(s) | Actions taken | Actions to be taken |
|---------|------------|---------------|---------------------|
| | | | |
| | | | |
| | | | |

7. Have any **other environmental or social analyses** been carried out by other public or private agencies in your Woreda/region? If so, please describe them briefly.



.....

 8. Have you noticed any problems **with implementing the ESMF** in the past year (e.g. administrative, communications, forms, capacity)? If so, please describe them briefly.

.....

9. **Training:** Please summarize the training received in your Institution, Woreda/Region in the past year, as well as key areas of further training you think is needed.

| Group | Training Received | Training Needed |
|---|-------------------|-----------------|
| MoWIE | | |
| EEP | | |
| IPP | | |
| Regional and Woreda Energy Team | | |
| Regional and Woreda environment team | | |
| Community Members, elders, clan leaders | | |
| NGOs/Associations | | |
| Etc. | | |

Annex 9: Suggested Forms for ESMF Reporting, Training and Follow-up

This annex contains three templates to be used in conjunction with monitoring and reporting and follow for ESMF implementation.

ESMF reporting form

| Project title | Application received (date) | Field appraisal undertaken (date undertaken) | Application approved if (date approved) | ESMP and A/RAP developed (yes or no) | Written warnings of violation of ESMP and A/RAP issued (yes/no) | Chance find procedures invoked (yes or no) |
|---------------|-----------------------------|--|---|--------------------------------------|---|--|
| | | | | | | |
| | | | | | | |
| | | | | | | |

ESMF training form

| Personnel | No. of people trained | Training received |
|---|-----------------------|-------------------|
| EEP, MoWIE, IPPs Safeguard specialist/officer | | |
| EEP, MoWIE, IPPs officials and engineers | | |
| Regional Energy and safeguards specialist | | |
| Woreda staffs | | |
| Community members, clan leaders, elders etc. | | |

Follow up on previous recommendations

| Recommendation | Date of recommendation | Action taken | Recommendation implemented (yes/no) |
|----------------|------------------------|--------------|-------------------------------------|
| | | | |
| | | | |

Annex 10: Sample Terms of Reference (ToR) for ESIA Preparation

Based on the screening and scoping study results, ESIA terms of reference will be prepared. The terms of reference will have the following contents. Please refer to “Ethiopia’s Environmental and Social Safeguards Framework for the CRGE Initiative” (MEF, 2015) for detail information on the ESIA process steps (Screening, Scoping, Impact study, Reviewing, Decision-making, Monitoring and reporting, and Auditing and Reporting). Further, please refer to the Guideline Series Documents for Reviewing Environmental Impacts Study Reports (EPA, 2003) for detail information on contents and description of ESIA report (EPA, 2003).

I. Objective of the TOR: This section should state the scope of the ESIA in relation to the screening category and the proposed program activities. It needs to stipulate the process and the timing of the ESIA preparation and implementation stages in order to adequately address the safeguards requirements of the GoE and the World Bank.

II. Introduction and Context: The ToR needs to provide information on program activity objective, the name of the program activity proponent, the rationale for conducting the ESIA, specific components of the program activity, program activity area with location map, short briefing of social and environment of settings and applicable national and international safeguard policies.

III. Location of the study area and likely major impacts: State the area involved and the boundaries of the study area for the assessment. Identify adjacent or remote areas which should be considered with respect to impacts of particular aspects of the program activity.

IV. Mission/Tasks: The ESIA study team/consultant should clearly execute the following tasks.

Task A: Description of the proposed program activity: Describe the location, size and nature of the program activity, environmental assessment category, brief description of program activity alternatives, time schedule for phasing of development (i.e. preconstruction, construction, operation/maintenance, decommissioning), and resources (finance, human, material and technology) required for the program activity, among others.

Task B: Baseline information/Biophysical and social-economic description: Describe the baseline/biophysical and socio-economic characteristics of the environment where the program activity will be implemented; and area of influence. Include information on any changes anticipated before the program activity commences.

Task C: Administrative and legal Policy framework: In addition to the required administrative and institutional setup for the implementation of the program activity, this part needs to identify pertinent policies, regulations and guidelines pertinent to the study that include:

- ✓ National laws and/or regulations on environmental and social assessments;
- ✓ Regional environmental and social assessment regulations;
- ✓ Environmental and social assessment regulation so any other financing organizations involved in the program activity;
- ✓ Relevant international environmental and social agreements/conventions to which Ethiopia is a party;
- ✓ World Bank safeguard policies; and
- ✓ IFC performance standards applied to the Program

Task D: Identification of potential impacts of the program activity: Identify all potential significant impacts that the program activity is likely to generate. Assess the impacts from changes brought about by the program activity on baseline environmental conditions as described under Task B. The analysis should address both the positive and negative impacts of the program activity. Wherever possible, describe impacts quantitatively, in terms of environmental and social costs and benefits.

Task E: Propose Program activity alternatives: Alternatives extend to site,

design, technology selection, construction techniques and phasing, and operating and maintenance procedures. Compare alternatives in terms of potential environmental and social impacts; capital and operating costs; suitability under local conditions, and institutional, training, and monitoring requirements.

Task F: Preparation of an Environmental and Social Management Plan (ESMP): Describe the mitigation measures for adverse environmental and social impacts, staffing/institutional and training requirements, schedules, and other necessary support services to implement the mitigating measures. Provide environmental and social protection clauses for application by contractors and consultants, if any. The ToR should state that the concerned and affected parties should agree on the proposed mitigating measures before they are included in the ESMP.

Task G: Monitoring Plan: This organizes a comprehensive plan to monitor the implementation of mitigating measures and the impacts of the program activities. It should also address an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan.

V. Qualification of the ESIA study team/Consultant: The ToR should provide clear guidance on the qualification of the ESIA study team.

VI. Duration of the ESIA Study: This should be determined according to the type of the program activity.

VII. Preparation of the final Report: The ESIA study team/consultant will produce the final report one week after receiving comments from program activity proponent and concerned stakeholders. The final report will include comments from these institutions.

VIII. Suggested Contents of the ESIA Report: *Please refer to the “Guideline Series Documents for Reviewing Environmental Impacts Study Reports” (EPA, 2003) to get detail information on the contents of ESIA report (EPA, 2003). The contents of the ESIA report should contain the following elements.*

- Executive Summary
- Introduction
- Methodology
- Administrative, legal and policy requirements
- Description of program activity (need, objectives, technical details, size, location input and other relevant requirements)
- An outline of the main development alternatives
- Description of baseline information/environmental and socio-economic conditions
- An account of the prediction and assessment of each impact at all stages of the program activity cycle for each alternative
- Description of the methodology and techniques used in assessment and analysis of the program activity impacts
- Description of environmental and social impacts for program activity
- Environmental and Social Management Plan (ESMP) for the project including the proposed management and mitigation measures and the respective costs;
- Institutional responsibilities for monitoring and implementation; Summarized table for ESMP.
- Conclusions and recommendations
- References
- Annexes
 - ✓ List of Persons/Institutions met
 - ✓ List of the ESIA study team members
 - ✓ Minutes of consultations

Annex 11: Procedure to be followed by REGREP GRM

| Step | Description of the Step |
|---|---|
| <i>Step 1: Receive and Record Complaint</i> | <ul style="list-style-type: none">▪ IPP-E&S Unit/Department will be the focal point for receipt of complaints; however, EEP and/or other stakeholders (who have been provided with forms and a log book by the project) can also register grievances at the project site.▪ All project staff at the IPP office will also be made aware of how to either receive a grievance directly or forward to the responsible body in the office.▪ Complaints will be recorded as soon as possible, using the Grievance Statement Form (Annex 6- A) which is a carbon copy form, allowing records to be retained by the complainant also. Where grievance forms are not immediately available, efforts will be made to record the grievance as soon as practicable thereafter.▪ For each complaint registered, a written receipt of complaint acknowledgement will be made within a maximum of seven (7) calendar days. This will be done using the Grievance Receipt Acknowledgement Form (Annex 6- B). If information is already available at this point as to how it is being dealt with, by whom and an approximate estimate of how long the process might take; this will also be included in the acknowledgement, otherwise this information will be provided within a maximum of 30 calendar days based on the proposals for resolution generated in Step 2 onward.▪ Each grievance will be registered as an entry into the grievance log book with a unique reference number, supported by the full information on the Grievance Receipt Acknowledgement Form.▪ If a complainant wishes to raise a grievance anonymously, this would be achieved via an appropriate mechanism (e.g. using only reference number). |
| <i>Step 2: Review and Allocate Actions</i> | <ul style="list-style-type: none">▪ Grievances will be reviewed, and appropriate actions identified. If there is an obvious and immediate action not requiring higher level decisions or approval, the IPP project office/EEP Team will have the authority to propose and enact the grievance resolution. REGREP will establish local level GRC (described above) who will meet regularly to resolve all grievances which require higher level Management approval/decisions.▪ Following the first internal examination by the implementing agency/ IPP, a resolution and actions proposed to the complainant (or the complaint is refused or considered to be inadmissible with reasons for this provided). There are possibly four main categories of actions.<ul style="list-style-type: none">• Complaints which are not directly within IPP's responsibility and / or their authority to resolve, in which case they would be screened as such and referred directly to the GRC.• Complaints/queries that have already been held in action, or for which no further action is needed other than to respond back to complainant.• Complaints for which the action required is clear.• Complaints which need further investigation by the implementing agency internally, and potentially other IPP staff and external parties, in order to ascertain cause and appropriate action.▪ Action to resolve grievances will be allocated to the GRC, unless the action can be immediately taken by the IPP project office without further approval.▪ The Grievance Investigation Form (Annex 6-C) will be the main document for recording the decision-making process within the IPP office. |



| | |
|---|--|
| Step 3 – Notify Complainant of Proposed Resolution | <ul style="list-style-type: none">▪ If it has not already occurred at this point, the GRC will then notify the complainant that the complaint has been received (this must happen within 7 days), how it is being dealt with, by whom and an approximate estimate of how long the process might take.▪ This provision of a proposed resolution shall happen within a maximum of 30 calendar days of receipt of the grievance. Notification will generally occur through a face to face meeting. |
| Step 4 – Take Action and Update Complainant | <ul style="list-style-type: none">▪ The will then undertake proposed actions for resolution and update the complainant once actions are completed. |
| Step 5 – Close out & Lessons Learnt | <ul style="list-style-type: none">▪ This occurs only when both are happy with the solution, it has been implemented and both parties have signed off. Grievance Investigation Outcome Form (Annex 6-D) will be used to document this process.▪ The IPP project management will periodically perform an internal review to document lessons learned with respect to specific grievances, and to identify any general trends in issues being raised, to take actions as necessary to try to prevent similar grievances being raised in the future. |
| Step 6 – Update Project Grievance Records | <ul style="list-style-type: none">▪ As described in Step 1, the details of grievances will be held in the 4 forms included in Annex 6 and will be maintained / stored by the IPP E&S Safeguards Unit/ Team, on regular basis. This will include information on any outstanding actions. The forms will therefore be updated over time. |
| Step 7 – Reporting | <ul style="list-style-type: none">▪ Information on grievances will be reported on a quarterly basis to EEP- PIU as part of the Environmental and Social Safeguards Performance Report, including the total number of complaints, the major areas/causes of complaints, how many have been closed out etc. The report will be prepared by IPP- E&S Team. |

Annex 12: List of contacted persons/stockholders**1. Somali Regional State****A. Hadigala Woreda**

| No | Name of participant | Position | Phone number |
|----|---------------------|---------------------------------------|--------------|
| 1 | Ato kedir Abedi | Hadigala Woreda administrator | 0912811884 |
| 2 | Ato Kedir Mohamod | Agriculture and Livestock office head | 0910962601 |
| 3 | Mohamed Abdi | Education office head | 0915769383 |
| 4 | Mohamed Abdu | Agriculture and Natural resource head | 0919088818 |
| 5 | Kedir Umer | Environmental Protection office | 0949409027 |
| 6 | W/ro Kedri Abdulafi | Women affair office | 0915147976 |
| 7 | Adem yenus | Woreda vice spokes person | 0962150040 |
| 8 | Abdi nur mohamed | Livestock development head | 0928159846 |
| 9 | Abduraheman Resas | Woreda Revenue head | 0915727574 |
| 10 | Abdersa aselam | Capacity Building head | 0915059707 |
| 11 | Hassen Yishak | Youth and sport office head | 0926431874 |
| 12 | W/Ro Nestiho Hirsi | Finance administration office head | 0915073944 |
| 13 | Yasin Meten | Health office head | 0915003294 |
| 14 | Arbo Mucha | Woreda Milisha office Head | 0904511802 |

B. Somali Regional State city Administration

| No | Name of participant | Position | Phone number |
|----|---------------------|------------------------------|--------------|
| 1 | Abdi Shikur Aden | City zone V/administrator | 0939114431 |
| 2 | Abdi Umer | ESODEPA zonal head | 0915369703 |
| 3 | Ato Abdi Awale | Zone Trade and Industry head | 0915018666 |

C. Hadigala Woreda

| No | Name of participant | Position | Phone number |
|----|---------------------|---------------------------------------|--------------|
| 1 | Ato kedir Abedi | Hadigala Woreda administrator | 0912811884 |
| 2 | Ato Kedir Mohamod | Agriculture and Livestock office head | 0910962601 |
| 3 | Mohamed Abdi | Education office head | 0915769383 |
| 4 | Mohamed Abdu | Agriculture and Natural resource head | 0919088818 |
| 5 | Kedir Umer | Environmental Protection office | 0949409027 |
| 6 | W/ro Kedri Abdulafi | Women affair office | 0915147976 |
| 7 | Adem yenus | Woreda vice spokes person | 0962150040 |
| 8 | Abdi nur mohamed | Livestock development head | 0928159846 |
| 9 | Abduraheman Resas | Woreda Revenue head | 0915727574 |
| 10 | Abdersa aselam | Capacity Building head | 0915059707 |
| 11 | Hassen Yishak | Youth and sport office head | 0926431874 |
| 12 | W/Ro Nestiho Hirsi | Finance administration office head | 0915073944 |
| 13 | Yasin Meten | Health office head | 0915003294 |
| 14 | Arbo Mucha | Woreda Milisha office Head | 0904511802 |

D. City Zone, Erer Woreda

| No | Name of participant | Position | Phone number |
|----|---------------------|----------|--------------|
|----|---------------------|----------|--------------|



| | | | |
|----|---------------------|--------------------------------------|------------|
| 1 | Mohamed Abiker | Erer Woreda Head administrator | 0967538818 |
| 2 | Abdi Mohamed | Education office head | 0930101808 |
| 3 | Ato Bisher Areb | Youth and Sport office head | 0915725239 |
| 4 | Ato Mohamed Haji | Justice office head | 0915237301 |
| 5 | Hashem Abdulahi | Woreda militia team office head | 0915188470 |
| 6 | Ahemed Mussa | Woreda Capacity building office head | 0922815522 |
| 7 | Ato Fami Mohamed | Woreda health office head | 0920904926 |
| 8 | Abtirhayn Yesuf | Food security office head | 0915464615 |
| 9 | Mostofa Abdi | Woreda Cooperatives office head | 0932302183 |
| 10 | W/Ro Fatuma Esmael | Woreda women affairs head | 0915065758 |
| 11 | W/Ro Mestih Habib | Woreda Finance office head | 0915051330 |
| 12 | W/Ro Duniya Ebrahim | Woreda Revenue office head | 0913995819 |
| 13 | Ato Mohammed Meles | Milishia office head | 0937555603 |
| 14 | Esmael Shafi | Water office head | 0911729116 |

E. Ayisha Woreda

| No | Name of participant | Position | Phone number |
|----|---------------------|----------------------------|--------------|
| 1 | Ato Yesuf Haji | Aysha Woreda Administrator | 0915120886 |
| 2 | W/Ro Sherif mohamed | Finance office head | 0930522399 |
| 3 | Ato Biker Abdulahi | Agriculture office head | 0915076458 |
| 4 | Ato Aren Abesh | Education Office Head | 0915214527 |
| 5 | W/t Firha Mohamed | Health Office Head | 0915119479 |
| 6 | Daniel Melaku | Woreda youth | 0902889970 |

2. Dire Dawa City Administration

| No | Name of participant | Position | Phone number |
|----|-----------------------|-----------------------------------|--------------|
| 1 | W/ro Aynalem Mengesha | Women participation process owner | 0915764533 |
| 2 | Murad Bedewi | Culture and tourism office head | 0913272772 |
| 3 | Ahimed Mohamed | Mining and Energy office | 0913012727 |
| 4 | Yohannes Amare | Mayor advisor | 0918735840 |
| 5 | Yirsaw Dereje | Environment and forest expert | 0928104074 |
| 6 | Asfaw Getahun | Social affairs mayor expert | 0915760413 |
| | Ayan Mohamed | Health office head | 0912305202 |

3. Amhara regional state

A. Semen Shewa Zone

| No | Name of participant | Position | Phone number |
|----|---------------------|---|--------------|
| 1 | Shimeles tibebe | North Showa zone finance development head | 0924141345 |
| 2 | Birhanu Taye | Zone rural road department head | 0911017983 |
| 3 | Bekele getaneh | Urban development and housing head | 0913236860 |
| 4 | Firehiwot Mekonen | Women affair office head | 0920887162 |
| 5 | Kebede woldu | Agriculture unit head | 0910997363 |
| 6 | Tigist Mekuanente | Culture and tourism head | 0920616322 |
| 7 | Tilaye Belay | Zone grievance office head | 0913145876 |
| 8 | Engidashet begashaw | Technique and vocational head | 0911803424 |
| 9 | Tibebe Abera | Health department head | 0961029699 |
| 10 | Sisay W/amanuel | Civil Service office head | 0923770622 |
| 11 | Aynekulu Abebe | Education department head | 0911776644 |
| 12 | Efraim Minisher | Water department head | 0913004144 |

| | | | |
|----|-------------------|---------------------------------------|------------|
| 13 | Banchamlak Teferi | Social affairs unit head | 0911668520 |
| 14 | Birhane Chekol | Finance and Economic Development head | 0910065498 |
| 15 | Kenfu seyfu | Zon administration office head | 0911777145 |
| 16 | Demis beyene | Zon administration office expert | 0911704162 |
| 17 | Beletew Abebe | Finance and Economy | 0921045516 |

B. Debre Birhan City Administration

| No | Name of participant | Position | Phone number |
|----|---------------------|--|--------------|
| 1 | Ato Aklil Getachew | City Mayor office head | 0911948777 |
| 2 | Getaneh Tesfaye | Mayor office planning and monitoring team leader | 0911777854 |
| 3 | Tilahun Mulugeta | Health protection head | 0923769851 |
| 4 | Getachew belayneh | Social affairs | 0912030555 |
| 5 | Getahun Mamo | Cultural and tourism | 0911777070 |
| 6 | Gebreye zenebe | Trade and economic affairs office | 0911570126 |
| 7 | Awuraris Arega | Environmental protection office head | 092038445 |
| 8 | Temtme Manaye | Justice office head | 0913221690 |

4. Afar Regional State

A. Afar Regional state Administration ,Semera

| No | Name of participant | Position | Phone number |
|----|---------------------|-------------------------|--------------|
| 1 | Awol Arba | Vice Administrator | 0929116895 |
| 2 | Abahina Koba | Agriculture office head | 0911080198 |
| 3 | Zehara Umed | Women affair | 0336660190 |
| 4 | Abdi Mohamed | Water resource | 0913287271 |
| 5 | Mohamed Afke`e | Finance and Economy | 0933806060 |
| 6 | Usman Ayinsa | Security office | 0936639226 |
| 7 | Ali Mohamed Gerebas | Justice office | 0911835998 |
| 8 | Ali Siyelele | Livestock office | 0966747301 |

B. Woranso Woreda/Kebele/

| No | Name of participant | Position / Address/ | Phone number |
|----|---------------------|---------------------|--------------|
| 1 | Hassen ali | Woraso Kebele | 0912740362 |
| 2 | Hussain Ali | Woraso Kebele | 0913195049 |
| 3 | Nurihamed Alui | Woraso Kebele | 0935238366 |
| 4 | Suko Ali | Woraso Kebele | 0910912158 |
| 5 | Awol Bedru | Woraso Kebele | 0983694195 |
| 6 | Humed Hindi | Woraso Kebele | 0900762705 |
| 7 | Sibehu Habbib | Woraso Kebele | 0909935712 |
| 8 | Nuri Hureto | Woraso Kebele | 0989407441 |
| 9 | Sedik Mohamed | Woraso Kebele | 0913336826 |

C. Elidar Woreda

| No | Name of participant | Position / Address/ | Phone number |
|----|---------------------|-----------------------|--------------|
| 1 | Abdela Sulemomin | Woreda Administrator | 0911420609 |
| 2 | Ahmed Abdela | Education office head | 0929461606 |

| | | | |
|----|--------------------|-----------------------|------------|
| 3 | Abedela ali hmudu | Water Resource | 0910071186 |
| 4 | Ebrahim Mohamed | Communication Affairs | 0913671241 |
| 5 | Asena kebir Awul | Woreda Expert | 0910838183 |
| 6 | Hussain Sule | Pastoralist office | 0911081811 |
| 7 | Mohamed ali | Government spokes man | 0983182423 |
| 8 | Umer Amfro | Elidar Woreda | 0910645646 |
| 9 | Ahmed Abdi | Elidar Woreda | 0911991722 |
| 10 | Mohamed Sani ali | Elidar Woreda | 0960762709 |
| 11 | Faysel | Elidar Woreda | 0911745143 |
| 12 | Mohamed Hasen | Elidar Woreda | 0919951281 |
| 13 | Areb Hasen Ageye | Elidar Woreda | 0925013237 |
| 14 | Mohamed Kaloyta | Elidar Woreda | 0921557065 |
| 15 | Mohamed Amed nur | Elidar Woreda | 0911394919 |
| 16 | Kedir Nuru hussain | Elidar Woreda | 0911958417 |

5. Oromia Regional State

A. Arsi zone

| No | Name of participant | Position | Phone number |
|----|----------------------|-------------------------------|--------------|
| 1 | Kasso Abureshid | Zonal Adiministrator | 0911841130 |
| 2 | Kasim Kabeto berisso | Structural Engineer | 0910953558 |
| 3 | Aman ketebo | Civil Engineer | 0913365571 |
| 4 | Tesfaye Siyum | Planning Monitoring | 0910779327 |
| 5 | Tadese Worke | Electrical Engineer | 0912233552 |
| 6 | Jemal Mohamed | Education office | 0913195585 |
| 7 | Kassahun Geda | Environment and forest office | 0913522926 |

B. Hitosa woreda

| No | Name of participant | Position | Phone number |
|----|---------------------|--------------------|--------------|
| 1 | Gena Mohamed | Main administrator | 0912075003 |
| 2 | Fanosie Wakie | Agriculture v/head | 0912129420 |
| 3 | Lema Tulu | Cooperative office | 0920167950 |
| 4 | Rehuma Abu | Women affairs | 0913301808 |
| 5 | Abdulkhakim Mohamed | City mayor | 0910781353 |
| 6 | Demsie Negash | Work unit team | 0936214796 |
| 7 | Adem Kasso | Livestock office | 0911922545 |
| 8 | Husain Denda | Water Resource | 0964048105 |
| 9 | Abu esleman | Security chief | 0913415792 |
| 10 | Husain Amina | Education office | 0913960860 |
| 11 | Muslimi Kasim | Mining office | 0912810494 |

6. Tigray Regional State

A. Kafta Humora Woreda

| No | Name of participant | Position |
|----|---------------------|----------|
| 1 | T/Giorgis Haile | |
| 2 | Teklay Abay | |
| 3 | Berhane Kassahun | |
| 4 | Geza DAgnaw | |
| 5 | Nisha Shushay | |



| | | |
|----|---------------------|--|
| 6 | Letemikael K/Maryam | |
| 7 | Alemu Aderajew | |
| 8 | Gaita Guesh | |
| 9 | Fisha G/ liul | |
| 10 | Melaku Adrgna | |
| 11 | Negasi Birree | |
| 12 | Tadesse Wolegebrel | |

B. Hintalo Wjirat Woreda

| No | Name of participant | Position |
|----|---------------------|----------------------------|
| 1 | Tefera Kebede | Land Administration office |
| 2 | Hagos G/ Michael | |
| 3 | Akofa Hadish | |
| 4 | Gebre Berhe | |
| 5 | Mohamed Alu | |
| 6 | Haftu hader | |
| 7 | Haile Fitsum | |
| 8 | Goytom Woldu | |
| 9 | Mehari Tadele | |
| 10 | Mewii W/ kidan | |
| 11 | Kiros Baraki | |
| 12 | Abrha Akwol | |
| 13 | Gebre wolde mariam | |
| 14 | Yemane Tadele | |
| 15 | Gebre Medhin | |
| 16 | Bereh Equar | |
| 17 | Nigusie Abrha | |
| 18 | Knife Hagos | |
| 19 | H/Meles yemane | |
| 20 | Berhe Hadera | |
| 21 | Hintsa salen | |
| 22 | Molla Heregu | |



Annex 13: Sample Minutes of Meeting

የኢትዮጵያ ኤሌክትሪክ ኃይል ቃለ-ገቢ

የታዳሽ ኃይልን (...የኃይል...) ፓርኖም በተመለከተ ከሚመለከታቸው ባለድርሻ አካላት ጋር የተደረገ ውይይት

ቀን: 3/9/10
 ክልል: ከማይ
 ቦታ: ከ...
 ወረዳ/ከተማ: ሃይራሳ
 ተባብሮ: ...
 መገደር: ...
 የሰብሰቡ ሰዓት: 12:00

1. በሰብሰቡ ላይ የተገኙ ተሳታፊዎች ስም ገርዘር

| ተ.ቁ | ስም | የሰጠ ድርሻ | ስልክ ቁጥር | ፊርማ |
|-----|-------------|---------------|------------|-----|
| 1 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0912811881 | |
| 2 | አቶ ገብረ መስቀል | የኃይል ስራ ስራ ስራ | 0910960601 | |

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|----|-------------|-----------|------------|--|
| 3 | አቶ መስቀል ገብረ | የሀይራሳ ኃይል | 0915769323 | |
| 4 | አቶ መስቀል ገብረ | የሀይራሳ ኃይል | 0915088818 | |
| 5 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0914707027 | |
| 6 | ወ/ሮ ገብረ ገብረ | የሀይራሳ ኃይል | 0915147996 | |
| 7 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0962150040 | |
| 8 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0928157846 | |
| 9 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0915727524 | |
| 10 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 091509707 | |
| 11 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0922431674 | |
| 12 | ወ/ሮ ገብረ ገብረ | የሀይራሳ ኃይል | 0915073744 | |
| 13 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0915003294 | |
| 14 | አቶ ገብረ ገብረ | የሀይራሳ ኃይል | 0901511802 | |

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|----|--------------|-------|-----------------|--|
| 15 | ገዥ ስልጠና ተካላ | ገ.ገ.ገ | 091398 73/8 | |
| 16 | ገዥ ስልጠና ተካላ | ገ.ገ.ገ | 091297 17/00 | |
| 17 | ወ/ት ስልጠና ተካላ | ገ.ገ.ገ | 09131992 73 | |
| 18 | | | | |
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2. የሰብሳቢ አድጋ

- 2.1. የታዳሽ ስጦታ (.....) ፕሮግራም በተመለከተ ለተሰባሳቢዎች ፕሮግራም ሊያስከትላቸው የሚችሉ የሰብሳቢ ሆነ ማህበራዊ ጉዳዮችን በማገልገል ትድም ግንባር እንዲኖር ማድረግ።
- 2.2. ለሚመለከታቸው የውይይት ተገቢ ባለድርሻ ስላት በፕሮግራሙ የሰብሳቢዎች እና የሰብሳቢ አድጋ ተጠቃሚዎች ላይ በማወቅት ያላቸውን አስተያየት ለማሰባሰብ።

- 3. ለፕሮግራሙ አጠቃላይ ገቢ ለውጭኛ የሚደረግ በተመለከተ
 - ሀ. ለፕሮግራሙ አላማ

- የፕሮግራሙ አላማ ከሰብሳቢ እና ማህበራዊ ጉዳት ላይ የሆነ ታዳሽ እና ለማራጭ የሚያል ምንጮችን በማስፋት የሆነውን የሚያል ሁለት ስልጣን በመስጠት ምርቱን እና ተፈራካኝ ማድረግ ነው።
- ለ. ለፕሮግራሙ ጠቀሜታ በተመለከተ
 - በመላው ሀገሪቱ አስተማማኝ የሌለውን ስጦታ እንዲኖር ከፍተኛ አስተዋጽኦ ያስርክታል።
 - ፕሮግራሙ ወደፊት ለማድረግ የገቢ ሀብት ስጦታ የሌለውን ስጦታ ተጠቃሚ እንዲሆን መገንባት የሚገባውን የገቢ አሰጣጥ ስርዓት ፕሮግራም የሚያፋጥን መሆኑን እና ለሰብሳቢ ልማት አገልግሎት እንዲሰጥ የሚያደርግ መሆኑን ለሰብሳቢ ስላት ተገልጿል።
 - የሰብሳቢውን የልማት አገልግሎት እንዲሰጥ የሚያደርግ መሆኑን ለሰብሳቢ ስላት ተገልጿል።
 - ፕሮግራሙ ለተገቢ ለሰብሳቢ የሰጠ ስጦታ እንዲሆን የሚያደርግ ተገልጿል።

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ግብር ገንዘብ ስር ተወሳኝ ገቢ ስር ገንዘብ መጠን መለኪያ መሠረት ለማድረግ

ገንዘብ ስር ገንዘብ ስር ተወሳኝ ገቢ ስር ገንዘብ መጠን መለኪያ መሠረት ለማድረግ

ገንዘብ ስር ገንዘብ ስር ተወሳኝ ገቢ ስር ገንዘብ መጠን መለኪያ መሠረት ለማድረግ

ገንዘብ ስር ገንዘብ ስር ተወሳኝ ገቢ ስር ገንዘብ መጠን መለኪያ መሠረት ለማድረግ

ገንዘብ ስር ገንዘብ ስር ተወሳኝ ገቢ ስር ገንዘብ መጠን መለኪያ መሠረት ለማድረግ

ገንዘብ ስር ገንዘብ ስር ተወሳኝ ገቢ ስር ገንዘብ መጠን መለኪያ መሠረት ለማድረግ

Annex 144: Summary of Public Consultation

During the preparation of this ESMF, the study team conducted various consultations and discussions with different stakeholders including beneficiaries, PAPs, government officials, and experts from different bureaus in Somali, Afar, Oromia, Tigray, Amhara Regional States and respective Zones and Woredas and Dire Dawa City Administration (see Annex 15 and Annex 12). The process was pertinent to gather their views on the implementation of the proposed transactions under the REGREP and the associated benefits and impacts. The consultations were in a round table and one-to-one discussions arrangements.

It was also found out those key aspects of beneficiaries and experts on the day-to-day collaboration and networking for sound implementation of the projects. The various meetings that were held with stakeholders and project beneficiaries provided prevailing program implementation challenges, capacity needs, and potential impacts and respective mitigation measures to the proposed projects. Minutes of meeting have been recorded in all consultation sessions at regional, city administration, and woreda levels for the preparation of this environmental and social management frame work (ESMF). Summary of of views derived from public consultations

The government officials attending in the public consultation at various levels discussed on various set of issues related to REGREP and associated environment and social benefits and impacts. The participants in general expressed their hope that the Program will solve the electricity problem.

During consultation many questions and issues have been raised by participants and the team tried to address those issues and discussed in detail in the below table 14.1.

Table 14.1: Issues raised and response

| Location of Consultation | Issues raised | response |
|--|---|--|
| Kafta Humera | <ul style="list-style-type: none"> • The area selected for Humera solar power project is very fertile ground used us farming of cash crops like Sesame and other agricultural crop products. • Considering the production capacity and type of crops cultivated, how much will be compensated for expropriation of land for the project. | <ul style="list-style-type: none"> • Considering the agricultural potential of the area, during project appraisal and ESIA preparation, the study team would consider bare land and/or less productive area. • Detail compensation and other related issues are covered in the complementary RPF which is prepared based on national framework and the industry good practices guidelines. |
| Somali Regional State, City and Zonal Administration | <ul style="list-style-type: none"> • Since the area is pastoralist area, the project will affect grazing land • What are the major benefits that the project will bring to the local community? • What will be the actual energy project proposed to the area/Solar or Wind/ according to the potential of the area. • How the government will solve the electric shortage problem of rural areas of Somali Regional State. | <ul style="list-style-type: none"> • The area which will be selected for the proposed project most probably will minimize negative impacts on grazing lands. Detail compensation and other related issues are covered in the complementary RPF which is prepared based on national framework and the industry good practices guidelines. • The project will benefit the local community in creating a job opportunity and local employment, different socioeconomic benefits, such as basic services to the local community and surroundings. • As per the potential of the area both solar and wind projects are preferable to the area. • The proposed energy projects will add their own energy supply for the increasing energy demand of the area and in general in the nation. |
| Hadigala Woreda | <ul style="list-style-type: none"> • The Woreda is suitable for solar projects than wind and it is better to focus on solar projects. • Compensation for the assets and the land must be done very carefully | <ul style="list-style-type: none"> • Although the recent study indicated that the area is potential for wind power, following further additional studies will consider including the solar power potential. • Compensation for land and any affected assets will follow and implement as per the proclamation and regulation of the country. |
| Ayisha Woreda | <ul style="list-style-type: none"> • The Woreda is potential for both solar and wind energy project. So, it is better to plan more capacity in the Woreda. • Considering the area how much will be compensated for expropriation of land • The Woreda and the project area should be benefited from the project | <ul style="list-style-type: none"> • Further plan for different types of energy projects will be proposed to utilize from the area's wind and solar production capacity. Aysha is one of the areas for wind energy production center and in the future, this will be considered for an additional power production. • Detail compensation and other related issues are covered in the complementary RPF which is prepared based on national framework and the industry good practices guidelines. |



| Location of Consultation | Issues raised | response |
|--------------------------|--|--|
| | | <ul style="list-style-type: none"> • Because of the intervention of the project within the local community, employment opportunity and other benefits will be created. |
| Debrebirhan | <ul style="list-style-type: none"> • Environmental and social impact assessment should be done before starting of the project. • Reasonable, sufficient, and timely compensation payments for the affected assets. • Adequate compensation for land and property has to be planned and executed. Compensation has to be paid prior to the start of project implementation • Participants expressed frustration and doubt on appropriate and fair compensation for their lost assets and properties. • In addition to compensation payment, livelihood restoration payment should be included. • Employment opportunity set to local community is mandatory | <ul style="list-style-type: none"> • Environmental and social impact assessment will be prepared and approved before the commencement of project's physical construction works. • Project affected households will get appropriate compensation at full replacement cost as per the Ethiopian Expropriation of Land Holdings for Public Purposes and Compensation Payment in line with the Federal Proclamation. • Compensation payment will be finalized timely and completed before the start of the project. The local Government Authorities guaranteed PAP's for securing a suitable place for resettlement having all the required social amenities, if required. • LRP also prepared and considered for affected PAPs |
| Humera | <ul style="list-style-type: none"> • Confident implementation of compensation shall be enacted and implemented by IPPs in applicable form, i.e., land to land or in cash. | <ul style="list-style-type: none"> • Compensation payment will be made as per the proclamation and regulation of land expropriation for government. |
| Dire Dawa | <ul style="list-style-type: none"> • Environmental and social impact assessment should be studied before the commencement of the project • The project must support the city administration in creating job opportunity to newly graduated students and the local community? • The city administration, impact on bio diversity, soil and other socio-economic issues must be addressed before the start of the project, as applicable | <ul style="list-style-type: none"> • IPPs is required and mandatory to prepare and get clearance of ESIA and RAP from the respective institutions before the commencement of the project to manage and address any anticipated impacts on biodiversity and socio-economic situations of the city administration. • The project will create job opportunities and related positive impacts to the city administration youths and women. |



Main issues on the discussion with Women Groups

- Power shortage is apparent in our Woreda. Therefore, the proposed program would minimize the problem and contribute to improve living standards of local communities.
- The program is essential to minimize women's burden. It is required to support the realization of the program activities. Moreover, the participants will inform and seek the support of other women to stand in favor of the program implementation.
- During the implementation of the program, women should be included in the job opportunities available as far as possible.

Main issues on the discussion with Issa Clan leaders and elders

- Participants agree to work jointly at all stages of the program implementation in the future, as it entails significant relevance to their needs. Participants believed that the proposed projects will minimize electric power outage.
- Finally, it was assured that participants will contribute all what is possible for the successful implementation of the proposed program
- The land in the woreda belongs to the people even if it is vacant. Therefore, you should consider this to avoid the problem later.
- The program is very essential as we have informed from your explanation. We will work jointly at different stage of the program for the future.
- There are graveyards in different place which seems like a bare land. Therefore, responsible bodies should give prior information during site selection. We will see such kinds of issues together before the project implementation.
- Proper/ joint planning with active public participation shall have a significant role in site selection process.
- It is good to implement this program; we believe it will minimize electric power outage. Therefore, we support the implementation of the program.
- Finally, it was assured that they will contribute all what is possible for the successful implementation of the Projects.



Annex 155: List of Photos



Discussion with Dire Dawa City Administration Mayor Office Head



Discussion with Afar Regional Administration



Oromia Regional state, Arisi zone



Arisi zone, Iteya Woreda



Discussion with administrative officials at Humera Woreda, Tigray Regional Zone



Site observations and discussion with local people at Humera



Discussion with Regional Administration Officials Ethiopian Somali Jigjiga



Discussion with Gode Woreda Administration Officials, Somali Regional state



Discussion with Eastern Shewa zone Administration Officials Debre Birhan Town,



Discussion with Debre Birhan Administration Officials



Discussion with Women at Erer Woreda Somali Region.



Women inclusive Discussion at Afar.



With Issa Clan Leaders and Elders at Adigala Woreda, Somali Region



Annex 166: Environmental and Social Clauses For Contractors Consultation

1. General

- a) The Contractor shall comply with any specific Environmental and Social Management Plan (ESMP) for the works he is responsible for. The Contractor shall inform himself about such an EMP and prepare his work strategy and plan to fully take into account relevant provisions of that ESMP.
- b) The Contractor shall prepare method statements indicating the period within which he/she shall maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.
- c) The Contractor shall adhere to the proposed activity implementation schedule and the monitoring plan / strategy to ensure effective feedback of monitoring information to project management so that impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.
- d) Besides the regular inspection of the sites by the Supervising Engineer (SE) for adherence to the contract conditions and specifications, the Owner may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. Environmental Protection Authority (EPA), regional environmental authorities or other relevant stake holders may carry out similar inspection duties. In all cases, as directed by the SE, the Contractor shall comply with directives from such inspectors to implement measures required to ensure the adequacy of rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of all works.
- e) The Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an EMP.
- f) If the Contractor fails to implement the approved ESMP after written instruction by the Supervising Engineer (SE) to fulfill his obligation within the requested time, the Owner reserves the right to arrange through the SE for execution of the missing action by a third party on account of the Contractor.

2. Dust abatement

- a) The contractor shall minimize the effect of dust on the surrounding environment resulting from earth moving sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.



- b) During the performance of the work and any operations appurtenants thereto, the contractor shall carry out proper and efficient measures, such as sprinkling with water or other means, whenever necessary to reduce the dust nuisance, and to prevent dust which has originated from his operations from damaging crops, cultivated fields, and dwellings or causing a nuisance to persons. The contractor will be held liable for any damage resulting from dust originating from his operations.

3. Noise due to construction activities

The contractor shall ensure the noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.

The national noise limit standard for the residential area in day time is 55 dB while at night is 45dB.

4. River, Stream and Creek obstruction

- a) The contractor shall ensure the existing water flow regimes in rivers, streams and other natural or irrigation channels are maintained and/or re-established where they are disrupted due to works being carried out.
- b) The contractor shall take all possible steps to prevent pollution of streams, rivers and other natural water bodies / reservoirs.
- c) Bitumen, oils, lubricants and waste water used or produced during the execution of works will not be released directly into rivers, streams, irrigation channels and other natural water bodies/reservoirs without prior treatments and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.

5. Quarrying, earth burrowing, etc.

- a) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.
- b) At the end of the construction phase, all construction sites shall be landscaped and rehabilitated to acceptable standards. The stated areas shall be first landscaped, dressed with topsoil and covered with tree planting, field sods or grass seeding.

6. Protection of archeological and historical sites



- a) Upon discovery of ancient heritage, relics or anything that might or believed to be of archeological or historical importance during the execution of works, immediately suspend and report such findings to the SE so that the appropriate authorities may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources.
- b) The contractor shall take the necessary measures for preventing that any person or equipment may damage the article or things and shall provide barricades, fences, and signals and, if necessary, protect against atmospheric agents, as directed by the engineer. Also guard service may be required by the engineer.
- c) The supervising engineer shall take the following measures:
 - Notify the relevant department of antiquities
 - Request for representative to make site inspection
 - Secession of work in the vicinity of the find until the visit of representative; and
 - Decision by the department of antiquities on possible salvage or excavation within 48-72-hours of notification

7. *Vegetation and wildlife*

- a) Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
- b) The contractor shall care, in planning, constructing, maintaining and operating temporary works such as camps, roads, spoil, stockpile and construction facilities areas, to avoid unnecessary damage to areas of particular environmental interest, such as patches of remaining forest, valuable trees and erosion sensitive areas, as well as areas in which the presence of wildlife has been noted.
- c) In case some part of forest or single trees has to be removed, or where erosion problems that may affect some portion of the permanent or temporary works are expected, and in any case where in the engineer's opinion it is beneficial for the land conservation, landscaping, seeding and planting of trees, as well as executing drainages and water control works may be required to the contractor, who shall carry out the work according to the prescriptions contained in the pertinent sections of these specifications.
- d) No valuable trees or crops shall be damaged or removed by the contractor during the execution of the works without the prior consent of the engineer.
- e) Hunting in the proximity of camps and facilities and in general in the project area is strictly prohibited, even if allowed by local rules or regulation in force in Ethiopia and or in the project region.



8. Use of material

The contractor, in as much as possible, shall use local materials to avoid importation of foreign material and long distance transportation.

9. Worksite/Camp site Waste Management

- a) All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be banded in order to contain spillage. Used oil and hydraulic fluid generated on the construction sites must be collected in a closed container and stored temporarily in a safe place and sent to an authorized recycling depot.
- b) All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.
- c) The contractor shall take all possible steps to prevent pollution of streams, rivers, and other water supplies, at or in the vicinity of the site and shall comply with applicable laws, orders and regulations in force in the country of the works concerning the control and abatement of water pollution.
- d) Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.
- e) Construction waste shall not be left in stockpiles along the road but removed and reused or disposed of on a daily basis.
- f) If disposal sites for clean spoil are necessary, they shall be located in areas, approved by the SE, for landfill and where they will not result in material being easily washed into drainage channels. Whenever possible, spoil materials should be placed in low-lying areas and should be compacted and dressed with top soil and then planted with species indigenous to the locality.
- g) The contractor shall provide all sanitary facilities (e.g. garbage collection and disposal, drinking water facilities, etc.) are provided in construction workers camps.

10. Material Excavation and Deposit

- a) The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.
- b) The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.



- c) New extraction sites:
- Shall not be located in the vicinity of settlement areas, cultural and historical sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value.
 - Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.
 - Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.
 - Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.
 - Shall have clearly demarcated and marked boundaries to minimize vegetation clearing and to avoid any unnecessary damage on other resources.
- d) Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.
- e) Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits.
- f) The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable EMP, in areas approved by local authorities and/or the SE.
- a) Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the SE and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites.

11. Rehabilitation and Soil Erosion Prevention

- a) To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.
- b) Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.
- c) Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.



- d) Revegetate the stockpiles with recommended grass species to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.
- e) Locate stockpiles where they will not be disturbed by future construction activities.
- f) The contractor shall reinstate natural drainage patterns where they have been altered or impaired.
- g) The contractor shall collect toxic materials from construction areas and keep protect in designated sites until proper disposal. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.
- h) Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.
- i) Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use and allow natural regeneration of vegetation.
- j) Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.
- k) Minimize erosion by wind and water both during and after the process of reinstatement.
- l) Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.
- m) Re-vegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

12. Water Resources Management

- a) The Contractor shall at all costs avoid conflicting with water demands of local communities.
- b) Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.
- c) Abstraction of water from wetlands shall be avoided. Where necessary, permission has to be obtained from relevant authorities.
- d) No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.
- e) Wash water from washing out of equipment shall not be discharged into water courses without pre-treated.
- f) Site spoils and temporary stockpiles shall be located away from the drainage system, and surface runoff shall be directed away from stockpiles to prevent erosion.



13. Traffic Management

- a) Location of access roads shall be done in consultation with the local community especially in important or sensitive environments. Access roads shall not traverse wetland areas.
- b) Upon the completion of civil works, all access roads shall be ripped and rehabilitated.
- c) Access roads shall be watered regularly to suppress dust emission.

14. Disposal of Unusable Elements

- a) Unusable materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures will be disposed of in a manner approved by the SE. The Contractor has to agree with the SE which elements are to be surrendered to the Client's premises, which will be recycled or reused, and which will be disposed of at approved landfill sites.
- b) Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport.

15. Repair of Private Property

- a) Should the Contractor, deliberately or accidentally, damage private property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the owner a certificate that the damage has been made good satisfactorily in order to indemnify the Client from subsequent claims.
- b) In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through the SE. This compensation is in general settled under the responsibility of the Client before signing the Contract. In unforeseeable cases, the respective administrative entities of the Client will take care of compensation.
- c)

16. Contractor's Environment, Health and Safety Management Plan (EHS- MP)

Within 6 weeks of signing the Contract, the Contractor shall prepare an EHS-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an EMP for the works.

The Contractor's EHS-MP will serve two main purposes:-



- a) For the Contractor, for internal purposes, to ensure that all measures are in place for adequate EHS management, and as an operational manual for his staff, and,
- b) For the Client, supported where necessary by SE, to ensure that the Contractor is fully prepared for the adequate management of the EHS aspects of the project, and as a basis for monitoring of the Contractor's EHS performance.

The Contractor's EHS-MP shall provide at least:-

- a description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an EMP;
- a description of specific mitigation measures that will be implemented in order to minimize adverse impacts;
- a description of all planned monitoring activities (e.g. sediment discharges from borrow areas) and the reporting thereof; and
- The internal organizational, management and reporting mechanisms put in place for such. The Contractor's EHS-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate if the Contractor's EHS-MP covers all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

16.1. Health and Safety

- a) In advance of the construction work, the Contractor shall mount an awareness and hygiene campaign. Workers and local residents shall be sensitized on health risks particularly of HIV/AIDS.
- b) Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.
- c) Construction vehicles shall not exceed maximum speed limit of 40km per hour.

16.2. Traffic safety

- a) Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.
- b) The contractor shall be responsible for the safety along the roads related to the site, and he shall take all necessary precautions for the protection of the work and the safety of the public on the roads affected by his activities.



- c) Roads subject to interference by the work shall be kept open or suitable detours shall be provided and maintained by the contractor, who shall provide, erect, and maintain all necessary barricades, suitable and sufficient flashlights, flagmen, danger signals, and signs.
- d) The contractor shall submit his weekly activities schedule and the locations of his work along the existing public roads to the authorities concerned and obtain all necessary approvals prior to commencement of the respective work.
- e) At the road crossings or in heavy traffic locations, the contractor shall carry out the work within the working hours as directed by the engineer, and after the completion of the work he shall immediately make the necessary backfill and pavement at the crossings.
- f) The contractor shall provide temporary passes and bridges to give an access to the existing villages, houses, etc., to the satisfaction of the engineer and the authorities concerned whenever he disturbs such existing way during the execution of the works.

17. Reporting

The Contractor shall prepare monthly progress reports to the SE on compliance with these general conditions, the project EMP if any, and his own EHS-MP. It is expected that the Contractor's reports will include information on:-

- EHS management actions/measures taken, including approvals sought from local or national authorities;
- Problems encountered in relation to EHS aspects (incidents, including delays, cost consequences, etc., as a result thereof);
- Lack of compliance with contract requirements on the part of the Contractor;
- Changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects; and
- Observations, concerns raised and/or decisions taken with regard to EHS management during site meetings.

It is advisable that reporting of significant EHS incidents be done "as soon as practicable". Such incident reporting shall therefore be done individually. Also, it is advisable that the Contractor keeps his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as appendixes to the bi-weekly reports. Example formats for an incident notification and detailed report are given below. Details of EHS performance will be reported to the Client through the SE's reports to the Client.

18. Training of Contractor's Personnel

The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any project ESMP, and his own EHS-



MP, and are able to fulfill their expected roles and functions. Specific training should be provided to those employees that have particular responsibilities associated with the implementation of the EHS-MP. General topics should be:-

- EHS in general (working procedures);
- Emergency procedures; and
- Social and cultural aspects (awareness creation)

19. Cost of Compliance

It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item “Compliance with Environmental Management Conditions” in the Bill of Quantities covers these costs. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable EHS impact.



Annex 177: Sample Terms of references for Safeguards specialists

General Description:

Project activities to be implemented under IPP should adhere to acceptable environmental and social safeguards. To preclude and manage any social and environmental impact EEP will have an environmental and social framework which will guide to be referred to and used by all stakeholders and implementing organ under the IPP. This document has been made available for IPP institutions who will prepare their respective safeguard instrument.

Therefore, the general objective of these terms of reference is to ensure the compliance with environmental and social safeguard requirements and safety in the project implementation. The safeguard specialist will be responsible for implementation control and monitoring of safeguard requirement in relation to several project activities which will be incorporated in the safeguard instruments especially ESMP.

The scope covers the whole project environmental oversight and social responsibilities to implement properly Bank performance standards and ensure workers occupational health and safety are well taken care of.

Position: An environment, Health, Safety and Social Team Leader

The Team Leader (TL) is mainly responsible for implementation of environmental and social management system /ESMS/. In addition the TL will oversee a team of experts to conduct and implement three core studies - ESIA, ESMP, RAP and RAP implementation support.

Under the direction of the TL the team will prepare an Inception Report, stakeholder workshops (which must meet WB performance standards requirements for notification and participation), draft and final ESIA (including ESMP) and RAP. The studies will include, but not be limited to, baseline information, monitoring methods, mitigation measures, Grievance Redress Mechanism, legislative framework, analysis of potential impacts, resettlement and livelihood restoration methods, public consultations, etc. Consultants will conduct these studies using desk top review of technical documents, site visits, consultations and workshops, outlines and drafts.

Key Tasks and Responsibilities:

- ✓ Lead teams in developing a comprehensive ESIA and RAP through managing the team's desk reviews and field work, including public consultations and stakeholder workshops.
- ✓ Serve as first Point of Contact for the client on all technical and work planning matters.



- ✓ Ensure timeliness and quality of deliverables, including: Inception Report with the detailed work plan, methodology including the details for all planned methods and time frame of the study, draft outline and agenda for field work;
- ✓ Identification and analysis of environmental and social impacts.
- ✓ Review project plan, design, cost, and bid documents to ensure environmental and social factors and mitigations are incorporated, and they are in harmony with environmental and social requirements;
- ✓ Complete the baseline environment including, physical, and biological; socio-economic and cultural environment; demographics; land tenure; social/community structures.
- ✓ Prepare and review the draft ESIA and RAP and final ESIA and RAP report.
- ✓ Undertake ESMPs to ensure compliance with the ESMF;
- ✓ Conduct necessary training workshops to the relevant regional specialist; and assist regional expert to conduct workshops to the woreda experts and beneficiaries aimed at empowering them to plan, implement, operate and maintain the system;
- ✓ Establish a monitoring and evaluation system for the implementation of the ESMF.
- ✓ Provide overall coordination and assistance in the implementation of the ESMF.
- ✓ Lead the delivery of capacity building programs for implementing institutions offices on the ESMF and produce training plan;
- ✓ Be responsible for collating information related to the environmental and social monitoring;
- ✓ Provide general technical advice and assistance regarding environmental safeguards, as well as social and resettlement.
- ✓ Communicate with vendors, contractors, and subcontractors for necessary environmental compliance;
- ✓ Manage overall program budget within approved spending levels and ensure compliance with WB rules and regulations
- ✓ Produce and document environmental and social safeguards implementation reports;
- ✓ And Undertake other duties as per the requirements of the project or as directed by Project Coordinator

Qualifications and Experience

- The assignment will require a good understanding and knowledge of social and environmental safeguards that are associated with the project and a high level of technical competence in the implementation of ESMF. The TL must therefore possess the following qualifications:



- Master's Degree in environmental sciences, environmental engineering, environmental studies, or equivalent and experience in implementation of ESIA and ESMF, preparation of an Environmental and Social Management Plan and carrying out supervision on the implementation of ESIA. Experience on environmental and social impacts and mitigation measures of industrial projects are an advantage.
- At least 8 years of relevant experience and at least 5 years of experience in supervising teams in similar assignments.

Skills and competencies:

- Experience with World Bank Safeguard Policies and Environmental Health and Safety Guidelines.
- Previous work for similar power development projects/programs/studies for World Bank/AfDB/ADB is desirable.
- Excellent writing and communications skills in English; knowledge of local languages is a plus.
- Proficiency in the usage of computers and office software packages (word processing, spreadsheet, etc) and experience in handling of web-based data and information management systems;
- Previous experience developing and drafting ESIA's, ESMPs, and RAPs for large infrastructure projects.

Position: An environmental safeguard Expert

An environmental safeguard expert will support compliance with safeguards policies and seeking opportunities to integrate sound environmental management and policies in various investment operations; He/she will be responsible to seek and develop opportunities to integrate sound environmental management and environment safeguards policies in different investment operations, lead the team in such operations and related analytical work, and enhance local capacities for implementing these policies.

The Safeguard expert will report to the project coordinator and will have the following major duties and responsibilities:

Key Tasks and Responsibilities:

- ✓ Participate in Monitoring contractor compliance concerning environmental issues with systematic inspection during construction.
- ✓ Assess the status of vegetation cover of project buffer areas in particular and the project area in general;
- ✓ Assess the baseline condition of natural resources (water, soil and vegetation) in the project area;



- ✓ Evaluate environment restoration plan in completion of a project and supervise the implementation with other environmental team. Conduct baseline survey on fauna and flora of power projects
- ✓ Work with other team members (particularly with the forester) on sedimentation control, water shade management and soil conservation in hydro power projects and hydro power project and hydro power plants.
- ✓ Evaluate impacts on wildlife in the hydro power buffer zone area
- ✓ Makes periodic survey on fauna and flora of existing power plant and suggest mitigation measures
- ✓ Participate in enhancing awareness of environmental issues in the organization.
- ✓ Assist in developing the environmental guideline, environmental monitoring plan, etc. to the power sector.
- ✓ Assist in periodic monitoring on Contractor's Compliance on occupational Health & safety at Project site.
- ✓ Assist in preparing a budget for environmental mitigation measures in ESIA study
- ✓ Participate in monitoring of clearing of areas with other environmental team and perform other related works.

Qualifications and Experience

- Advanced degree (Masters or preferably PhD) in environmental science/Environmental engineer, with a minimum of--- () years of relevant professional experience in managing and developing projects, report writing and data analysis;
- Knowledge of WB operations including strong familiarity with WB instruments;
- Demonstrated ability to lead discussions at the policy and operational levels in the following areas: environmental management, environmental sector policy, community natural resources management or climate change mitigation or adaption;
- Professional experience on analysis, synthesis and policy dialogue;
- Professional experience working closely with developing country clients;
- Professional written and spoken English.

Skills and competencies:

- Ability to work in a team, supervise and motivate a project team.
- Demonstrated capacity to lead operational and analytical tasks
- Experience in facilitating consultations and setting up grievance mechanisms
- Field experience is highly desirable



- Experience in successfully applying all environment safeguard policies to both high and low risk projects, with minimal supervision.
- Strong conceptual and analytical skills with the ability to rapidly analyze and integrate diverse information from varied sources into conclusions and actionable recommendations;
- Knowledge of climate change issues as they relate to climate resilience, disaster risk and social protection systems are desirable;
- Demonstrated capacity to manage tasks toward work plan deliverables and deliver quality technical /analytical information;
- Demonstrated capacity to work in a multi-cultural setting and with multiple stakeholders, including government entities, civil society organizations (CSOs), academia, multilateral agencies, development partners, and the private sector is needed;
- Demonstrated experience in Ethiopia on carrying out policy-relevant analyses and communicating with policymakers and local academics and researchers; and
- Willingness to travel and carry out field-based work as required.

Position: Social Safeguard Expert

The social safeguard expert will lead, formulate and articulate social development, gender and protection policy and strategies engaging governments in policy dialogue, and conducting activities to support social development and protection policy and reforms.

Undertake work in the area of social development and related fields to assist government goals in reducing poverty and improving social inclusiveness and accountability. Work within general policies, principles and goals, working directly with contractors.

Key Tasks and Responsibilities:

- ✓ Review the national legal policies on land acquisition and involuntary resettlement to verify adequacy and consistency with the WB Safeguard Policy Analyze and confirm the aspects at national and local levels that will apply to land acquisition and resettlement in the project area laws and regulations, including local practices based on the Environmental and Social Management Framework (ESMF) prepared for REGREP;
- ✓ If the project components involve involuntary resettlement as per WB Safeguard Policy, prepare a resettlement action plan (RAP) with full stakeholder participation including participation of the executing and implementing agencies. RAP should be implementable in Ethiopian context and still meet WB policy requirements as per WB's Safeguard Policy Statement;
- ✓ Determine the replacement costs of all categories of losses; and prepare an indicative budget for land acquisition and resettlement costs with specific sourcing and approval process;



- ✓ Assess the need for an Indigenous/ underserved People Development Plan (IPDP) and carry out any further indigenous people-targeted surveys, as necessary;
- ✓ Prepare a socioeconomic analysis, including a poverty profile and characteristics and determinants of primary project beneficiaries in the target areas of the proposed investment components based on a review of existing studies, data, and development plans. The analysis will include a review of poverty by gender and ethnic minority and propose specific actions to benefit vulnerable indigenous peoples and minorities;
- ✓ Analyze access to electricity, affordability, consumption levels, and consumer satisfaction across socioeconomic groups in target project areas, assess the determinants and elasticity of the demand for power by different socioeconomic groups, categorize areas where electrification would have the largest growth and poverty reduction impacts given the underlying potential of those areas, and assess the implications on employment generation for poor;
- ✓ Prepare a gender needs analysis to identify specific energy needs and preferences of poor and vulnerable women in project areas, design activities/indicators/targets responding to these energy needs to ensure gender beneficial impacts, and develop participatory gender inclusive strategies to maximize women's participation in project design, development and implementation;
- ✓ Assess and recommend ways to improve gender equity, prepare a Gender Action Plan (GAP), if necessary;
- ✓ Assist in periodic monitoring on Contractor's Compliance on occupational Health & safety at Project site.
- ✓ Review land acquisition and relocation plans of project components that involve resettlement, and assess their conformity with WB safeguard for Involuntary Resettlement, including (a) time-bound arrangements, public consultation, public disclosure, relocation, compensation for affected inhabitants, and (b) costs related to relocation, compensation for land acquisition, and right-of-way; Under this section the consultant is responsible for conducting the adequate number of public consultations in selected locations covering the entire project area to fulfill the requirements under WB Safeguard Policies;
- ✓ Incorporate all mitigation measures into the cost estimates of the proposed components; and
- ✓ Prepare the TOR for the NGO/consultant who will be in charge of the implementation of the RAPs, IPDP and GAP if necessary.

Qualifications and Experience



- Social/ Safeguard Specialist should have preferably a bachelor degree Bachelor's degree in Anthropology, Sociology, Applied Social Science or other related fields combined with specialized experience of a minimum of -----() years as Social Safeguards Specialist on a similar project, may be considered in lieu of a post graduate degree. Additional expertise on environmental sciences / environmental engineering/ environmental studies or equivalent, are considered an advantage;
- Good capacity to communicate with people from different backgrounds and positions, as well as with local and national authorities;
- Knowledge of World Bank guidelines and procedures on social safeguards, social assessment, social analysis, effective stakeholder engagement and grievance redress systems etc.
- Good command of spoken and written English is a must.

Skills and competencies:

- Ability to work in a team, supervise and motivate a project team.
- Demonstrated capacity to lead operational and analytical tasks
- Experience in facilitating consultations and setting up grievance mechanisms
- Field experience is highly desirable

Position: Occupational health and safety officers

The OHS expert prevents and eliminates injury and illness to employees and assist companies to comply with safety laws. They inspect workplaces, and minimize or eliminate hazards from processes, such as incorrect/ unsafe working methods, and materials, such as potentially toxic chemicals and power lines.

Therefore, OHS expert will undertake work within health and safety general policies, procedures, principles and goals, working directly with contractors. He or she will review, evaluate, and analyze workplaces as well as design programs and procedures to control, eliminate, and prevent disease or injury to employees.

The expert may conduct inspections and enforce adherence to laws and regulations governing the health and safety of individuals. Other tasks include:

Key Tasks and Responsibilities:

- ✓ Inspect and evaluate the environment, equipment and processes in working areas to ensure compliance with government safety regulations and industry standards. Their chief goal is to protect the employees, customers and the environment.
- ✓ They identify potentially hazardous biological, chemical and radiological materials and collect samples of them for analysis. They recommend changes to protect workers, and educate employees



on how to prevent health problems through the use of safety training programs. They also investigate accidents to identify their causes and find ways to prevent them in the future.

- ✓ Ordering suspension of activities that pose threats to workers' health and safety
- ✓ Investigating workplace accidents to identify causes and determine how such accidents can be avoided in the future
- ✓ Recommending measures to help protect workers from potentially hazardous work methods, processes, or materials
- ✓ Inspecting or evaluating workplace environments, equipment, or practices to ensure compliance with safety standards and government regulations
- ✓ Conducting safety training or education programs and demonstrating the use of safety equipment
- ✓ Assist in periodic monitoring on Contractor's Compliance on occupational Health & safety at Project site.
- ✓ Incorporate all mitigation measures into the cost estimates of the proposed components; and
- ✓ Conducting safety audit

Qualifications and Experience

- High levels of skill are needed in collecting information about health and safety laws and regulations, inspecting materials to check adherence to standards, investigating data to solve problems, preparing case reports, and providing protective services.
- They typically need a bachelor's degree in occupational health and safety or a related field such as engineering, biology, or chemistry.
- Good capacity to communicate with people from different backgrounds and positions, as well as with local and national authorities;
- Knowledge of international standards like; World Bank occupational health and safety guidelines and OSHA
- Plan and lead safety drills. Related responsibilities of the role may include ordering safety related supplies and equipment, such as first aid kits, eye washes, safety showers, automated external defibrillators, fire extinguishers and visible exits signs.
- Carefully investigate and determine the cause and solution to the root of the problem. Additionally, the workplace health and safety officer provides employees with safety tips and notice of OSHA and WB policy changes.



- Good command of spoken and written English is a must.

Skills and competencies:

- Extensive technical skills to operate complex tools that collect dust, vapors, or chemicals for testing.
- Analytical ability is crucial for crunching data into applicable information on the workplace's quality.
- Being a skilled communicator with good interpersonal skills is important to aptly convey safety instructions.
- Detail-oriented to check every operational facet for regulation compliance.
- Critical thinking and problem-solving skills will help occupational health and safety specialists develop corrections that enhance the company's procedures.



Annex 188: Sample Public Consultation plan

1. Project title _____
 2. Project Phase /Stage
 - ✓ Preliminary
 - ✓ Preconstruction
 - ✓ Construction
 - ✓ Operation
 3. Organization and Department _____
 4. Purpose of consultation _____
 5. Place of consultation _____
 6. Consultation duration Starting time _____ and ending time _____
 7. Method of consultation: / Face to face, Telephone, Written, Online/
 8. Target communities and groups i.e., disabled ethnic group, residents all adults carers other
 9. Consultation language _____
 10. Approx numbers to be consulted _____
 11. Name of person completing this form: _____
- Telephone number: _____



| Project Phase | Project Activities | Target Stakeholders | Issues Raised | Feedbacks | Remark |
|------------------------|--|---------------------|---------------|-----------|--------|
| Preliminary | <ul style="list-style-type: none">✓ Site Assessment,✓ Preliminary surveys and Mark ups✓ Site Identification✓ Stakeholder discussion✓ | | | | |
| Preconstruction | <ul style="list-style-type: none">✓ Stakeholder discussion✓ Public Notification and Identification of list of affected lands/ sites in a local newspaper; Establish eligibility cut-off date✓ Socio-Economic Survey✓ Public consultation with project affected people✓ Consultative Meetings on Environmental and Social impact, Mitigation Measures, Property Valuation, GRM✓ Mechanism of information Disclosure to PAPs and Stakeholders | | | | |
| Construction | <ul style="list-style-type: none">✓ Consultative Meetings on Environmental and Social impact and Mitigation Measures✓ Discussion and consultations on ESMP and other sub Plans implementation✓ Discussions on site specific plan requirements and implementation requirements✓ Consultation and disclosure arrangements during implementation, monitoring and evaluation | | | | |
| Operation | <ul style="list-style-type: none">✓ On the Status of the project,✓ Public consultations if there are possible unforeseen impacts and their mitigation mechanisms✓ Discussion and consultations on additional Site specific plans MP | | | | |

