PROJECT: MEKELE-DALLOL SEMERA AFDERA TRANSMISSION LINE PROJECT
COUNTRY: ETHIOPIA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND RESETTLEMENT ACTION PLAN SUMMARY

Date: March 2016

Appraisal Team

<table>
<thead>
<tr>
<th>Team Leader</th>
<th>Co-Team Leader</th>
<th>Team Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. MEKURIA</td>
<td>S. ASFAW</td>
<td>A.M. MOUSSA</td>
</tr>
<tr>
<td>Senior Energy Specialist</td>
<td>Principal Power Engineer</td>
<td>Senior Financial Analyst</td>
</tr>
<tr>
<td>ONEC.2/ETFO 7264</td>
<td>ONEC.2/EARC 8269</td>
<td>ONEC.2 2867</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N. KULEMEKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Principal Environmental Specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief Socio-Economist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ONEC.3/SARC 8452</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E. NDINHYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Principal Financial Management Officer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ONEC3/SARC 8417</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M. TADDESSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regional Procurement Coordinator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ORPF.2/ETFO 8261</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C. AHOSSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ONEC.2 3931</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sector Manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A. RUGAMBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sector Director</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G. NEGATU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regional Director</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

SUMMARY

Project Title: Mekele-Dallol-Semera-Afdera Transmission Line Project
Project Number: P-ET-FA0-011    Country: Ethiopia
Department: ONEC       Division: ONEC.2
Project Category: Category 1

1. Introduction

The Governments of Ethiopia through the Executing Agency Ethiopian Electric Power, has carried out a feasibility study and detailed design for a power line to extend the national grid to previously unserved areas in Afar and Tigray Regions. The whole study consists of Feasibility Study, Environmental and Social Impact Assessment (ESIA), Resettlement Action Plan (RAP), Detailed Design and Tender Documents of the Mekele-Dallol Transmission Line and the Semera- Afdera Transmission Line.

The project comprises the following components: (i) Construction of 130 km, 230 kV double circuit Transmission -line from Mekele to Dallol. At Mekele substation, two 230 kV outgoing line bays will be added. A new substation will be built at Dallol. (ii) Construction of 175 km, 230 kV double circuit Transmission-line from Semera to Afdera. One 230 kV outgoing line bay will be added at the Semera substation and a new substation will be constructed in Adera. (iii) Rural electrification component which entails the construction of medium (33 kV) and low voltages lines as well as the supply of energy meters and ready boards to the villages and communities along the two transmission line corridors.

This ESIA Summary has been prepared in accordance with AfDB’s Environmental and Social Assessment Procedures (ESAP), the project is classified as Category 1 which calls for a full ESIA (Environmental and Social Impact Assessment) to be carried out. In addition, over 200 persons will be involuntarily displaced by the proposed project. A full Resettlement Action Plan (RAP) has been prepared and is included as an Annex 1.

2. Project Description and Justification

The proposed Mekele-Dallol & Semera-Afdera high voltage transmission lines, 130 & 175 km in length respectively will be constructed between Mekele substation, Dallol (new substation) and Semera substation, Adfdera (new substation). The existing Mekele substation will be upgraded with 2 outgoing line bays. The Dallol substation will be newly constructed, with 230/132/33 kV, 2 X 125 MVA, 132/33 kV 20/25 MVA, 2 incoming 230 kV lines bays and 3 outgoing 132 kV line bays and the existing Semera substation will be expanded with 1 incoming line bay of 230 kV and Adera newly constructed, with 230/33 kV, 1 X 31.5 MVA and 1 incoming 230 kV line bay.

Administratively, the Mekele-Dallol transmission line project area lies within the administrative parts of Tigray and Afar Regions and Semera-Afdera transmission line project area lies within the administrative parts of Afar Regions in the North eastern part of Ethiopia. The projects traverse 5 Zones, 1 sub city 10 Woredas all of which are found in Tigray & Afar Regional States.
The project is intended to: (i) provide sustainable power for North & North Eastern part of the country and potash mining industries, (ii) allow the transmission of reliable power from the interconnected system (national grid), (iii) facilitate the implementation of the rural electrification program and (iv) reduce high transmission losses and improve system efficiency, stability and reliability. The project will thus result in increased economic activities and the enable Ethiopia to further exploit its hydro & other renewable energy potential and enhance industrialization and commercial business as well as improving the livelihood of the rural population for sustained economic growth. As such, the proposed project is in line with the Bank CSP and the Government’s GTP-II (2015/16-2019/20).

3. Policy, Legal and Administrative Framework

Policy

The Constitution: The Constitution of the FDRE is the supreme law of Ethiopia where all national policies, laws and regulations as well as the institutional frameworks of the country are emerged. The Constitution of the Federal Democratic Republic of Ethiopia, Proclamation 1/1995, has several provisions to mitigate the adverse impacts on people who might be affected during the implementation of government projects.

Art. 40.3 Of the Constitution states those both rural and urban lands as well as all natural resources are under public ownership. There is no private ownership of land in Ethiopia. As per FDRE Constitution, either rural or urban land could not be sold or mortgaged or transferred.

However, the Constitution gives right to both rural and urban people to use the land and to be benefited from its development. Any interference on the right to use the land such as expropriation shall entail compensation. This is certainly provided in Art. 40.7 Of the Constitution which says that “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 labour or capital.” Moreover, Art. 40.8 reinforce this provision by providing for expropriation of private property by the government for public purposes subject to the payment in advance of compensation commensurate with the value of the expropriated property.

The other important among the provisions of the Constitution is Art 44.2. It states “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”.

Thus, persons who have lost their land as a result of acquisition of such land for the purposed project works are entitled to be compensated to a similar land plus the related costs arising from relocation; assets such as buildings, crops or fruit trees that are part of the land etc.,

Environmental Policy: The Environmental Policy of Ethiopia (EPE) was issued in April 1997. The EPE supports Constitutional Rights through its guiding principles. 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 policy seeks to ensure the empowerment and participation of the people and their organizations at all levels in environmental management activities, and to raise public awareness and promote understanding of the essential linkage between the environment and development. In addition, the EPE has outlined its guiding principles. Sectoral and cross-sectoral environmental policies will be checked against these principles to ensure consistency. Environmental Impact Assessment (EIA) policies are included in the cross-sectoral environmental policies. The EIA policies emphasize the early recognition of environmental issues in project planning, public participation, mitigation and environmental management and capacity building at all levels of administration.

The policy establishes the Ministry of Environment and Forestry (MoEF) as the body to harmonize Sectoral Development Plans and to implement an environmental management program for the country. It also imparts political and popular support to the sustainable use of natural, human-made and cultural resources at the federal, regional, zonal, woreda and community levels.

**Environmental Framework Legislation**

**Proclamation on Institutional Arrangement for Environmental Protection:** The objective of Proclamation No. 295/2002 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, in order to ensure sustainable use of environmental resources, thereby avoiding possible conflicts of interest and duplication of efforts. It is also intended to establish a system that fosters coordinated but differentiated responsibilities among environmental protection agencies at federal and regional levels.

This Proclamation re-established the MoEF as an autonomous public institution of the Federal Government of Ethiopia. It also empowers every competent agency to establish or designate an environmental unit (Sectoral Environmental Unit) that shall be responsible for co-ordination and follow-up, so that the activities of the competent agency are in harmony with this Proclamation and with other environmental protection requirements.

Furthermore, the Proclamation stated that each regional state shall establish an independent regional environmental agency or designate an existing agency that shall be based on the Ethiopian Environmental Policy and Conservation Strategy, be responsible for:

- Ensuring public participation in decision-making processes,
- Coordinating the formulation, implementation, review and revision of regional conservation strategies, and
- Undertaking environmental monitoring, protection and regulation.

**Environmental Impact Assessment Proclamation No-299/2005:** The main objective of this Proclamation is to make EIA mandatory for specified categories of activities undertaken either by the public or private sectors. Among other things, the proclamation defines the different legal organizations concerning Environmental Impact Assessment, outlines the contents of EIAs, and determines the duties of different parties concerning EIAs.

The general provisions of the Proclamation include:
Implementation of any project that requires EIA, as determined in a directive, is subject to an environmental clearance or authorization from the MoEF or Regional Environmental Agency (REA).

The MoEF or the relevant REA, depending on the magnitude of expected impacts, may waive the requirement for an EIA.

Any licensing agency shall, prior to issuing an investment permit or operating license for any project, ensure that the MoEF or the relevant REA has authorized its implementation.

A licensing agency shall either suspend or cancel a license that has already been issued in the case that the MoEF or the REA suspends or cancels the environmental authorization. Approval of an EIS or the granting of authorization by the MoEF or the REA does not exonerate the proponent from liability for damage. To affect this Proclamation, the MoEF issued an EIA Guideline document, which provides details of the EIA process and its requirements.

**Proclamation on Environnemental Pollution Control**: The Proclamation on Environmental Pollutions Control No.300/2002 is mainly based on the right of each citizen to live in a healthy environment, as well as the obligation to protect the environment of the country. The primary objective of the Proclamation is to provide the basis from which the relevant ambient environmental standards applicable to Ethiopia can be developed, and to make the valuation of these standards a punishable act. The proclamation states that the “polluter pays” principle will be applied to all persons. Under this proclamation, EPA (replacer MoEF) is given the authority to ensure implementation and enforcement of environmental standards and related requirement to inspectors assigned by EPA or Regional Environmental Agencies.

**The Rural Land Administration and Land use Proclamation No.456/2005**: The Constitution of FDRE leaves the detailed implementation of the provisions concerning use rights over rural land to be determined by subsequent specific laws to be issued at both the federal and regional levels. Accordingly, at the federal level, the Rural Land Administration and Land use Proclamation (Proclamation No.456/2005) was enacted in 2005 to further determine the land use system and use rights in the country. The Proclamation provides that land administration laws to be enacted by regions should be based on the provisions provided therein and specifies the basic principles of rural land distribution and utilization including the scope of land use right which Regional laws should grant.

**Legal Framework for Expropriation and Compensation.**

**Land tenure**: The Constitution of Ethiopia states that the right to ownership of rural and urban land, as well as all natural resources, is exclusively vested in the state and in the people of Ethiopia. Article 40 of the Constitution indicates that land is a common property of the nation, nationalities and the people of Ethiopia, and shall not be subjected to sale or to other means of transfer. Based on this guiding principle, some regional states have issued policies on rural land use and administration. Among these policy documents, the ones relevant to the project under Consideration is Rural Land Use and land Administration.

The policy guiding principles include:

- Land ownership is exclusively vested in the State and people of the region and shall not be subjected to sale or to other means of exchange,
Where the holding right changes under any change of holding, payment of due compensation is to be made by the new holder to a previous and lawful holder for improvements he/she had made on the land by his/her labour or capital, and

Any land user is obliged not to mismanage or miss utilize the land provided to him/her with the land resources thereon.

**Administrative Framework**

**Ministry of Water, Irrigation and Energy (MoWIE):** The Ministry of Water, Irrigation and Energy is the regulatory body for the energy sector, *inter alia*. Based on the delegation from Ministry of Environment and Forestry, the whole draft ESIA document will be submitted to the Ministry for reviewing purpose and then they will give their comments and recommendations and finally give approval/certify the implementation of the project and monitoring the performance of the development project will also be undertaken by the Ministry.

**Ministry of Environment and Forest (MoEF):** The rights and obligations of the Environmental Protection Authority (EPA transferred to the newly established Ministry of Environment and Forest by Proclamation No. 803/2013, 29th July 2013. The Ministry 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 sectorial 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.
4. Description of the Project Environment

Mekele-Dallol & Semera-Afdera 230 kV Transmission Line Project is located entirely in Tigray & Afar Regional States. The basic details of the region, where the line crosses are given below.

The proposed route line will cross three Zones, namely, Mekelle town special zone (Central), Southern (South East) and Eastern Mekele Zones of Tigray Regional State and 1st sub city zone & zone 2 Afar zones of Afar Regional State. The Woredas that are traversed by the proposed transmission line are Quilha, Enderta, Atsbi woneberta and Kilete awulalo of Tigray and Kunoba, Berahale & Dallol of Afar Woredas. The total area of the Tigray region is 41,409.95 km² and of Afar Region 72,052.78 km².

Land use pattern of Tigray Regional State

<table>
<thead>
<tr>
<th>Land use</th>
<th>Percentage in hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built up area</td>
<td>12,960</td>
</tr>
<tr>
<td>Cultivated land</td>
<td>2,667,710</td>
</tr>
<tr>
<td>Grazing /grass land</td>
<td>1,512,160</td>
</tr>
<tr>
<td>Vegetated or bush/shrub land</td>
<td>954,090</td>
</tr>
<tr>
<td>Wet land</td>
<td>5,590</td>
</tr>
<tr>
<td>Bare land</td>
<td>1,640</td>
</tr>
<tr>
<td>Water body</td>
<td>1,760</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,155,910</strong></td>
</tr>
</tbody>
</table>

Table 1: Land cover in hectare of total zonal and regional area

Land use pattern of Afar Regional State

<table>
<thead>
<tr>
<th>Land use</th>
<th>Percentage of total hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivated land</td>
<td>0.1</td>
</tr>
<tr>
<td>Grazing /grass land</td>
<td>15</td>
</tr>
<tr>
<td>Shrub land</td>
<td>32</td>
</tr>
<tr>
<td>Woodland</td>
<td>2</td>
</tr>
<tr>
<td>Natural forest</td>
<td>0.1</td>
</tr>
<tr>
<td>Exposed soil, and rock</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 2: Land cover as percent of total zonal and regional area

**Topography:** The general topographic nature of the proposed route alignment of the Mekele - Dallol transmission line comprises mainly flat, rolling to flat with some gentle slopes mixed with hilly landscape. Altitude of the Region ranges between 500 to 2084 masl, hot lowlands region less than 500 masl and dry-desert 125 meters below sea level, which is at Dallol, Danakil depression, in the Afar region.

The general topographic nature of the Semera-Afdera transmission line alignment comprises mainly of flat, rolling to flat with some gentle slopes mixed with hilly landscape.
**Climate:** The variation in altitude is primarily the cause for variation in climate.

**Mekele-Dallol transmission line:** Dallol is the terminal point of the project, which is one of the hottest and driest places on earth and Dallol site is extremely hot with the temperature range from 25\(^\circ\)c in monsoon to 48\(^\circ\)c in the dry season. After noon temperature frequently reaches 54\(^\circ\)c at Dallol. In the tropical region of general project area, average annual temperature ranges from 20-30\(^\circ\)c and rainfall in between 401-800 mm. While, in agro-climatic zone of desert region mean annual temperature in between 30-40\(^\circ\)c and rain fall less than 400 mm.

The rainy season extends from May to September. The small rain falls between February and April and heavy rain is from July to September. The month of November, December and January are generally dry with ground frost at night.

**Semera-Afdera transmission line:** The project covers overall total length of 175 km and entirely situated within agro-climatic- zone of hot lowlands region (less than 500 m.a.s.l) and dry-desert (102 meters below sea level, which is at Afdera in the afar region). Afdera is the terminal point of the project, which is one of the hot and dry places with the average temperature range from 25\(^\circ\)c in monsoon to 45\(^\circ\)c in the dry season. In general project area mean annual temperature ranges in between 25\(^\circ\)-40\(^\circ\)c and rain fall less than 400 mm.

The rainy season extends from May to September. The small rain falls between February and April and heavy rain is from July to September. The month of November, December and January are generally dry with ground frost at night.

**Soils:** The soil type along the project area is predominantly characterized by Leptosol in both tropical and hot lowlands dry-desert agro-climatic zones. Leptosol is very shallow and have somewhat limited agricultural potential. The other soil types currently existing in the tropical region of the project site are Cambisol, Calcisol and Gypsisols. These soil types have relatively good physical and chemical properties for agricultural production.

**Water Resource:**

**Mekele-Dallol:** The Project area is endowed with water supply sources from seasonal rivers and unprotected wells. According to data obtained from project affected Woredas water supply offices, the total clean water supply coverage has reached currently 90 %. The urban and rural disparity indicates that 85 % and 70.6%, respectively. Majority of the rural and urban population have access to water for drinking from protected well and piped lines.

**Semera-Afdera:** The main sources of water supplies both for human and livestock population are seasonal rivers, motorized deep well, shallow and hand dug unprotected and protected wells. There is scarcity of water in the project area at dry season.

**Biological Environment**

**Flora:** In general, the vegetation coverage of project area is low. Due to natural factors (disaster, agro-climatic change, etc.) and anthropogenic activities (expansion of agricultural land, housing construction, increased fuel wood demand, etc...) have made the area with limited species diversity.
In the tropical agro-climatic zone of the project site, the dominant tree species currently existing are Acacia, Eythrina, Cordia, Ficus, and Albizia. In the hot lowlands and dry-desert agro-climatic zone of the project affected sites are characterized by dwarf shrub grass land, dry thorn bush land vegetation types. The dominant tree species are Acacia bussei, commiphora species.

**Fauna:** Some common wild animals currently existing in the area are: Hyena (*Crocuta crocuta*, Monkey (*Cercopithecus aethiops*), Duiker (*Sylvi Capra species*), Wild cats (*Felis lybica* (*Lepus Sp*), Dormouse (*Graphinus parvus*), Abyssinian hare (*Lapwabissiniclus*) and Dikdik (*Madaaquguentheri*).

**Birds:** During the field assessment, based on data sources obtained from the project affected areas there is no important bird areas.

**Protected Areas in the Region:** During the study period, sites of ecological importance, like designated wild life park; reserved or protected areas; sanctuaries etc. areas at direct ZOIs along the project route were not identified and recorded.

**Socio Economic Environment of Tigray Region**

**Population:** The total population of the Regions (Mekele & Afar) according to Central Statistical Abstract (CSA), 2014 projection is 4,960,003 and 1,678,000 respectively the average population density of the Tigray Region is 120 persons per km² and 23 persons per km². Accordingly, the population densities for the general project area and ZOIs are 71 and 9 person per square kilometre respectively.

**Agricultural Production:** Major agricultural products produced in the Tigray Region are cereals: such as, teff, sorghum, maize, wheat and Sorghum, millet. The major perennial crops types identified in the project area and recorded during field assessment period are mango, lemon, orange, papaya, sugarcane, hops and, based on field observation and data sources obtained from agricultural sector office of affected Woredas.

Livestock rearing is the dominant economic practices for means of subsistence in general project affected Afar Region and the most commonly owned types of livestock sheep, goat camel, mule & donkey.

**Education:**

**Mekele-Dallol transmission line:** In the last decade, encouraging efforts have been made in the regions (Tigray & Afar) to expand educational opportunity to reach un-addressed section of the population. As a result, the the existing total number of schools in general project Woredas are 50. Out of these schools: 41 primaries, 3 secondary, 3 preparatory and 3 TEVT schools are established and enrollment for general project Woreds and ZOIs are 33,297 and 8,640 respectively.

**Semera-Aflera transmission line:** The existing total number of schools in general project Woredas of Afar region are 46. Out of these schools: 40 primaries, 3 secondary, 2 preparatory and 1 TVET schools. The figures for ZOI are 4 and all school types existing at ZOIs are primary. Enrollment at all education level for general project Woreds and ZOIs are 30,120 and
The gross enrollment figures in terms of sex composition in both general project Woredas and ZOIs are low for females as compared to males.

**Health:** Health is important social indicator that has enormous development implication.

*Mekele-Dallol transmission line:* Based on data sources obtained from six general project Woredas and ZOIs health office, the basic health service coverage in the general project area has now reached 90% (2015). In the project Woredas there are 6 Health Centers, 8 Health Clinics, 72 health posts and 81 pharmacies/drug shops. Total number of health institution currently existing in general project Woreda and ZOIs are 167 and 24 respectively.

*Semera-Afdera transmission line:* Based on data sources obtained from four general project Woredas and ZOIs health office, the basic health service coverage in the general project area has now reached 68.69% (2015). In the project Woredas there are 9 Health Centers, 4 Health Clinics, 21 health posts and 45 pharmacies/drug shops. Total number of health institution currently existing in general project Woreda and ZOIs are 79 and 4 respectively.

**5. Project Alternatives**

*Route Selection:* Based on feasibility report analysis, assessments of route option have been undertaken. The criteria used for the design and the selections of the least impact corridor were:

- Technical: topography, watercourses, soils, access, poorly drained and floodable sectors, power line and road crossings, number of angles, etc.;
- Environmental: vegetation, protected areas, main watercourses, birds and mammals migratory corridors, fauna reproduction areas, etc.;
- Socioeconomic: number of villages affected, tourism infrastructure (lodges, etc.), permanent agriculture, livestock, tree plantations, military grounds, etc.

From the technical and environmental analysis, the only route option during the feasibility studies that have been selected in terms of design, environmental, social and economic advantage are the routes alignment along the existing roads to facilitate ease of construction and maintenance and also for ease of implementing the rural electrification program since most settlements are along the existing roads.

*No-Project Alternative:* From the environmental and social points of view, this option although preferable, because it avoids creation of adverse impacts associated with the projects, it is the least preferred option, because it holds back the country’s economic development. In terms of socio-economic advantage the projects implementation are preferable and outweigh the negative impacts resulting from compensation of some households. Implementation of the project fulfills the Ethiopian development strategy of poverty alleviation and meeting of the sustainable development goals of the country.
6. Potential Impacts

Positive impacts:

*Provision of reliable electric power supply to Industries and Mines:* Provision of electric power supply for currently existing Potash companies, salt extraction investors and other companies demanding electric power supply in the Northern Regions of Ethiopia is critical in fulfilling the Country’s Growth and Development Plan.

Implementation of the proposed projects will complement the national electric supply network system by increasing the grid by 327 km, from which 130km is Mekelle Dallol and 197 km Semera afdera transmission lines. These and other positive impacts would help to increase the overall economy of the people along the projects influence areas and that of the country as a whole.

*Electricity Connections and Improved Local Socio-economy:* The proposed project will enhance electricity connectivity, promote energy efficiency and facilitate the development of rural electrification projects that will increase electricity connectivity in Northern Ethiopia. Higher electricity availability would in turn spur development of small industries, including tourism, and rural-based industries such as agro processing.

During community consultation meetings, it was clear that demand for electricity was high. The communities were convinced that availability of electricity would stimulate economic activities, especially in trades such as welding, water pumping, motor-vehicle, mobile phone battery charging, etc., and also enable them to have lighting in households and schools as well as for watching television.

*Employment Creation:* The project is expected to generate employment to local communities in the project area at least in semi-skilled and unskilled jobs. Selection of workers shall give equal opportunity to both women and men. Furthermore, the contractors shall be expected to issue a code of conduct to employees to ensure that there are no tendencies by one gender group to intimidate and abuse the other. Construction camps shall be equipped with facilities specific to each gender group.

During construction period it is expected that a work force of about 230–250 and 350-380 people will be employed in the construction works of Mekelle-Dallol and Semera Afdera transmission line projects respectively. As the result, the workforce recruited from the community area and its immediate surroundings shall earn income for themselves and their families.

*Health and Education:* Regarding health services in the projects area, data sources indicate that the health institutions existing in the area have electric power problems for refrigeration purposes of vaccine and other medicines, sterilization of medical equipment and medical laboratory services. Hence, the implementation of the proposed projects is essential to health facilities for the installation of cold storage facilities for the safe transportation and storage of vaccines and other vital medications. Therefore, the implementation of the proposed transmission lines will bring improvements in the establishment and functions of various social facilities in the targeted sites, such as: health, education, water supply and other social facility services currently existing and planned to be under taken in the area.
**Improved Agricultural Storage and Processing:** If improved availability and reliability of power in the area results in a better access to electricity for communities and households, it can improve storage and processing of agricultural products, thus increasing their market value or extending their selling period. Storage using refrigerators will preserve meat, milk products, fruits and vegetables which can be sold or consumed the following day. These improvements could result, on the long-term, in better prices for agricultural products and increased incomes for farmers.

**Gender Empowerment:** Local electrification would have a significant impact with regard to women’s work burden as pumped water and electricity would spare them the arduous daily responsibilities of collecting water and fire wood. The availability of electricity would also help girls’ school attendance due to reduction of house workload and eventually allowing them access to better jobs. It can be expected that women will receive better services from health centres given the availability of electricity, refrigeration for medicines and vaccines.

**Avoidance of Carbon Emissions:** Investments before the implementation of the projects in the area are using diesel based generators. Hence, implementation of the proposed project has positive environmental impacts in terms of increased use in clean/renewable energy source from the national grid. Therefore, connecting the potash mines, salt making companies and other industries will result in replacing diesel generation and consequently lead to reduction of carbon dioxide emissions, which is a significant greenhouse gas contributor.

**Negative Impacts:**

**Land Take:** The proposed Mekelle Dallol 230 kV power transmission line is about 130 km in length. Accordingly, the transmission line will have a free corridor of 40 meters Right of Way (ROW), about 520 ha of land are expected to be affected due to the formation of ROW. The total numbers of towers assumed to be erected are about 340 with an average span of 310 meters. Each tower pad is expected to occupy about 100 m2 and altogether a total of about 3.4 ha of land will be affected permanently due to the erection of tower pads. Besides, there will be a permanent loss of land to be affected by the construction of new substation at Dallol, which is designed to occupy about 16 ha (400m X 400m) of land area. The total amount of land area impacted by the line on Tukuls is about 0.2 ha. Some 5% (6.5 km) increment has also been made for the construction of access roads. Hence, about 0.70 ha of land would be affected by construction of access road temporarily. Therefore, the total land take is about 540.30 ha of land.

Semera-Afdera transmission line has the total length of 196km with a free ROW width of 40m. As a result, about 784 ha of land are expected to be affected. The total numbers of towers assumed to be erected are 632 with an average span of 310 meters. Each tower pad is expected to occupy 100m2 and all together, therefore, totally about 6.3 ha of land will be affected permanently by erection of tower pads. The proposed project requires construction new substation at Afdera town, which is designed to occupy about 9ha (300mx300m) of land. Some 7 % (7ha) increment has also been made for the construction of access roads. Therefore, the total land take is about 806.3 ha of land.

**Impact on Settlements:** There will be about 41 dwelling houses (5 Tukuls + 36 CIS) belonging to 41 households (40 male-headed + 1 female headed) consisting of 246 family members (PAPs
– project affected persons) directly affected by the project. These are located within 9 kebeles (8 rural + 1 urban) along the Mekele-Dallol alignment.

**Impact on Land Use:** For Mekele-Dallol alignment, which has 540.3 ha of land take, land use and land cover types comprises crop land, settlement sites, bare and forest land covered by bush and shrubs. Of the total land uses to be affected, the forest land covered by scattered bushes and shrubs take the largest proportion, which is 302.9 ha or cover 56.06% of the total, while, the remaining land use and land cover types; crop land is 120 ha, bare land 100ha and settlement area 0.20ha.

For Semera-Afdera alignment which has 806.3 ha of land take, land use and land cover types comprise about 93% (750 ha.) bare land and the remaining 7% (56 ha.) comprises land covered by bushes and shrubs.

**Impact on Crop Production:** During the construction phase, in areas where lines traverses agricultural land, the farmers’ seasonal agricultural activities may be disrupted and on farm crop may also be affected temporarily. With regard to Mekele-Dallol transmission line about 120 ha of land would be affected temporarily by ROW formation, but for Semera-Afdera transmission line project and its new Substation will not affect crop lands and crop production either temporarily or permanently.

**Impacts on Trees:** The proposed transmission line routes will affect bushes and shrubs as a result of the formation of right off way (ROW) and shall be cleared during the construction period.

**Impacts on Historical, Cultural, Archaeological and Religious Sites:** During the line assessment, there were no significant archaeological cultural, historical and religious artifacts along the proposed transmission lines that would be directly impacted by the project. However, during construction period if there are any accidental “chance finds” of archaeological artifacts, the workers and surveyors shall report to the Environmental & Social Unit of EEP.

**Impacts on Wetlands:** There is no wetland along the entire route of the transmission line.

**Impacts on Avifauna:** Bird strikes and mortality are important in areas with high bird densities, such as waterfowl breeding colonies or staging areas. Water areas constitute seasonal or short-time stopovers for migratory birds. These are especially important for species that pursue their flight towards rainy forests. Large predatory birds, including night active birds are the ones most affected by HVTL.

Various migratory birds are considered endangered as they visit fifty sites in Ethiopia every year (according to Ethiopian wildlife and natural history of society, there are 69 sites so far registered as important bird areas in Ethiopia) at international level. However, in the study area, there are no known migratory bird routes or important bird area to be affected by the proposed transmission lines.

**Impact Protected and Reserve Areas:** At present, there are no known wild life national parks, reserve areas or sanctuaries due to be crossed or affected by the proposed transmission lines and new substations.
Soil Erosion: In Ethiopia up to 400 tons of fertile soil per hectare are lost annually from areas with little vegetation coverage and where no effective soil conservation practices are integrated. Therefore, during erection of tower pads, construction of new substation and access roads of the proposed Mekele Dallol and Semera Afdera 230 KV transmission lines, there will be clearing of vegetation and excavation works, which may lead to loss of top soils by wind and water erosion. The use of machineries during the construction period may also exacerbate the problem of soil erosion in the area. The risk of erosion would be higher where there is an increase in land slope.

Occupational Health and Safety Impacts: Occupational health and safety hazards specific to electric power transmission and distribution projects primarily include: Live power lines, working at height, Electric and magnetic fields, Exposure to chemicals. Some work accidents (e.g., fall from heights, hit by object, car accidents, etc) may also occur mainly due to lack of safety precautions. Therefore, contractors should regularly provide adequate safety equipment and orientation to their employees. Due to the extreme environmental conditions of the proposed Project baseline ambient air quality and temperature are very high. The workers will be exposed to dehydration and hyperthermia (heat stress) related to the extreme temperatures.

Cumulative Impacts: In the project area, a few projects are currently ongoing and some are planned. As a result of different developmental projects in the area, cumulative impacts are likely to arise in addition to Mekele-Dallol and Semera-Afdera transmission line project. The developmental projects that may give rise to cumulative impacts are the following: (i) The Ethiopian Government is in the process of constructing a double lane paved road from the town of Agula (situated 35km northeast of Mekele City) through Mekele to the town of Berahale and up north to Bada Village. (ii) The Ethiopian Roads Authority is in the final stages of planning a government road through the Danakil Depression between the Hamad Ela Village and Afdera Town. (iii) Potash companies are involved in the exploration of potash in Afar region around Dallol area. The Companies have undertaken their Environmental and Social Impact Assessments and received approval from the Ministry of Mines.

The cumulative impacts that would result from the combination of the Mekelle-Dallol-Semera-Afdera transmission line Project and the above mentioned projects future developments in the immediate Project Area include: (a) Impacts on Air Quality; (b) Impacts to the Noise Environment; (c) Impacts on soil.

7. Mitigation / Enhancement Measures and Complimentary Initiatives

Mitigation and Enhancement Measures:

Resettlement and Compensation: To mitigate impacts from involuntary displacement, a Resettlement Action Plan for Mekelle-Dallol transmission line has been prepared and the summary is included as Annex 1 of this ESIA Summary. Compensation concerning households and communities directly affected by the transmission line route and are estimated so far at a total amount of 115,771.81 USD for dwelling houses and structures and 62,752.92 USD for crops and trees. EEP shall ensure that the Resettlement and Compensation Plan is implemented prior to the commencement of any civil works on any section of the transmission lines.

Mitigation for Vegetation Clearance: The most important measure concerning the natural environment is targeted at the right-of-way (ROW), where a selective clearing of vegetation
mainly shrubs) is recommended. Clearance for construction work and inspection shall be to no more than absolutely necessary. At completion of construction work areas not needed anymore should be revegetated as far as the line security is not impeded.

Ensure re-vegetation at all work sites at the earliest time and select tree species suitable for soil conservation purposes immediately following the construction works. Following the completion of works the contractor shall prepare areas for rehabilitation erosion prone areas by re-vegetation. It is preferred to engage local communities to plant different trees, shrubs and grasses.

**Mitigation for Potential Bird Strikes**: In the event that Bird strikes occur, collision of birds with the line can be minimized through reducing the number of conductor levels taking into account also the 230 kV line where running in parallel. This will require different type of towers for the concerned line stretches and fitting of flapper devices on the shield wires which will make them more visible and reduce collisions significantly.

**Mitigation for Soil Erosion**: Regarding soil erosion, some technical measures include sensitive planning of access ways, careful construction work as well as re-cultivating cleared areas with suitable sediment binding grasses such as Cynodon dactylon, Pennisetum clandestinum, Cenchrus ciliaris, Chloris roxburghania and Eragrostis superba, avoiding use of heavy machinery in the clearance of the way-leave and use of better gabions instead of stone walls.

MekelleDallol new substation site is found in a very hot weather condition area under steep slopes. During rainy season there is severe erosion and flooding problem around the proposed substation area. This flooding hazard will have an impact on the substation. To mitigate this flooding problem, the contractor should reshape the steep slope of the area; construct appropriate conservation measures like cut off drain, retaining wall and ditches. The engineer should design these conservation structures based on the catchment area characteristics. The activity will be monitored by Ethiopian electric power (EEP), environmental and social office.

**Mitigation for Occupational Health and Safety Impacts**: The Contractor (s) will be required to develop Construction Health and Safety Plans in compliance with the Bank’s Operational Safeguards 5 on Labour Conditions, Occupational Health and Safety and International Best Practices. The Contractor and Supervising Engineer shall each recruit a full- time Occupational Health and Safety Officer during project implementation and ensure that safety equipment and personal protective equipment are provided to staff at all times.

**Complimentary Initiatives**:

**Rural Electrification**: The proposed project includes a rural electrification component which is expected to electrify 27 villages along the Mekele – Dallol transmission line alignment and 9 villages along the Semera-Afdera route alignment. This initiative will involve the construction of medium 33Kv distribution lines and low voltage lines (11 Kv) to facilitate household connections.

**Provision of Energy Saving Stoves**: To enhance the benefits of the project to women and poor households, it was proposed that the project shall provide Energy Saving stoves using sustainable cooking fuels to 25,000 households in Afdera and Semera Regions at a unit cost of ETB 120 per stove. The initiative shall complement and draw synergies from programs that
are being funded by the Norwegian Government and UNDP with the involvement of NGOs. The estimated total cost of the intervention is USD 200,000 covering educational and social mobilization campaigns and training of both men and women in the technology. This shall be conducted by the Directorate of Alternative Technologies at Federal and Regional Levels.

**Distribution of Solar Panels and Energy Saving Bulbs:** The project shall consider supporting the communities within the project area with solar Panels and lamps. Tigray and Afar are among the emerging regions which are under the fast track implementation program. The solar lamps are for households that are isolated and that are unlikely to be connected to the national grid in the near future. The proposed project shall target 20 public infrastructure such as schools, health facilities and local administrative offices in the project area. An estimated budget of USD 200,000 is proposed for the purchase, transportation, installation and maintenance of the institutional solar PV panels.

In addition, the project shall distribute two (2) energy saving bulbs to each newly connected customer in the project area. This will augment the on-going program and also reduce the burden of high operating costs of electricity at the household level. A total of 40,000 bulbs at an estimated cost of USD 200,000 shall be procured and distributed as part of the project.

**8. Expected Residual Effects and Environmental Hazard Management**

Environmental costs for this project shall comprise the compensations established under the RAP (Annex 1), plus a financial evaluation of non-compensated damages and disturbances borne by the receiving natural and socioeconomic systems. Compensation concerning households and communities directly affected by the transmission line route and are estimated so far at a total amount of 115,771.81 USD for dwelling houses and structures and 62,752.92 USD for crops and trees. Non-compensated residual impacts are anticipated to variable extents (punctual to regional) and, although their value cannot be established at this stage, they are for the most part expected to be of minor magnitude.

As for the project’s environmental benefits, these concern mainly the new employment and local business opportunities during the preconstruction and construction phases. The magnitude of these economic benefits for nearby communities is expected to be medium, although temporary.

For the management of hazards during the construction of substations and the transmission lines, the contractor shall comply with the following:

- Safe handling and storages of hazardous materials.
- Take the necessary course of action for safe disposal of hazardous materials.
- Clean up any spills of hazardous materials right away.
- Suppress fires on or adjacent to the construction or ancillary sites.
- In case of spill of hazardous materials, relevant departments will be informed at once and deal with it in accordance with the spill contingency plan.

**9. ESMP Implementation and Monitoring Program**

16
Responsibility for monitoring of the ESMP belongs to the Executing Agency i.e EEP. In close collaboration with concerned ministerial authorities, EEP will undertake the creation of a Project Implementation Team that will facilitate the implementation of the project.

The Project will contract a supervising consulting firm to undertake the supervision of the construction works. Within the supervision consultant’s team, there will be provision of staffing for an Environmental Expert to supervise the implementation of the ESMP and a Social Expert to supervise the implementation of the RAP.

The implementation of the ESMP will be the responsibility of the Contractor. Once contracted, the Contractor(s) will be expected to develop site specific Construction ESMPs and Site Health and Safety Plans (HASP). For the RAP implementation, EEP will either recruit a firm or NGO for support.

The Federal MoWIE will oversee the environmental activities associated with the transmission lines. The office of agricultural and rural development, health departments and other stakeholders will be involved with their specific responsibilities in the environmental and socio economic activities. Their responsibilities are exercised in the different stages, pre-construction, construction, operation and maintenance phases.

Environmental and social mitigation management and monitoring cost has been prepared for each transmission line. The total estimated costs for mitigation for Mekele – Dallol line is estimated as ETB 10,883,428.6 or 521,736.75USD). The cost covers expenses for compensation, environmental management, monitoring and capacity building/training programs. While, the estimated cost for Semera Afdrea 230 Kv power transmission line is ETB 67,452,311 or 3,233,571.97USD.

Table 9-1: Mitigation and Monitoring Costs

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Mekelle- Dallol</th>
<th>Semera - Afdera</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost in ETB</td>
<td>Cost in USD</td>
<td>Cost in ETB</td>
</tr>
<tr>
<td>1</td>
<td>Compensation for dwelling houses</td>
<td>2,415,000.00</td>
<td>115,771.81</td>
</tr>
<tr>
<td>2</td>
<td>Compensation for annual crop loss</td>
<td>1,309,026.00</td>
<td>62,752.92</td>
</tr>
<tr>
<td>3</td>
<td>HIV/AIDS intervention</td>
<td>910,000.00</td>
<td>43,624.16</td>
</tr>
<tr>
<td>4</td>
<td>Soil and water conservation activities &amp; afforestation</td>
<td>2,100,000.00</td>
<td>100,671.14</td>
</tr>
<tr>
<td>5</td>
<td>Environmental Monitoring</td>
<td>950,000.00</td>
<td>45,541.71</td>
</tr>
<tr>
<td>6</td>
<td>Capacity building/Training</td>
<td>2,210,000.00</td>
<td>105,944.39</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>9,894,026.00</td>
<td>474,306.14</td>
</tr>
<tr>
<td></td>
<td>Contingency 10%</td>
<td>989,403.00</td>
<td>474,306.63</td>
</tr>
<tr>
<td></td>
<td>Grand total</td>
<td>10,883,428.6</td>
<td>521,736.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14,024,768.01</td>
</tr>
</tbody>
</table>

Exchange rate 1USD=20.86 ETB

During the study period, the ESIA Team has used interview method to consult the selected stakeholders at Federal, Regional and Zonal levels. While, Focus Group Discussion (FGD) and interviews have been applied for woreda, sub-city/city administration and kebele level stakeholders. Various meetings were also conducted with different local government administrations in Mekelle Sub-city Special Zone and Semera Logia city Administration officials, representatives of sector offices of Agricultural and Rural Development, Health, Education, Culture and Tourism. The local community and project affected persons as well as the representatives of the Potash Companies were also consulted.

There was broad support for the implementation of the project from all stakeholders. The stakeholders believe that the transmission lines project is immensely important to the lives of residents along the project target areas in terms of providing electric power, better access for improvement of other social services, like health, market places and educational institutions. Therefore, social acceptability of the Project is unquestionable and it has been validated during public consultation period with local people along the proposed route alignments.

The stakeholders view the project as having potential positive impacts on Eco-Tourism development and in improvement of other social facility services in the targeted areas. The stakeholders requested that payment of compensation be done in accordance with Proclamation No 455/2005 and regulation No 135/2007; provision of employment opportunities to the local population during construction; provide health awareness program in collaboration with the project affected sites health sector offices during project implementation; consider supplying electricity to rural and urban areas along the route alignment. The Potash companies view the proposed project as vital to their operations and efficient extraction of Potash from the mines.

Therefore, after the completion of the study, the summarized reports of the project study can be disclosed to the public through mass media such as radio, television and the national newspaper by the Ministry. The other possible way is to publicize the projects on EEP’s website. The report shall be distributed to the public relation offices at the projects affected regional, zonal and Woreda offices for information and comments. On the Bank’s side, this summary shall be posted on the Bank’s website for a period of 120 days prior to presentation of the project to the Board.

11. Conclusion

From the environmental and social points of view, the proposed Mekelle Dallol and Semera - Afdera 230 kV power transmission line projects poses minimum impacts on the existing biophysical and socio-economic environments. The overall mitigation cost as compared to the total project cost is quite low. It does not exceed 1% of the total project cost. Therefore, it is highly recommended to implement the selected schemes (Mekelle Dallol and Semera Afdera 230 kV power Transmission Lines projects), so as to supply energy reliably and meet the demands required in the projects area in particular, and the country in general.

The proposed project will definitely facilitate industrial development and expansion in the country. In addition, the said projects will also improve the rural socio-economic structures as well as the livelihood of the rural poor communities.
The ESIA study revealed that for Mekelle Dallol Transmission Line, the number of PAPs affected by the project are more than 200 and hence a full resettlement plan (RAP) has been prepared and attached as an Annex. The Semera Afdera transmission line route there were no PAPs. Moreover, there are no ethnic minorities or tribal people in and around the project area whose traditional life style could be compromised through the development of the proposed transmission lines.

The project is feasible for implementation provided the mitigation and monitoring measures are implemented.
Project Title: Mekele – Daloll, Afdera Transmission Lines  
Project Number: P-ET-FAO-011  
Country: Ethiopia  
Department: ONEC  
Division: OINEC.2  
Project Category: 1

1. Description of the project, project area and area of influence

The proposed has two main line components: the Mekele-Dallol transmission line and the Afdera-Semera transmission line with associated substations. The Mekele-Dallol is a 230 Kv electric power transmission line located about 778 km from the capital Addis Ababa, along Addis Ababa – Dassie -Mekale town Asphalt road, at its first site (initial); while, 908 km along Addis Ababa – Dessie-Mekelle-Atsbi-Wukero-Berahile town asphalt road at its second site (terminal point). The total length of this project line is 130 km. Administratively, the proposed Mekele-Dallol line lies within Tigray and Afar Regions in the North eastern part of Ethiopia. The main components of this line are:

- Construction of 230 kV double circuit 130 km transmission line from Mekelle existing Substation to Dallol new substation;
- Double circuit tower, two shield wires and one Optical fibres core Ground Wire (OPGW);
- Construction of a new substation at Dallol requiring about 16 ha (400 X 400 meters) of land; and
- Construction of temporary access roads to tower sites requiring about 0.70 ha of land.

The second line, the Afdera-Semera transmission line is aimed at supplying electric power to Afdera Town and the surrounding areas. The line is located in the north eastern parts of Afar National Regional State. This line has the following components:

- Construction of New Substations at Afdera, requiring about 9ha (300 m x 300 m) of land; and
- Construction of 230 kV single circuit 196 km transmission line from Semera Town’s existing substation to Afdera newly selected substation site.

2. Potential impacts

Mekele-Dallol Transmission line:
(i) Land Impacts: The proposed Mekelle Dallol 230 kV power 130 km transmission line Project will have impacts on the existing land use, both temporarily and permanently. This will be as result of construction of the transmission line, erection of tower pads, construction of new substation and access roads. Accordingly, the transmission Line will have a free corridor of 40 meters Right of Way (ROW). As a result, during the construction period, about 520 ha of land are expected to be affected temporarily within the ROW.
The total numbers of towers assumed to be erected are about 340 with an average span of 310 meters. Each tower pad is expected to occupy about 100 m$^2$ and altogether a total of about 3.4 ha of land will be affected permanently due to the erection of tower pads. Besides, there will be a permanent loss of land, 16 ha (400m X 400m), as a result of the construction of new substation at Dallol. In the process, residential areas occupied by Tukuls and CIS will be affected permanently taking approximately 0.2 ha of land. In addition, 0.7 ha of land shall be affected through the construction of the 6.5 km access road. Therefore, a total of about 540.30 ha of land shall potentially be affected as the result of the project.

(ii) Impacts on Residential Areas and Community Services: There will be about 41 dwelling houses (5 Tukuls + 36 CIS) belonging to 41 households (40 male-headed + 1 female headed) consisting of 246 family members (PAPs – project affected persons) directly affected by the project. These are located within 9 kebeles (8 rural + 1 urban). The average size of a Tukul house is 20 m$^2$; while that of a CIS (roofs covered by iron sheet, walls made of wooden materials and plastered by mud, floors half masonry) is 70 m$^2$. The unit cost for each Tukul is 15,000 ETB (USD 719.08 at 1 USD=20.86). While, for CIS (70 m$^2$) is 65,000.00 ETB (USD USD). Therefore, out of 5 Tukuls and 36 CIS, the total cost for houses is 2,415,000 ETB or USD 115,771.80.

(ii) Impacts on Crop Production: The proposed 230 kV transmission line will affect some of the croplands and crop productions temporarily. The new substation site of Mekelle-Dallol however does not impact on any crop land nor crops. Therefore, the cultivated lands to be occupied by the proposed transmission line will be about 120 ha. The estimated cost of crops temporarily damaged will be about ETB 1,788,000, and the loss for permanently affected crops will be about ETB 190,000. The overall compensation will be ETB 1,978,000.

Afdera – Semera:

Based on anticipated impacts from the ESIA study, no impacts shall be realized warranting the preparation of a RAP. However, the land use and cover types that will potentially be affected permanently consist of:

- Approximately 6.32 ha of bare land for erection of tower pads; and
- An estimated 9 ha bare land for newly construction of substation at Afdera.

The affected land is inhabited and unused shrub and bushes which are empty. Therefore, against the above background, the present RAP is prepared for the Mekelle Dallol power Transmission line project (lot I) only, and not for Semera - Afdera (lot II) line.

3. Organizational responsibility

This section outlines and describes the institutional arrangements within the executing agencies, provision of adequate resources to the institution, interagency participation, the capacity and commitment of the institution to carry out the RAP and other associated issues to the said resettlement planning, implementation and evaluation responsibilities. The EEP is the executing agency of the Project and has extensive experiences in preparation and implementation of a number of RAPs that were prepared for energy sector projects (hydropower, transmission lines). Accordingly, in the implementation of the RAP, EEP has the
overall responsibility of managing and budgetary allocation; and coordination with federal and regional authorities in the planning and implementation of the project.

The Environment, Health, Safety and Quality (EHS&Q) Department has the following responsibilities:

- Prepare the implementation plan document.
- Provide the technical support in training and related activities, etc.

The Environmental and Social Unit of the Project Performance Monitoring and Control Management Office will monitor and evaluate the implementation of the RAP. However, the Unit shall be strengthened to improve its environmental and social organizational capacity. The EEP Management has committed itself to strengthen and provide support for the Unit. The Mekele - Dallol and Industry Zone Project Coordination office will be responsible for overall project construction, procurement, coordination and implementation matters of the RAP. The Mekele Dallol project field Site Office shall handle overall day today project site coordination including implementation of the RAP activities. It will also handle all inter agencies (NGOs, local community based organization); and coordination responsibilities at the field level.

4. Community participation

The involvement of local community members and other stakeholders in any development project ensures the sustainability of the project under consideration. Field visit and survey activities on communities, including disclosure planning have been carried out in major rural towns and villages along the route alignments of transmission lines. These were carried out between April 4 and May 3, 2015.

**Summary of Local Communities Consultations Results:** The following are a summary of issues discussed with PAPs and communities during the field visit and study period. All consulted community members unanimously agreed on the implementation of proposed Project. The communities believed that the realization of the proposed project will improve the socio-economic development of the areas, and that it shall bring improvements in existing infrastructure and delivery of social services such as education, health, water supply etc.). The project shall attract developmental investors and tourists to the area. All communities recommended that the project affected households should get appropriate and timely compensation and shift to suitable areas before the start of construction works. Project targeted communities in general and PAPs in particular should be given priority in all project employment opportunities as appropriate. Since most of the sites crossed by the transmission line do not have electricity for lighting, the project should consider power supply for lighting homes.

**Summary of Consultations with Wereda Administration Officials:** The Consultant’s team has consulted with Wereda officials to grasp their views on the Road Project. The officials noticed that the construction of the project is one of the key development issues of the respective Weredas. They believed that the realization of the proposed road project will solve the existing problem of poor access to the area. Finally, they agreed to support the implementation of the project by all means as much as they can. As an outcome of the consultation with each Wereda Administration, the following consensuses have been reached with the officials:
(i) To provide land for construction camps and other associated sites, replacement land for the relocation of affected persons, if any.

(ii) To respect the ROW and prevent people to build any new houses, fences, etc. in the designated ROW width after the cut-off date.

5. Integration with host communities

In the case of Mekele – Dallol and Afdera – Semera transmission lines project, there is no requirement for resettling of PAPs outside of their present area or locality since the said project is linear. For PAPs who may lose their houses, these could move to back side of their existing plots and be able to construct new houses.

6. Socio-economic studies

The proposed transmission line project is located in the north eastern part of Ethiopia, in Tigray and Afar regions. The Tigray and Afar regions are two of the nine regional state members of Federal Democratic Republic of Ethiopia (FDRE). The regions are subdivided into Special Zone, Zones, Woredas and kebeles. Administratively the impacted communities belong to 6 woredas of Quiha, Enderta, Atsbiwonebera, Kileteawulalo (in Tigray), and Kunoba and Berahole in Afar; and Dallol (sub-city). The line traverses 9 kebeles in total.

The population from the 2007 national populations and housing census of Ethiopia, was projected to 2015 to be 916,513, of which 51%(468,181) are males, and the remaining 49% (448,332) are females. However, the population within the zone of influence (ZOI) was estimated at 70,270 persons, of whom 51% (35,838 males) and 49% (34,432 females). In terms of residency, in the general project affected (Mekelle Town + 6 woredas) areas, about 38% or 346,991 (176,713 males and 170,678 females) are living in the urban sites, the remaining 62% or 569,522 (291,868 males and 277,654 females) reside in rural areas. The total number of households that would be affected by the proposed project are 41 (40 male-headed + 1 female headed) consisting of 246 family members (PAPs) in the 9 kebeles (8 rural + 1 urban kebeles). the average number of person per family was 6.

In terms of occupation, educational attainment levels and source of income, the census revealed that about 85% have as primary occupation farming and animal husbandry. Major annual crops grown in the area are teff, sorghum, maize, wheat and millet. While perennial crops include: mango, lemon, orange, papaya, sugarcane and hops.

The average land holding per household is 0.5 ha. While secondary occupation to supplement income include family remittances, selling of agricultural products, trees for fire wood and charcoal making. It is known that the area commonly has food deficits. Own food production accounts only for 0.01% of their food intake, 0.99% remains as food deficit. The deficit is partly alleviated by government and family assistance. While, in the project targeted site of Tigray region, the poor household manage 20-30% of their food intake; 40-50 % remains as food deficit. The deficit is partly alleviated by consumption of wild foods. Such as: Cactus fruits and wild animals. Regarding housing features, most (99%) of houses in the urban areas are corrugated iron roofed, while in rural areas 85% are tukuls; in addition are mobile houses in the Afar region.
With regard to education and health facilities, the existing total number of schools in general project Woreda are 50. Out of these schools are, 41 primary, 3 secondary, 3 preparatory and 3 TEVT schools. In the project area, there are 6 schools, all primary. On health, the basic health service coverage in the general project area is 90% (2015). The total number of health institutions currently existing in general project woreda and ZOIs are 95 and 24 respectively. The total number of health professionals in the general area 239 and in project area 32. There is a shortage of health professionals, and lack of equipment and tools. The leading cause of morbidity is malaria. With regard to clean water supply, the project area is endowed with seasonal rivers and unprotected wells. The total clean water supply coverage is 90% which has contributed to reduction in most water borne diseases.

7. Legal framework, including mechanisms for conflict resolution and appeal

The Constitution of FDRE provides the detailed implementation of the provisions concerning tenure rights over rural land to be determined by subsequent specific laws to be issued at both the federal and regional levels.

The Rural Land Administration and Land Use Proclamation: Accordingly, the Rural Land Administration and Land Use Proclamation No. 456/2005 was issued in 2005 to further determine the land use system and land use rights in the country or at the federal level.

The 1960 Civil Code of Ethiopia on Expropriation: This law contains relevant provisions regarding expropriation of property for public purposes considered to be in the public domain (Arts.1444 -1488).

Expropriation of Land Holdings for Public Purposes and Payment of Compensation, Proclamation No. 455/2005: The objective of the proclamation is to define the basic principles that have to be taken into consideration in determining compensation to a person whose landholding has been expropriated.

FDRE Council of Ministers Regulation (No. 135/2007): The regulation provides the bases for property situated on land holdings expropriated for public purposes. The regulation provides the bases for compensation of affected properties and to assist the displaced or affected persons to restore their livelihood.

8. Dispute Resolution Mechanism

According to the Civil Code, in the case of dispute on the amount of compensation between the competent authorities and the owner of the expropriated immovable property, an arbitration appraisement committee shall intervene and if necessary fix the amount of compensation. If the interested party or the competent authorities do not agree on the decision of the arbitration appraisement committee according to Article 1477, appeal could be made within three months from the decision of the committee. In line with the Civil Code, the Resettlement/Rehabilitation Policy Framework of EEP also explains in the procedure for handling the grievance. Thus, 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 PAP are not satisfied with what has been proposed by the amicable means, then the litigation is settled by
the local government’s courts. EEP Resettlement / Rehabilitation Policy Framework discuss compensation procedures, methods of valuation, consultation and grievances procedures, in line with the Constitution and the Civil Code. It is well recognized in the EEP Resettlement / Rehabilitation Policy Framework in that development projects should not be realized at the expense of the project affected people. While Article 1473 does not mention about the composition of the members of the committee, except stating—committee shall comprise such members, the project Dispute committee shall have, at a minimum the following members:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Representative of Woreda Council</td>
</tr>
<tr>
<td>2</td>
<td>Representative of Woreda Social Court</td>
</tr>
<tr>
<td>3</td>
<td>Respected Affected Kebele Community Elder</td>
</tr>
<tr>
<td>4</td>
<td>Respected Affected Kebele Community Elder</td>
</tr>
<tr>
<td>5</td>
<td>Respected Affected Kebele Community Elder</td>
</tr>
</tbody>
</table>

In addition, where the case shall prevail, members from local NGO or Community Based Organization shall be incorporated into the membership.

*Flow charts illustrating the various steps is provided below:*

```
A PAP not satisfied with compensation or with the process

Satisfied-Settled

Appeal to Implementing Committee (IC)

A PAP not satisfied

Appeal to Grievance Resolution Committee (GRC)

Re-examine by IC

Satisfied-Settled

Examination by GRC
```
Comparison between AfDB and Local Legislation

There are no gaps between AfDB policy and legal frameworks that would prevent the implementation of proposed Project. However, there are some few differences between the AfDB and the project country policy and legal frameworks in general but not in conflict with the procedures to be followed in compensating the PAPs.

The table below illustrates the situation:

<table>
<thead>
<tr>
<th>S /n.</th>
<th>Issues considered for gap analysis</th>
<th>comparison of gaps between Ethiopia and AfDB policy/legal provision</th>
<th>Filling of the Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ethiopia’s policy/legal provision</td>
<td>AfDB policy/legal provision</td>
</tr>
<tr>
<td>1</td>
<td>Provision for relocation assistance/transitional support</td>
<td>No provision for transitional assistance/support No Provision for relocation, transitional</td>
<td>OS provides for support in relocation.</td>
</tr>
</tbody>
</table>

GAP ANALYSIS/ COMPARISON OF AFDB POLICIES AND ETHIOPIA ON RESETTLEMENT AND COMPENSATION
2. Making of any specific recognition for Project affected Squatters or illegal settlers

| Does not make any specific accommodation for Project affected Squatters or illegal settlers, other than recognition of some use rights, such as settlers can claim rights to the land. Those without formal legal rights to lands or claims to such land are not eligible for compensation of project affected land and provision of resettlement assistance |
| All PAPs are recognized regardless of legal or no legal rights to lands or claims to such land are recognized and eligible for compensation |
| The project affected people shall be provided with formal legal documents or officially written letter for the land use right and claims of the project affected property on the land to implementing agency, to be eligible for compensation. |

3. Vulnerable groups

| Ethiopian law makes no specific accommodations for potentially vulnerable groups. Such as: women; children; elderly people; disabled people; ethnic minorities; the landless and those living under poverty line. |
| OS2 provides requirement to support vulnerable and extremely poor. |
| Project shall implore local communities (NGOs, CBOs) to provide assistance to the vulnerable where necessary during relocation. |

9. Institutional framework

Although number of different institutions may be involved in the implementation of the RAP, the following are considered to be the major institutions for the proposed Project’s RAP implementation:

At Federal Level:
- Ministry of Water Irrigation and Energy (MOWIE)
- Ministry of Finance and Economic Development (MOFED)
- Ministry of Environmental Protection and Forest (MOEF)
- Ethiopian Electric Power (EEP)

The EEP is the most responsible for the implementation of the RAP. It will be in charge of monitoring through its agents who will be members of the RICs, hence shall be able to coordinate, inspect and supervise RAP implementation.

At Regional and Zonal Level:
At local level:
Practical activities of RAP implementation will be carried out at local level which shall include wereda official, town and municipalities. Therefore, involvement of different stakeholders at the local level will be crucial for the smooth implementation of resettlement and rehabilitation processes of the project affected people. Important roles shall include allocating suitable resettlement site for the project dislocated persons; participate in the implementation of Resettlement Action plan; organizing Resettlement Implementation Committees; payment of compensation; and participate in monitoring. Other important players at district (woreda) level are: Agriculture and Rural Development, Health, Active NGOs, CBOs, Religious Leaders, Kebele Administration, and EEPC at District level.

10. Eligibility

The eligibility criteria for the displaced persons are such that those who have formal legal right to land (including customary and traditional rights recognized by the law of the Country) shall be eligible. Those who do not have formal legal rights to land at the time the census begins but have a claim to such lands or assets, provided that such claims are recognized under the laws of the country or become recognized through a process identified in the resettlement plan shall also be eligible. Eligibility to receive compensation is usually established through a cut-off date. Affected people who are settled in the area prior to the cut-off date, usually the date of census, are eligible persons (EPs). People who settle in the project affected area after the cut-off date will not be considered for compensation. Hence eligibility to receive compensation in this particular case is July 30, 2015 the date the survey and census were completed.

Entitlement Matrix

This RAP is based on the National and AfDB`s Policy Framework and other relevant laws and practices of the Government of Ethiopia. The resettlement entitlement matrix shown in the table below is based on these legal, administrative and policy frameworks and recognizes different types of losses associated with dislocation and resettlement. These include the loss of house, and crop and other agricultural properties.

<table>
<thead>
<tr>
<th>Type of Loss/ Benefits</th>
<th>Application</th>
<th>Definition of Entitled Persons (EP)</th>
<th>Entitlement</th>
<th>Expected Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of crop land</td>
<td>Land affected by ROW</td>
<td>Owner(s) : a person with</td>
<td>Commensurate replacement land</td>
<td>Replacement for lost land</td>
</tr>
</tbody>
</table>
### Valuation of, and compensation for losses

The strategy adopted for compensation of the affected properties/assets follows the Federal Government and Regional Government laws and regulation as, well as, the project financier/AfDB’s requirements. The project affected populations even if they are not displaced from their current location, they may be made to live in economically unviable situations because of loss of land, crops, assets and housing structures. Hence, in such situations PAPs will be offered full resettlement packages. Infrastructures and Services affected by the construction works of the project need to be replaced or restored to its original level or in an improved manner. The compensation procedures and approach in this RAP will adopt the following three steps:

<table>
<thead>
<tr>
<th>Loss of crops</th>
<th>Standing crops on land affected by ROW</th>
<th>Owners of crops</th>
<th>Advance notice to harvest crops. Grant equal to market value of crop lost plus cost of replacement of seeds</th>
<th>Compensation for standing crops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of residential land plots</td>
<td>Residental land plot</td>
<td>Owner(s) of residental structures</td>
<td>Commensurate replacement residential land.</td>
<td>Replacement for lost land.</td>
</tr>
<tr>
<td>Special Assistance to vulnerable groups</td>
<td>Land / structures on ROW</td>
<td>Aged and disabled, widows</td>
<td>Social assistance from Kebele</td>
<td>Social assistance</td>
</tr>
<tr>
<td>Other unanticipated Impacts</td>
<td>Unforeseen impacts will be documented and mitigated based on the principles of the National and AfDB`s resettlement Policy.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. **Valuation of, and compensation for losses**

The strategy adopted for compensation of the affected properties/assets follows the Federal Government and Regional Government laws and regulation as, well as, the project financier/AfDB’s requirements. The project affected populations even if they are not displaced from their current location, they may be made to live in economically unviable situations because of loss of land, crops, assets and housing structures. Hence, in such situations PAPs will be offered full resettlement packages. Infrastructures and Services affected by the construction works of the project need to be replaced or restored to its original level or in an improved manner. The compensation procedures and approach in this RAP will adopt the following three steps:
(i) Establishment of Property valuation committees: Woreda level Property valuation committee is established at each of the project' woredas. Based on Proclamation no 455/2005. The property valuation committees will provide PAPs with details of compensation estimates, measurement of all affected assets and properties that PAPs will be losing. The compensation estimate and valuation will be reviewed by the resettlement/compensation committee prior to effecting compensation payment.

(ii) Assessment of properties and assets: All properties & assets affected by the project will be assessed at a full replacement cost, which is based on the present value of replacement.

(iii) Establishing unit rates: Unit rates are established for each of the expropriated assets and properties due to the construction works of the transmission lines on the basis of current market value. The basis for valuation is Proclamation 455/2005 and AfDB policy on Involuntary resettlement. Valuation of affected assets and properties will be carried out by experienced and skilled valuators. Proclamation 455/2005 states that "The valuation of property situated on land to be expropriated shall be carried out by certified private or public Institutions or individual consultants on the basis of valuation formula adopted at the national level." In order to provide PAPs with adequate compensation for assets & properties, proper valuation will be undertaken by the valuation committee & reviewed by the resettlement/compensation committee. The valuation to compensate for disruption, psychological and emotional disturbances could not be quantified easily. Hence arbitrary amount could be set depending on the impact and above all, such families shall be accorded special care from NGOs and CBOs in the area for psycho-social support.

12. Identification and selection of resettlement site, site preparation and relocation

It is envisaged that the proposed project’s anticipated impacts will be mitigated without making any resettlement for PAPs outside of their present localities. Therefore, identification of alternative sites, selection of resettlement sites, sites preparation and relocation will not be undertaken.

13. Shelter, infrastructure and social services

The proposed project does not require resettlement or relocation outside of their villages or Kabeles; therefore there is no need of plan, which is prepared to provide or finance housing infrastructure and social services.

14. Implementation schedules

The Implementation process is assumed to begin at least eight months before the start of actual construction works (e.g. latest when the invitation for prequalification of contractors is issued) and has to be completed before the start of the actual construction work. Based on these assumptions the RAP implementation schedule has been prepared as presented in the Chart below:
<table>
<thead>
<tr>
<th>No.</th>
<th>Phase/Activity</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
<th>Month 7</th>
<th>Month 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Establishment of RIC &amp; Property Valuation Committee</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Awareness Creation &amp; Issuing of legal Notification for Land compensation</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>ROW Survey and Determination of Amount for Compensation Payment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Identification of Land for Resettlement</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Payment for Compensation</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Preparation of Land for Resettlement</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Construction of new House/Structure</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Payment of displacement allowance</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td>PAP move to new House/Structure</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.8</td>
<td>Support for vulnerable Groups</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.9</td>
<td>Monitoring of RAP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. Costs and budget

The table, below, summarizes the Implementation costs of the RAP as per the described items of expenditure. The total cost of the RAP including Administrative and monitoring costs and contingencies is ETB 6,919,595.20.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Compensation Amount in (ETB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Building Structures</strong></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Residential Houses, (Tukul/Cottage Type)</td>
<td>75,000.00</td>
</tr>
<tr>
<td>1.2</td>
<td>Residential Houses, (CIS Type)</td>
<td>2,340,000.00</td>
</tr>
<tr>
<td><strong>Sub Total 1</strong></td>
<td></td>
<td>2,415,000.00</td>
</tr>
<tr>
<td>2</td>
<td><strong>Compensation for Loss of Crop / Farming Lands</strong></td>
<td>1,309,026.00</td>
</tr>
<tr>
<td>3.1</td>
<td>Special Assistance Vulnerable Groups</td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td>Female HH (1 in no)</td>
<td>408.00</td>
</tr>
<tr>
<td>(b)</td>
<td>Elders (3 in no)</td>
<td>1224.00</td>
</tr>
<tr>
<td>4</td>
<td>Committees implementing the RAP</td>
<td>89,835.00 (Prov.Sum)</td>
</tr>
<tr>
<td>5</td>
<td>STI/STD and HIV/AIDS alleviation program me</td>
<td>910,000.00 (Prov.Sum)</td>
</tr>
<tr>
<td>6</td>
<td>RAP Monitoring in (1SUBCITY+6 Weredas</td>
<td>950,000.00</td>
</tr>
<tr>
<td><strong>Total (1+2+3+4+5+6)</strong></td>
<td></td>
<td><strong>6,230,496.00</strong></td>
</tr>
<tr>
<td>7</td>
<td>Administration of RAP (10% of Total)</td>
<td><strong>623049.60</strong></td>
</tr>
<tr>
<td>8</td>
<td>Contingencies (10% of Total)</td>
<td><strong>623049.60</strong></td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td><strong>6,919,595.20</strong></td>
</tr>
</tbody>
</table>

16. RAP Monitoring

Monitoring will have to be undertaken during and after the entire resettlement process in order to ensure that the plan is implemented in accordance with the institutional framework. Monitoring and evaluation will be a continuous process, coordinated by EEP who will take stock of all expropriation compensation reports and discuss it on regular basis. After completion of the resettlement /rehabilitation operations, it is expected that PAPs will have a better or improved way of life compared to their prior resettlement situation. Therefore, resettlement /rehabilitation operations need to be monitored with regard to performance and compliance with the RAP objectives.

*The Actors in the monitoring and evaluation process include:*

- The Environmental and Social Experts of EEP (for planning, coordination and monitoring)
Municipality and woreda administration (for monitoring and evaluation)

PAPs and NGO’s or private consultants as required (for evaluation)

Ministry of Environment and Forest /Regional offices

Ministry of Water Irrigation and Energy (MOWIE)

The frequency of monitoring will be determined by the magnitude and complexity of the operations. Field visits by EEP will be conducted at least once a month. Municipalities and woreda administrations will conduct their own monitoring, but when possible, this will be done together with EEP. The MoWIE will be the responsible body to review the results of monitoring and evaluation. For each project with adverse social impacts, a monitoring and an evaluation plan of the mitigation measures will be established. The scope of the plan will, however, take into account the size of the social impacts to be mitigated while respecting the basic monitoring principles.

The plans will describe:

- The internal monitoring process,
- Key monitoring indicators (provide a list of monitoring indicators, which would be used for internal monitoring),
- Institutional (including financial) arrangements,
- Frequency of reporting and content for internal monitoring, process for integrating feedback from internal monitoring into implementation,
- Financial arrangements for external monitoring and evaluation, including process for awarding and maintenance of contracts for the duration of resettlement,
- Methodology for external monitoring,
- Key indicators for external monitoring, focusing on outputs and impacts,
- Frequency of reporting and content for external monitoring and process for integrating feedback from external monitoring into implementation, and
- Analysis of the environmental and social performance or record of each sub-project

The Environmental and Social Experts of EEP, following the plan described, will conduct internal monitoring. The concerned local administration (either woreda or municipality) will also conduct its own monitoring in collaboration with the EEP.