Myanmar National Electrification Project
Environmental and Social Management Framework

Volume 1: Main Report

June 27, 2018
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### Abbreviations

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<th>Description</th>
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<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>CE</td>
<td>Citizen Engagement</td>
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<td>CERC</td>
<td>Contingency Emergency Response Component</td>
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<td>CPF</td>
<td>Country Partnership Framework</td>
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<td>DFID</td>
<td>Department for International Development</td>
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<td>DP</td>
<td>Development Partner</td>
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<td>DRD</td>
<td>Department for Rural Development</td>
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<td>EMP</td>
<td>Energy Master Plan</td>
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<td>ESCOP</td>
<td>Environmental and Social Code of Practice</td>
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<tr>
<td>ESE</td>
<td>Electricity Supply Enterprise</td>
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<td>ESMF</td>
<td>Environmental and Social Management Framework</td>
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<td>ESMP</td>
<td>Environmental and Social Management Plan</td>
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<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<td>GAD</td>
<td>Township General Administration Department</td>
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<td>GoM</td>
<td>Government of Myanmar</td>
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<td>GRM</td>
<td>Grievance Redress Mechanism</td>
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<td>HH</td>
<td>Household</td>
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<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
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<td>IDA</td>
<td>International Development Association</td>
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<td>IEE</td>
<td>Initial Environmental Examination</td>
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<td>IFC</td>
<td>International Finance Corporation</td>
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<td>IPP</td>
<td>Indigenous Peoples Plan</td>
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<td>IPPF</td>
<td>Indigenous Peoples Planning Framework</td>
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<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
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<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>kWh</td>
<td>Kilowatt hour</td>
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<tr>
<td>LV</td>
<td>Low Voltage</td>
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<tr>
<td>MEPP</td>
<td>Myanmar Electric Power Project</td>
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<tr>
<td>MESC</td>
<td>Mandalay Electricity Supply Corporation</td>
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<tr>
<td>MLFRD</td>
<td>Ministry for Livestock, Fisheries and Rural Development</td>
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<tr>
<td>MIGA</td>
<td>Multilateral Investment Guarantee Agency</td>
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1. Executive Summary

1.1. Description of the National Electrification Project (NEP)

The Myanmar National Electrification Project (the Project), funded by the World Bank through a loan of US$ 400 million and implemented by the Ministry of Electricity and Energy (MOEE) and the Department of Rural Development (DRD) in the Ministry of Agriculture, Livestock and Irrigation (MOALI) will aim to: help increase access to electricity in Myanmar.

The expected results of the Project include new household connections in urban and rural areas across the country. Also, the project will help establish and support a coordinated sector-wide institutional framework for the implementation of national electrification program, and strengthen institutional capacity of implementing agencies, including both public and private sector active in the grid rollout and off-grid pre-electrification.

The grid roll-out program will not only improve the well-being of the affected population by better lighting, telecommunications and entertainment, but also enable income-generation opportunities and enhanced productivity. Importantly, the program will prioritize connections for health clinics and schools, particularly in poor and vulnerable areas, to maximize developmental impacts.

The project include an off-grid pre-electrification program to directly benefit the poor and vulnerable households by targeting those who reside outside the realm of power grid and are expected to receive grid-based electricity services more than 10 years after the first phase of NEP.

The project includes a Contingency Emergency Response Component (CERC) to allow a rapid response and quick support for emergency recovery and reconstruction in case of an adverse natural disaster event.

Overview of Project Components

Component 1: Grid extension [IDA US$ 300 million].

This component supports Myanmar’s utilities to extend distribution networks and connect communities and households closest to the existing national grid, in line with the National Electrification Plan. The component includes: (a) expansion of existing medium voltage (MV) substations and construction of new MV substations; (b) construction of about 12,900 miles of MV and low voltage (LV) lines, and 772 MVA of MV/LV transformers; and (c) provision of 11,600 community connections (health clinics, schools and other public buildings), 750,000 household connections, and 132,000 public lights. This component will provide International Development Assistance (IDA) financing for power distribution goods and materials (transformers, poles, conductors, insulators, switchgear, materials etc.). The utilities will support installation, with private (community level) contributions at a rate set by the Government, and possible private sector participation.

1 At the time of project preparation, the agencies for the grid extension component were in the Ministry of Electric Power (MOEP). In the government reorganization of 2016, MOEP was combined with the Ministry of Energy to form the Ministry of Electricity and Energy.

2 At the time of project preparation, the DRD was previously in the Ministry of Livestock, Fisheries and Rural Development (MLFRD). In the government reorganization of 2016, MLFRD was combined with the Ministry of Agriculture and Livestock to form the Ministry of Agriculture, Livestock, and Irrigation.
Component 2: Off-grid electrification [IDA US$ 80 million].

This component targets communities located far beyond the existing national grid and, thus, unlikely to receive grid-based access in the next 10 or more years. The Project funding will be directed to the peripheral States/Regions with social and ethnic tension and conflicts where access to electricity services for all is essential for enhancing social/ethnic cohesion and peace building. Off-grid electrification will be technology neutral, depending on a technology assessment that will be undertaken for target communities. Technologies include solar photovoltaic (PV), mini-hydropower, wind, biomass, and hybrid (e.g. diesel/solar). The Project will support: development of mini-grids based on renewable energy or a hybrid of diesel and renewable energy technologies; and deployment of household solar PV systems in target communities, including households, public institutions (schools, health clinics and other community buildings) as well as public street lighting with cost sharing from villages, IDA grant and government grant. Disbursement of the IDA grant will be results-based and take place after the installation and required services have been delivered and verified in accordance with the guidelines to be detailed in the operational manual.

Component 3: Technical assistance and project management [IDA US$ 20 million].

This component supports: (a) strengthening of institutional capacity to implement the National Electrification Plan, including capacity building and training of the National Electrification Executive Committee and its Secretariat, capacity building at the Union, State/Region, district, township and village levels and for the private sector; (b) improving the policy and regulatory framework related to electrification; (c) development of an integrated, geographic information system (GIS)-based framework for electrification planning, results monitoring and impact evaluation of the project, building on the existing GIS platform for geospatial least-cost electrification planning; (d) securing technical advice and consulting services on standards, technology assessment and technical design, economic and financial analysis, environmental and social impact management, procurement and financial management; and (e) project management.

Component 4: Contingent Emergency Response [IDA US$ 0 million].

This “zero component” allows a rapid reallocation of IDA Credit from other components for emergency recovery and reconstruction support in the event of a declared disaster. This component will finance public and private sector expenditure on a positive list of goods and/or specific works, goods, services and emergency operation costs required for emergency recovery. An Operational Manual for this component will detail financial management, procurement, safeguard and any other necessary implementation arrangements, to be submitted to and accepted by the WBG prior to the disbursement for this component of IDA funds.

1.2. Safeguards Assessment of the NEP

A WBG Safeguards Assessment of the NEP was undertaken during project preparation and the following Safeguards Policies were identified as being triggered by the NEP:

- Environmental Assessment OP/BP 4.01
- Natural Habitats OP/BP 4.04
- Physical Cultural Resources OP/BP4.11
- Indigenous Peoples OP/BP 4.10
- Involuntary Resettlement OP/BP 4.12
- Safety of Dams OP/BP 4.37

Table 1.1 below provides the summary of the WBG’s Safeguards Assessment of the Project.

**Table 1.1: WBG Safeguards Assessment for The NEP**

<table>
<thead>
<tr>
<th>Safeguard Policies</th>
<th>Triggered?</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Environmental Assessment OP/BP 4.01</td>
<td>Yes</td>
<td>The project will invest substantially in grid roll-out through the purchase of equipment including for MV-substations (expansion of existing substations and to be built), MV/LV transformers, MV and LV lines, household connections, meters, and off-grid systems including solar PV systems, mini-hydropower, wind, diesel and hybrid systems. Environmental impacts for grid extensions are related to works at substations and the installation of power lines, which for instance may require safe disposal of construction and other waste. These substations are small and impacts are expected to be limited. Off-grid investments could include systems based on diesel generators, wind turbines and small scale hydropower expected not to exceed 1 MW. Possible impacts related for instance to fuel usage and installation of turbines in water streams requiring (environmental) control measures, but investments will not go beyond village level schemes (in principle less than 1 MW) and potential impacts are expected to be limited, localized with few impacts considered as irreversible and mitigation measures can be designed as part of the safeguard instruments to minimize and mitigate impacts during project implementation. In view of this, the project</td>
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<td>Safeguard Policies</td>
<td>Triggered?</td>
<td>Explanation</td>
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<tr>
<td>Natural Habitats OP/BP 4.04</td>
<td>Yes</td>
<td>Significant impacts on natural habitats are not expected. However as specific subprojects and their locations are yet to be determined, further information may be needed during implementation to ascertain specific impacts. The ESMF provides specific screening provisions to determine if natural habitats are an issue, as well as what environmental instrument is needed.</td>
</tr>
<tr>
<td>Forests OP/BP 4.36</td>
<td>No</td>
<td>Some vegetation clearance will be required for the construction of MV/LV and household connection, but this would be limited and highly localized and would not affect any forestry activities nor require triggering of OP4.36.</td>
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<tr>
<td>Pest Management Op 4.09</td>
<td>No</td>
<td>Myanmar has no practice of pesticide use for maintenance of cleared power line corridors</td>
</tr>
<tr>
<td>Physical Cultural Resources OP/BP 4.11</td>
<td>Yes</td>
<td>The policy is triggered to the project as PCRs may be present in subproject sites. Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and</td>
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<td>Safeguard Policies</td>
<td>Triggered?</td>
<td>Explanation</td>
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<td>determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF. The ESMF also includes &quot;Chance Find&quot; procedures for protection of cultural property and contracts for subcontractors will include “Chance Find” procedures.</td>
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<tr>
<td>Indigenous Peoples OP/BP 4.10</td>
<td>Yes</td>
<td>The project is expected to be country-wide and cover all States and Regions, including areas with ethnic minorities who are covered by OP 4.10. Ethnic minorities in Myanmar live mainly, however not exclusively, in the seven States (Kayah, Kayin, Kachin, Chin, Mon, Rakhine, and Shan). Ethnic minority communities would benefit from project activities. However, the project also presents risks and challenges concerning ethnic minorities, particularly in terms of ensuring that they will receive appropriate benefits. Investing in distribution networks and off-grid electrification in conflict or post-conflict areas where ethnic minority organizations provide parallel social services and community infrastructure also poses risks that require a good consultation and project management approach. Since specific project sites will not be identified during project preparation, an Indigenous Peoples Planning Framework has been prepared as part of the ESMF to provide guidance on the screening and planning process for sub-projects, including requirements for site-specific social assessment and consultations and the preparation of site-specific Indigenous Peoples Plans to address particular issues concerning ethnic minorities. The ESMF and</td>
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<td>Safeguard Policies</td>
<td>Triggered?</td>
<td>Explanation</td>
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<tr>
<td>Involuntary Resettlement OP/BP 4.12</td>
<td>Yes</td>
<td>IPPF were informed by the PSIA and consultations undertaken during project preparation following requirement for social impact assessment under OP 4.01 and 4.10. Since specific project investments are not known by appraisal, it is not possible to rule out that some subprojects would involve involuntary resettlement in the form of land acquisition or loss of other assets. The project will finance distribution networks, including expansion of existing Medium Voltage (MV) substations and construction of new MV substations, (ii) construction of new MV lines, Low Voltage (LV) lines and MV/LV transformers. These investments have a minimal footprint, normally follow existing right-of-way and have some flexibility in terms of specific location to avoid land acquisition or loss of property. However, some land acquisition or loss of assets may be needed for some subprojects, particular in cases where new substations will be financed. Off-grid investments, such as mini-hydro systems may also have minor impacts. Potential impacts and risks in this regard were assessed during project preparation as part of the PSIA. The PSIA also assessed typical arrangements for village based compensation for loss of assets or voluntary donations of land for rural electrification infrastructure undertaken by village cooperatives and other private sector entities. Based on this analysis, a Resettlement Policy Framework was prepared as part of the ESMF to provide guidance on the screening and planning.</td>
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<tr>
<td>Safeguard Policies</td>
<td>Triggered?</td>
<td>Explanation</td>
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<tr>
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<td>process for subprojects concerning involuntary resettlement impacts. The RPF also includes a protocol for voluntary land donations.</td>
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<tr>
<td>Safety of Dams OP/BP 4.37</td>
<td>Yes</td>
<td>Project interventions are micro/mini hydro power installations with capacities less than 1 MW. These are small schemes that normally would not require the construction of dams but weirs to retain water before entering or the off-grid turbine or other small impoundment structures are possible which could be regarded as ‘small dams’ under this policy and hence it is triggered. These small dams/structures if present in off-grid hydropower subprojects will require good engineering design as stipulated in OP4.37 and safeguard matters and possible risks, if any, will be assessed and managed under the safeguard requirements of OP4.01, in principle through the ESIA or ESMP, as applicable. ‘Large dams’ as defined under OP4.37 are far outside the scope and scale of hydropower off-grid subprojects as expected under NEP (average $40,000-50,000 per subprojects, below 1MW) and hence capacity will not be present with the implementing agencies to review such schemes. Therefore, large dams will not be accepted under the Project and dams/structures that would have a height/water drop of 10m or more will not be considered for Project funding.</td>
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1.3. Summary of Key Safeguard Issues

No adverse indirect or long term environmental or social impacts are anticipated from project investments, while these are expected to provide positive effects on project beneficiaries and may reduce pollution from fuel-wood used for cooking and candles used for lighting.

Environmental impacts for grid extensions are related to works at substations and the installation of power lines, which for instance may require safe disposal of construction materials, old batteries and other waste. These substations are small and impacts are expected to be limited. Off-grid investments could include systems based on solar, hybrid solar-diesel generators, wind turbines, biomass and small-scale hydropower expected not to exceed 1 MW. Possible impacts related for instance to fuel usage and installation of turbines in water streams would require environmental control measures but investments will not go beyond village level schemes (in principle less than 1 MW) and potential impacts are expected to be limited.

In terms of social impacts, the Bank’s Indigenous Peoples (OP 4.10) and Involuntary Resettlement (OP 4.12) safeguard policies are triggered. Adverse impacts, however, are expected to be minor and outweighed by the Project’s positive impacts. The type of investments supported by the Project generally have small footprints, normally follow existing right-of-way and have some flexibility in terms of specific location to avoid land acquisition. However, some land acquisition or loss of assets such as trees and standing crops, cannot be ruled out, for instance in relation to expansion of existing and construction of new Medium Voltage (MV) substations.
1.4. The Framework Approach

The geographical scope of the Project is national and it is expected that project implementation will eventually include all 64 districts covering all Regions and States in Myanmar. Urban, peri-urban and rural areas will be included and areas with diverse population groups will be covered, including many areas with ethnic minorities.

Specific investments will be identified during project implementation and from a safeguards perspective the Project is operating within a framework approach. This framework approach includes an Environmental and Social Management Framework (ESMF), inclusive of a Resettlement Policy Framework (RPF) and an Indigenous Peoples Planning Framework (IPPF).

The ESMF provides guidelines for screening all subprojects and all project activities including procurement of goods that would result in investments, determination of requirements for assessment, and preparation of further documentation in accordance with the World Bank safeguards policies including site-specific environmental and social safeguard documents.

The ESMF includes:

- An overview of the environmental and social contexts relevant to the Project.
- Description of the ESMF Approach, including in relation to community engagement, consultation and public disclosure.
- Description of typical infrastructure.
- Procedures for screening environmental and social impacts.
- Guidelines for environmental and social screening of sub-projects.
- Procedures for scoping of environmental and social issues.
- Procedures and guidelines for site-specific safeguard instruments.
- Monitoring and evaluation.
- Estimated budget for environmental and social mitigation and management.
- Capacity building and training plan.

It includes:

- Guidelines for Physical and Cultural Resources, and sample Chance Find Procedures.
- A Resettlement Policy Framework (RPF)
- Brief Example of a ToR for an Environmental and Social Impact Assessment (ESIA)
- Sample Table of Contents for Environmental and Social Safeguard Instruments including ESIA, ESMP, Environmental and Social Code of Practice (ESCoP).
1.5. Private Investors

It is expected that most of the mini-grid subproject investments to be funded by the off-grid component of the project will be implemented by private investors / operators (with their own counterpart-financing) and local communities. All project funded activities, including the subprojects that are implemented by private parties, will be required to comply with the World Bank Safeguard Policies and the project’s ESMF. Diversion of safeguarding responsibilities to investors under OP 4.03 will not be considered. This means that the project implementation agencies are also fully responsible for the scoping and reviewing and monitoring of safeguard requirements. For practical reasons, the preparation of the safeguard documents could be transferred to private investors.

As mentioned in the Project Appraisal Document, IFC is envisioning providing Advisory Services to private sector clients in Myanmar that are offering solar electricity products, and to help build a commercial market in central Myanmar. There will be no direct investments made through this proposed NEP project. IFC investment, if any, would be through a separate transaction/ project. The advisory services provided by IFC would be focused on: (1) establishing a broad awareness of quality solar products and arming consumers and distributors with the knowledge to differentiate quality products, and (2) supporting providers of quality solar products to enter the country by lowering barriers to entry and risk of investment by providing market intelligence, facilitating Business to Business relations, supporting distribution networks, and catalyzing access to finance along the supply chain.
2. Background

Myanmar energy consumption is among the lowest in the world. About 70 percent of the population has no access to grid-based electricity services, and the consumption per capita is 160 kWh per annum – twenty times less than the world average. Electricity consumption is growing fast in Myanmar. The peak load demand reached 2,100 mega-watts (MW) in 2014, growing on average 14 percent per annum in the past five years. Electricity shortages and supply disruptions remain prevalent in the country. Accumulated delays in investments in power infrastructure, over-reliance on seasonal hydropower production, together with a rapid increase in electricity demand, which tripled over the last decade, results in large electricity shortages which peaked at about 30 percent of power demand in 2012-2013. The energy sector institutional and regulatory framework is fragmented, particularly in rural electrification.

The World Bank supported National Electrification Project aims to help scale-up access to electricity and support the implementation of the Government’s National Electrification Plan (NEP), which aims for universal access to electricity by 2030. The project is an essential element of the joint World Bank Group (WBG) engagement in the energy sector. The sector is one of key drivers of economic growth and poverty reduction in Myanmar, but also a source of public frustration due to lack of access and poor reliability of power supply. The joint WBG program includes on-going and future support for institutional development and capacity building, public and private sector investments in generation, transmission and distribution, hydropower and gas subsectors. Together these sequenced interventions support the WBG twin goals of reducing extreme poverty and increasing shared prosperity in an environmentally and socially sustainable manner.

The Project is funded by the World Bank through an International Development Association (IDA) loan of up to US$ 400 million over fiscal years 2016-2020, implemented by the Ministry of Electric Power (MOEE) and Ministry of Agriculture, Livestock and Irrigation. The expected results include new household and community electricity connections in urban and rural areas across the country. Also, the project will help establish and support a coordinated sector-wide institutional framework for the implementation of a national electrification program and strengthen the institutional capacity of implementing agencies, including both public and private sector organizations active in the grid rollout and off-grid pre-electrification.

The project is intended to not only improve the well-being of the population by better lighting and telecommunications, but also enable income generation opportunities and enhanced productivity. It will prioritize connections for health clinics and schools to maximize developmental impacts.

The Project is intended to establish the basis for sustained engagement of the WBG in supporting public and private sector investments needed to achieve universal access to electricity in Myanmar by 2030, as well as to strengthen the institutional capacity of GoM. It is expected that the programmatic engagement will comprise three phases with the first phase covering fiscal year 2016-2020. In addition to working with the public and private sector investors, the joint WBG energy team will work closely with all development partners (DPs) active in the power sector (ADB, JICA, KfW, GIZ, DFID, AICS, Norway, Australia, the Rockefeller Brothers Fund, etc.). The NEP is open for other DPs to join with parallel financing. Such a coordinated, sector-wide approach is considered the most
effective to deliver benefits of electrification. It should be noted that all project activities, including those funded from other sources, are subject to the environmental and social safeguards policies of the World Bank.
3. Project description

The NEP has the following components:

Component 1: Grid rollout [up to US$ 300 million].

The grid component supports the purchase of equipment to extend distribution networks currently operated by the Yangon Electricity Supply Corporation (YESC), the Mandalay Electricity Supply Corporation (MESC), and the Electricity Supply Enterprise (ESE) and connect communities identified in the National Electrification Plan as closest to the existing national grid and thus on the least-cost path for the grid rollout.

This component includes purchase of equipment to:

- Expand existing Medium Voltage (MV) substations and construct new MV substations;
- Construct new or rehabilitate existing MV lines, Low Voltage (LV) lines and MV/LV transformers; and
- Connect households with service lines and meters.

MOEE Project Management Office manages this component, working closely with ESE, MESC, YESC and other partners.

International Development Assistance (IDA) funding will finance procurement of goods (transformers, poles, conductors, cables, meters and auxiliary equipment), which ESE, MESC and YESC will be responsible to install. The International Finance Corporation (IFC) may support private sector participation in installation, in a manner to be determined.

Component 2: Off-grid pre-electrification [IDA US$ 80 million].

The off-grid component targets those communities located outside the reach of the existing national grid or unlikely to receive grid-based access in the next 10 years. This component will be based on application of mini-grids and household energy systems, including solar photovoltaic (PV) systems, mini-hydropower (not expected to exceed one megawatt), wind, biomass and hybrid systems (e.g. diesel/solar). MOALI is responsible for off-grid rural electrification through its national and sub-national Department for Rural Development (DRD) offices.

Component 3: Capacity building and technical assistance [IDA US$ 20 million].

This component is to provide Technical Assistance (TA), capacity building and advisory support to Government agencies at all institutional levels (union, state/ region, and district) involved in electrification planning and implementation, technical design, economic and financial analysis, environmental and social impact management, monitoring and evaluation, as well as procurement and financial management.

For the grid component, TA is expected to support development of:
• design standards;
• technical specifications and standard procurement packages;
• project design for the balance of the project;
• project management and implementation support including the management of safeguards compliance; and
• extensive training and capacity building on all planning, engineering and commercial aspects.

For the off-grid component, TA is expected to support development of:
• technical and financial support to local technical advisors who operate at district or township level assisting villages with technology choice decisions, pre-feasibility studies, and project oversight;
• support for feasibility studies and business plans for village mini-grids;
• technical and business development support for companies that manufacture, install, and maintain renewable energy systems;
• support to DRD on technical specifications, procurement documents and bid evaluations, project management and implementation, including the management of safeguards compliance;
• assistance to the financial sector to adopt/adapt mechanisms for consumer and supplier financing
• extensive training and capacity building on all planning, regulatory, policy, engineering and commercial aspects.

Component 4: Contingent Emergency Response [US$ 0 million].

The objective of this “zero component” is to allow a rapid reallocation of IDA credit proceeds from other components to provide emergency recovery and reconstruction support following an adverse natural disaster event. This component would finance public and private sector expenditure on a positive list of goods and/or specific works, goods, services and emergency operation costs required for Myanmar’s emergency recovery. A Contingency Emergency Response Component (CERC) Operational Manual will be prepared as required and apply to this component, detailing financial management, procurement, safeguard and any other necessary implementation arrangements.

4. Institutional Arrangements for Project Implementation

4.1. Overall NEP Institutional Arrangements

Following the National Electrification Program recommendations, the government has established a National Electrification Executive Committee (NEEC) under the patronage of the Vice President through a decree issued on August 27, 2014. NEEC is chaired by the minister of MOEE and co-chaired by the minister of MOALI. A permanent NEEC Secretariat has been established in MOEE and MOALI, aimed at overseeing NEP Project Management Offices (PMOs), which are responsible for the technical activities carried out by ESE, MESC, YESC and DRD under the Project. The Union-level PMOs
would be responsible for project planning and implementation at the union level, while District PMOs would lead local-level project planning and implementation. Within the MOEE and MOALI (DRD), the Executive Committee, consisting of the MOEE and MOALI Union Ministers and other senior officials, would have overall oversight responsibility of the proposed operation, including the ESMF, and would be informed regularly about overall implementation. The Figure below shows the institutional implementation framework and responsibilities allocated to each level at the time of project planning, when the lead agencies were in MOEP and MLFRD.

Figure 4.1: NEP Institutional Implementation Framework

4.2. Off-Grid Program Institutional Arrangements

The institutional framework for the off-grid component is evolving. Figure 4.2 below shows the current proposed implementation framework.
At the township and village level, the DRD Township Engineers will provide guidance to village communities and townships in selecting and developing appropriate off-grid electrification solutions. If special assistance is needed to communicate or work with the local communities, Local Technical Advisors can be engaged. The LTAs can be local NGO/CSOs and consultants collaborating with local government (especially but not exclusively DRD staff).

A Technical Support Unit (TSU) at the Union level with international and national expertise will provide technical backstopping to the local technical advisors, as well as support policy and regulatory development. The TSU will also assist the financial sector to adopt/adapt mechanisms for consumer and supplier financing and provide trainings to improve their capacity to assess the credit-worthiness of off-grid electrification projects. For state DRD offices the TSU will develop and disseminate streamlined contracting and procurement processes, support DRD in consumer information campaigns, monitoring and evaluation, and assist in program management. The TSU will assist private sector equipment suppliers and installation companies through capacity building and training on technical as well as business development topics.

4.3. Institutional Arrangements for environmental and social safeguards

The two implementing agencies—MOEE and MOALI (DRD), through their respective central PMOs—will be responsible for the environmental and social performance of the NEP and the subprojects implemented with the support of the NEP. The central PMOs are to be adequately staffed for this purpose with environmental and social safeguards officers). Safeguard staff have been assigned; however these staff, as other ministry staff, have formal positions as Sub Assistant Engineer and Junior Engineer and do not have a background in safeguards. They will therefore be supported by a TA/consultant team that will assist in the implementation of the ESMF requirements while building staff capacity to address safeguard issues.
For each subproject, once it has been identified, the responsible PMO (under MOEE or DRD) will clarify tasks and responsibilities regarding implementation of the specific subproject (e.g. operators, MOEE, local PMOs or villages). The central PMOs will be responsible for reviewing a screening report as prepared by local PMOs or other initiators and prepare draft TOR for ESMP or ESIA and requirements to prepare a Resettlement Action Plan (RAP) and/or Indigenous Peoples Plan (IPP), as needed. Consultation regarding the resulting ESMP or ESIA, and RAP and/or IPP if needed, will be undertaken with the public and stakeholders as required. The documentation will be made available to the public and will also be submitted to the World Bank for review.

The safeguards documents (ESIA, ESMP, etc.) for grid extension are generally prepared by the local PMOs with the support of consultants as needed. For the off-grid component, different approaches are taken for the Solar Home Systems (SHS) and the mini-grid systems. As the SHS has only a few potential low-risk environmental or social impacts, these can be covered through a priori en bloc screening and ex-post verification through post installation verification that the ESCoP for SHS systems has been followed. The mini-grid systems have more potential impacts, and so require more extensive screening and assessment. The private investor/developer and township engineer complete a screening form, which includes documentation of any lands that need to be acquired. After review of these forms, the central PMO will determine if the potential impacts are sufficiently significant that an IEE must be prepared and submitted for approval by the Environmental Conservation Department of the Ministry of Natural Resources and Environmental Conservation (MONREC). The central PMO will also determine if the private investors need to prepare an ESMP (including a waste management plan), RAP, and/or IPP, or if adherence to the ESCoP for the mini-grid with regular monitoring by the township engineer and the safeguards team is sufficient. The central PMO remains responsible for the preparation of the TOR for any safeguards documents required, the review and approval of those documents, and assuring the developers adhere to the safeguards policies.

The central PMOs are responsible for submitting monitoring reports to the World Bank as established in this ESMF and the Project Implementation Manual. Detailed procedures are provided in Section 8. In addition, the NEEC Secretariat will be informed and engaged regularly in the implementation of the ESMF as part of general reporting of NEP implementation.

5. Relevant Project Environmental and Social Requirements

5.1. Environmental Legal and Institutional Framework

The GoM is currently in the process of updating and developing its environmental legal and institutional framework. Numerous challenges remain. Myanmar Environmental policies and laws are mostly sectoral and are gradually transitioning from a nature conservation focus to environmental mainstreaming into the economic and social development of the country.

Sector specific laws - where developed - regulate particular environmental aspects. Therefore, there are gaps in legislation that comprehensively regulate cross-sectoral aspects such as environmental impact assessment, waste management, involuntary resettlement, or particular measures for
vulnerable groups such as ethnic minorities. Sectoral laws also produce overlapping of certain responsibilities.

Myanmar is party to several international treaties, provisions of which are partially incorporated into domestic law.

The legal and institutional gap also extends into administrative and procedural structures, and capacity and resources to enforce such provisions. There is also a need for better coordination between sectoral ministries and between union and local government. The Government acknowledges the importance of environmental protection legislation and enforcement capacity to avoid ecological degradation.

National Environmental Quality (Emission) Standards were issued in December 2015. They include specific provisions on air and water quality as well as noise level standards. The Environmental Quality Standards have been extracted from the International Finance Corporation’s Environmental Health and Safety guidelines. An environmental and social impact assessment framework was also issued in Myanmar in December 2015, under the 2012 Conservation Law. Myanmar Electricity Law (27 Oct 2014) states that in accordance with the Law for Environmental Conservation, Myanmar 2012, all electrification projects shall comply to environmental and social assessment work, impact mitigation works, compensation on affected losses, environmental conservation fund raising work shall be carried out by the respective ministry, district and regional government or respective federal government/department. Table 5.1 summarizes the main aspects of the draft EIA rules vis-a-vis the World Bank Operational Policy (OP) 4.01 procedures.

5.2. Environmental Assessment

The National Guidelines for EIA procedure in Myanmar were enacted in late 2015. The comparison between the National EIA procedure guidelines and the World Bank OP/BP 4.01 are shown below in Table 5.1. There is no conflict in the guidelines with the Bank Policies.
### Table 5.1: National EIA rules versus OP/BP 4.01 EIA requirements

<table>
<thead>
<tr>
<th>Issue</th>
<th>EIA Rules</th>
<th>OP 4.01</th>
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<tbody>
<tr>
<td>Screening</td>
<td>Lists projects that require environmental examination including land use change, exploitation of resources or introduction of new species. MONREC shall determine the format and timing of the reports. MONREC will determine the type of environmental assessment required based on the environmental examination.</td>
<td>The Bank screens all projects and classifies them into one of four categories (Category A, B, C, and FI), depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.</td>
</tr>
<tr>
<td>Triggers</td>
<td>Projects with significant environmental impact</td>
<td>All projects financed by the World Bank. EA process depth will depend on the risk and impacts associated with the Project.</td>
</tr>
<tr>
<td>Responsibilities</td>
<td>Project proponent leads the EA process</td>
<td>Borrower leads the EA process</td>
</tr>
<tr>
<td>Public participation</td>
<td>For both IEEs and EIAs, the project proponent shall arrange a number of consultations as MONREC deems necessary with local communities, project-affected people, civil society, community organizations, etc. Results of the consultations are to be included in the reports, with the EIAs required to show how concerns are addressed in assessing impacts, designing mitigation measures, and preparing management plans and monitoring plans. For both IEEs and EIAs, MONREC holds public consultations after the reports are submitted, the results of which are provided to the Ministry for final decision on the EIA.</td>
<td>For all Category A and B projects, during the EA process, the borrower consults project-affected groups and local nongovernmental organizations (NGOs) about the project’s environmental and social aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them.</td>
</tr>
<tr>
<td>Issue</td>
<td>EIA Rules</td>
<td>OP 4.01</td>
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<tr>
<td>Disclosure</td>
<td>For both IEEs and EIAs, the project proponent shall disclose at the start of the process all relevant information about the proposed project to the public and civil society through websites, local media, signboards, as well as consultation meetings. For EIAs, additional disclosure shall be done as necessary during the assessment. Within 15 days of submitting the IEE or EIA report to the Department, the project proponent shall disclose the report on websites, through local media, at public meeting places, and at the offices of the project proponent. The Department also discloses the report through its website and in consultation meetings. The decision of the Ministry to approve the IEE / EIA or not is also to be publicly disclosed.</td>
<td>The borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted. Any separate Category B report is made available to project-affected groups and local NGOs. Public availability in the borrowing country and official receipt by the Bank of Category A reports, and of any Category B report, are prerequisites to Bank appraisal of these projects. Once the borrower officially transmits the Category A EA report to the Bank, the Bank distributes the summary (in English) to the executive directors (EDs) and makes the report available through its InfoShop. Once the borrower officially transmits any separate Category B EA report to the Bank, the Bank makes it available through its InfoShop. If the borrower objects to the Bank's releasing an EA report through the World Bank InfoShop, Bank staff (a) do not continue processing an IDA project, or (b) for an IBRD project, submit the issue of further processing to the EDs. The Bank screens all projects and classifies them into one of four categories (Category A, B, C, and FI), depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.</td>
</tr>
<tr>
<td>Screening</td>
<td>Lists projects that require environmental examination including land use change, exploitation of resources for introduction of new species. MONREC shall determine the format and timing of the reports. MONREC will determine the type of environmental assessment required based on the environmental examination.</td>
<td>The EA needs to include assessment of project alternatives; cumulative impacts; specific mitigation measures and monitoring activities.</td>
</tr>
<tr>
<td>EA Content</td>
<td>MONREC determines the content of the EA report, which primarily includes assessment of direct impacts linked to project and description of mitigation measures (environment mitigation plan).</td>
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</table>
### Monitoring

MONREC shall monitor project performance in accordance to the Environmental Management Plan (EMP).

The Project proponent shall comply with the EMP and the terms included in the license throughout the lifetime of a project. If found in non-compliance, MONREC shall impose penalties or suspend project construction or operation.

During project implementation, the borrower reports on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of any EMP, as set out in the project documents; (b) the status of mitigation measures; and (c) the findings of monitoring programs.

The Bank bases supervision of the project’s environmental aspects on the findings and recommendations of the EA, including measures set out in the legal agreements, any EMP, and other project documents.

### 5.3. Physical Cultural Resources

The World Bank’s policy on physical cultural resources (PCR) OP 4.11 is triggered by the project as PCRs may be present in subproject sites. PCRs are movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Their cultural interest may be at the local, provincial or national level, or within the international community. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water.

Since the exact locations of the subprojects to be implemented are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in Annex 7. The likely impacts to PCR for typical activities of the subprojects are also discussed in that annex. The "Chance Find" procedure for protection of cultural property is presented in Annex 8, following the World Bank Operational Policy OP 4.11 physical cultural resources. Contracts for subcontractors should include “Chance Find” procedures.

The Environmental Conservation Law, enacted in 2012, grants the Ministry of Natural Resources and Environmental Conservation the mandate of “cooperat[ing] with the relevant Government departments and Government organizations in the matters of environmental conservation for perpetual existence of cultural heritage sites and natural heritage sites, cultural monuments and natural areas stipulated under any existing law.” Specific regulations and implementation responsibilities are currently being developed.
5.4. Natural habitats

The World Bank’s policy on Natural Habitats OP/BP 4.04 is triggered under the NEP. Natural Habitats are land and water areas where: (i) the biological communities are formed largely by native plant and animal species and, (ii) human activity has not essentially modified the area’s primary ecological functions. Significant impacts on natural habitats are not expected. However as specific subprojects and their locations are yet to be determined further information may be needed during implementation to ascertain specific impacts. This ESMF provides specific screening provisions to determine if natural habitats are an issue, as well as what environmental instrument is needed if the level of significance of the impacts is unknown. If the impacts to Natural Habitats are considered significant, the particular subproject will not be financed by the project.

As mentioned above, the Environmental Conservation Law enacted in 2012, grants the Ministry of Environment, Conservation and Forestry the mandate concerning matters of environmental conservation for perpetual existence of cultural heritage sites and natural heritage sites, cultural monuments and natural areas stipulated under any existing law. Specific regulations and implementation responsibilities are currently being developed.

5.5. Land Acquisition and Involuntary Resettlement

The project will finance distribution networks, including expansion of existing Medium Voltage (MV) substations and construction of new MV substations, (ii) construction of new MV lines, Low Voltage (LV) lines and MV/LV transformers. These investments have a minimal footprint, normally follow existing right-of-way and have some flexibility in terms of specific location to avoid land acquisition or loss of property. However, some land acquisition or loss of assets may be needed for some subprojects, particularly in cases where new substations will be financed. Off-grid investments, such as mini-hydro systems may also have minor impacts. Since subprojects are not identified until project implementation a Resettlement Policy Framework has been prepared, providing guidance on the screening and planning process for subprojects concerning involuntary resettlement impacts (Annex 8). The RPF includes a protocol for voluntary land donations. The screening procedure and Voluntary Land Donation form is presented in Annex 9. An indicative outline for preparation of an abbreviated Resettlement Action Plan is provided in Annex 10.

The legal framework for land in Myanmar is made up of at least 73 active laws, amendments, orders, and regulations passed under different governments. Analysis suggests that these often overlap, conflict with each other, or do not refer to preceding laws. All land belongs to the state under the current legal system, and land users receive certificates from the Settlement Land Records Department.

The legal framework concerning land acquisition in Myanmar is evolving. In January 2016 the GoM issued its National Land Use Policy (NLUP), laying the foundation for a subsequent National Land Law. GoM developed the draft policy since 2012 through a multi-stakeholder consultation process, with the draft presented in 2014 and revised after public consultations in 2014 and 2015. The policy

aims to strengthen the government’s mechanisms for handling land acquisition, compensation, relocation, and restitution. However, as of mid-2018, the government has yet to propose a new National Land Law.

The 1894 Land Acquisition Act remains the legal basis for land acquisition in Myanmar – however different regulations apply for different types of land and there are no comprehensive regulations related to land use rights, transfer of rights, land acquisition or resettlement issues. Section 23 determines suitable amounts of compensation to be made for affected persons when the land is acquired by the government. Detailed descriptions and procedures are mentioned in the Land Acquisition Directions. The Act and associated Rules (Land Acquisition Rules, 1932) further outline relevant procedures including for notice periods, objections of interested persons to acquisition, methods of valuation of land, temporary land occupation, court processes and appeals and acquisition of land for companies.

The Farmland Act of 2012 determines land use rights for farmland and granting of land use rights to eligible farmers. It allows the right to sell, mortgage, lease, exchange and gift whole or a part of the right to use the farmland. The law determines the formation as well as roles/responsibilities of farmland administrative bodies at various levels. The Farmland rules determine procedures such as the application for farmland registration and obtaining land use certificates; application of transfer of farmlands for other purposes; and indemnities and compensation.

The current national legislation regarding compensation for loss of land and assets, as described above, includes some measures similar to key principles of World Bank OP 4.12 on Involuntary Resettlement. However, OP 4.12 is more detailed and includes a number of requirements not found in national legislation, such as preparation of a Resettlement Action Plan (RAP), consultations and public disclosure. For the NEP, all requirements of OP 4.12 apply and the Government of Myanmar agrees to waive any legal or regulatory provisions in contradiction to the requirements of OP 4.12 as established in the Resettlement Policy Framework (RPF), annexed to this ESMF, and to take actions necessary to ensure full and effective implementation of RAPs prepared in accordance with the RPF and OP 4.12. More description of the national legal framework is found in the RPF and should the draft Land Law be approved during project implementation a more detailed comparison to OP 4.12 should be undertaken and the RPF may be changed in agreement between GoM and the World Bank.

5.6. Ethnic Minorities

The Government recognises 135 separate ethnic groups referred to within the Constitution as “national races.” Major groups include Burman/Bamar, Shan, Karen/Kayin, Kachin, Chin, Rakhine, Mon and Kayah. The largest ethnic group is the Bamar (Burmese) people comprising about two-thirds of the population and who reside predominantly in the central and delta (seven) regions. Other national races or ethnic minorities account for about one third of the population and live mainly within the seven states (although not exclusively). Aside from the 14 States and Regions, there are five self-administered zones: Naga (Sagaing Region); Danu (Shan State); Pa-O (Shan State); Pa Laung (Shan State); and Kokang (Shan State). There is also one self-administered division: Wa (Shan State). These six self-administered sub-national units are recognised in the 2008 Constitution (section 56) and are the result of earlier ceasefire agreements. Myanmar’s ethnic minorities make up
an estimated 30 – 40 per cent of the population, and ethnic states occupy around 57 per cent of the total land area along most of the country’s international borders.\(^4\)

The 2008 Constitution provides equal rights to the various ethnic groups included in the term *national races* and a number of laws and regulations aim to preserve their cultures and traditions.\(^5\) Myanmar national law sets out rights of ethnic races or nationalities to representation in State parliament.\(^6\) The National Races Protection Law, of February 2015, contains sections guaranteeing minorities the right to study their language and literature, practice other elements of their culture and maintain their traditions.\(^7\) The National Land Use Policy recommends the recognition of traditional land use systems of ethnic minorities be provided in the new land law, with a suggested process of determining the type and area of those traditional lands; though as of mid-2018 the new law that would formally recognize these traditional rights has not been passed.

The GoM generally uses terms other than ‘indigenous peoples.’ In September 2007, Myanmar endorsed the United Nations Declaration on the Rights of Indigenous Peoples, which among other things provides indigenous peoples the right to free and prior informed consent and notes that “States shall consult and co-operate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain Free and Prior Informed Consent prior to approval of any project affecting their land or territories.”

Since the project is countrywide, covering all States and Regions, it will include areas with ethnic minorities or national races; thus, the World Bank’s Indigenous Peoples policy (OP 4.10) applies in general to the 135 officially recognized *national races*, except for the majority Bamar group. This is especially so for the off-grid components which cover more remote areas of the country.

While ethnic minority communities would benefit from project activities, the project also presents risks and challenges concerning ethnic minorities, particularly in terms of ensuring that they will receive appropriate benefits. Investing in distribution networks and off-grid electrification in conflict or post-conflict areas where ethnic minority organizations provide parallel social services and community infrastructure also poses risks that require a good consultation and project management approach. Since specific project sites are identified as the project is being implemented, these issues will be assessed and addressed at the subproject level. An Indigenous Peoples Planning Framework (IPPF) has been prepared as part of the ESMF to provide guidance on the screening and planning process for subprojects, including requirements for site-specific social assessment and consultations and whether site-specific Indigenous Peoples Plans are required to address particular issues concerning ethnic minorities (See Annex 9).

### 5.7. Policy and Institutional Framework Regarding Women

Key clauses within the Constitution of Myanmar that relate to women include:


\(^7\) Myanmar Times, 23 January 2015, MPs prepare to debate proposed law on ethnic rights
• Clause 348: “The Union shall not discriminate any citizen of the Republic of the Union of Myanmar, based on race, religion, official position, status, culture, sex and wealth”.

• Clause 349: Citizens shall enjoy equal opportunity in carrying out the following functions: (a) public employment; (b) occupation; (c) trade; (d) business; (e) technical know-how and vocation; (f) exploration of art, science and technology.

• Clause 350: Women shall be entitled to the same rights and salaries as that received by men in respect of similar work.

Myanmar is a signatory to the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (1997), and is committed to international policy initiatives to improve the situation of women, including the Millennium Declaration, the Beijing Declaration and Platform for Action (BPfA), and the International Conference on Population and Development (ICPD). The Association of South East Asian Nations (ASEAN) has established the ASEAN Commission on Protection and Promotion of the Rights of Women and Children (ACWC), and the ASEAN Committee on Women (ACW), of which Myanmar is a member.

The Ministry of Social Welfare, Relief and Resettlement, through the Department of Social Welfare, carries out social welfare services through preventative, protective and rehabilitative measures, with special attention to children, youth, women, persons with disabilities, and elderly persons. The Department of Social Welfare provides welfare services to vulnerable groups on the basis of social integration strategies.

The Myanmar National Committee for Women’s Affairs (MNCWA) has prepared a National Strategic Plan for the Advancement of Women (2013-2022), whose objective is that, “All women in Myanmar are empowered and able to fully enjoy their rights with the support of the Government of the Republic of the Union of Myanmar. Enabling systems, structures and practices are created for the advancement of women, gender equality, and the realization of women’s rights”. Of relevance, the 12 Priority Areas for the Plan include: women and livelihoods; women education and training; women and health; women and the economy; and women and the environment.

5.8. Overview of World Bank Safeguard Policies Triggered

The proposed NEP triggers the following World Bank policies: Environmental Assessment (OP 4.01); Natural Habitats (OP 4.04); Physical Cultural Resources (OP 4.11); Involuntary Resettlement (OP 4.12) and Indigenous Peoples (OP 4.10). The World Bank has identified NEP as Category B as per OP/BP 4.01, as the safeguard impacts of the type of subprojects supported are site-specific, few are irreversible and mitigation measures can be designed to minimize and mitigate impacts during project implementation (see Table 5.2 for details). In addition to the mitigation measures described in this ESMF, a screening process is included to prevent the execution of subprojects with significant negative environmental or social impacts.

The Project includes strengthening of institutional capacity to implement the National Electrification Plan and technical assistance to improve policy and regulatory framework related to electrification (Component 3). These TA activities would not have direct adverse safeguard impacts; they will not lead to the completion of technical or engineering designs, or other outputs in preparation for the
construction of physical infrastructure or other activities with potentially significant physical impacts. However, advice on policies may have implications concerning environmental and social aspects relevant to the Bank’s safeguard policies, and provide an opportunity to integrate environmental and social objectives in policy advice. Bank-financed TA activities with safeguard implications will provide advice consistent with the Bank’s safeguard policies following the Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds Administered by the Bank. Moreover, component 3 will provide capacity building for implementing agencies concerning environmental and social concerns.

### Table 5.2 : WBG Safeguards Assessment for The NEP

<table>
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<tr>
<th>Safeguard Policy</th>
<th>Triggered?</th>
<th>Explanation</th>
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</table>
| Environmental Assessment  | Yes        | The project will invest substantially in grid roll-out through the purchase of equipment including for MV-substations (expansion of existing substations and new), MV/LV transformers, MV and LV lines, household connections, meters, and off-grid systems including solar PV systems, mini hydropower, wind, diesel and hybrid systems. Environmental impacts for grid extensions are related to works at substations and the installation of power lines, which for instance may require safe disposal of construction, old equipment and other waste. These substations are small and impacts are expected to be limited. Off-grid investments could include systems based on diesel generators, wind turbines and small-scale hydropower expected not to exceed 1 MW. Possible impacts related for instance to fuel usage and installation of turbines in water streams would require environmental control measures but investments will not go beyond village level schemes (in principle less than 1 MW) and potential impacts are expected to be limited. In view of this, the project has been given a Category B classification under OP4.01. This ESMF provides for screening investments into the above described limited scope and avoiding significant impacts. Arguably, the single type of projects that could challenge the Category B classification could be the off-grid mini hydro-systems. Given that these systems remain below 1 MW, without a
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<th>Safeguard Policy</th>
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<td>need for building significant reservoirs or land-take, it is not expected that these systems would require a different categorization.</td>
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The Project will focus on building the capacity of staff, with strong mechanisms and procedures in place to screen, assess, plan and monitor the implementation of subprojects. This capacity will also be required to support applicants with the efficient preparation of proposals for subprojects. The implementation stage of the Project will also include the design of subprojects based on approved application for subprojects. Given this need to establish institutional arrangements and build implementation capacity first, all subprojects and equipment purchases will be determined during project implementation, this framework provides for the modalities of selection and implementation of equipment purchases and implementation of subprojects. The framework includes a Resettlement Policy Framework and an Indigenous Peoples Planning Framework. This ESMF also includes guidance in the form of an Environmental and Social Code of Practice, and health and safety standards to be followed during project implementation based on the World Bank Group's Environmental, Health and Safety (EHS) Guidelines for Power Transmission and Distribution and including provisions for beneficiaries and worker health and safety. The ESMF provides guidelines for screening of all subprojects including procurement of goods that would result in investments, determination of requirements for assessment and preparation of further documentation in accordance with the World Bank safeguard policies including site-specific environmental and social management plans (ESMPs), Environmental and Social Impact Assessments (ESIA) and the implementation and monitoring of these. When needed, the ESMPs will include a Resettlement Action Plan and Indigenous Peoples Plan as described below.
Social impacts have been assessed through the PSIA which has taking place in two phases. The first phase focused on generating an overall understanding of access to electricity (barriers to access in rural and urban areas and for poor and marginalized households in particular), uses of electricity, quality of service and affordability of new tariffs of April 2014. The PSIA phase 1 report was finalized in December 2014. The second phase (PSIA2) was initiated in January. The preliminary PSIA to inform this ESMF is available as a separate document. It analyzes potential project impacts and mitigations measures in view of OP 4.01, OP 4.10 and OP 4.12.

Given the current lack of capacity with the implementing agencies and other parties that are expected to implement the project and investments in sub projects, a comprehensive safeguards capacity building program is required to prepare designated PMO staff and others for project implementation. PMO staff has received on the job training preparing this ESMF and undertaken part of the PSIA phase 2 analysis and consultations working alongside international and local safeguard consultants. This ESMF includes a training program for PMO staff and other project counterparts; it also includes technical assistance to assist the PMOs during project and ESMF implementation.

In addition to subprojects that are implemented by ESE, MESC and YESC, it is expected that part of the subprojects’ investments to be funded by the Project will be implemented by private investors/ operators and local communities. The ESMF includes procedures for screening, impact assessments, planning, implementation and monitoring that differentiate for the various categories of implementing entities. Since the Project in principle will only finance the purchase of goods, the ESMF procedures considers that these investments will be matched with funding from investors and local communities, as applicable. All project funded activities, including

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| subprojects that are implemented by private parties, will be required to comply with the World Bank Safeguard Policies and this ESMF.  

| Natural Habitats OP/BP 4.04      | Yes        | Significant impacts on natural habitats are not expected. However as specific subprojects and their locations are yet to be determined further information may be needed during implementation to ascertain specific impacts. This ESMF provides specific screening provisions to determine if natural habitats are an issue, and what environmental instrument is needed if the level of significance of the impacts is unknown. If the impacts were to be considered significant the Project will not finance the particular subproject. |
| Forests OP/BP 4.36              | No         | This policy is not triggered as the Project is not expected to have impacts on the health and quality of forests, nor affect the rights and welfare of people and their level of dependence upon or interaction with forests, nor aims to bring about changes in the management, protection or utilization of natural forests or plantations. This ESMF provides for screening investments to avoid impacting the health and quality of forests. |
| Pest Management OP 4.09         | No         | This policy is not triggered. It is not practice in Myanmar to include pesticides in maintaining the right of way under transmission lines. |
| Physical Cultural Resources OP/BP 4.11 | Yes        | Since specific project investments are not known, it is not possible to rule out the presence of physical cultural resources. This ESMF provides for screening investments during project implementation and, when needed, including requirements as part of environmental assessment and ESMP, to avoid impacting physical cultural |

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8Diversion of safeguard responsibilities to investors under the World Bank's Operational Policy on (OP 4.03) is not foreseen as the capacity concerning safeguards is not expected to be in place. Should this change during project implementation the ESMF may be revised in agreement between the World Bank and GoM.
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<td>Indigenous Peoples OP/BP 4.10</td>
<td>Yes</td>
<td>The project is country-wide and covers all States and Regions, including areas with ethnic minorities who are covered by OP 4.10. Ethnic minorities in Myanmar live mainly, however not exclusively, in the seven States (Kayah, Kayin, Kachin, Chin, Mon, Rakhine, and Shan). Ethnic minority communities would benefit from project activities. However, the project also presents risks and challenges concerning ethnic minorities, particularly in terms of ensuring that they receive appropriate benefits. Investing in distribution networks and off-grid electrification in conflict or post-conflict areas where ethnic minority organizations provide parallel social services and community infrastructure also poses risks that require a good consultation and project management approach. Since specific project sites will not be identified during project preparation, the ESMF include an Indigenous Peoples Planning Framework to guide the screening and planning process for subprojects, including requirements for site-specific social assessment and consultations and the preparation of site-specific IPPs to address particular issues concerning ethnic minorities. Electrification of the villages near the Thaton Power Station in Mon State, supported by the World Bank-financed Myanmar Electric Power Project, is a priority for electrification under the NEP Project once the power plant is upgraded (scheduled for 2017). An Indigenous Peoples Plan for Thaton and other subprojects in areas with ethnic minorities will be prepared during project implementation once site-specific information will become available with the investment proposals. A Poverty and Social Impact Assessment was undertaken during project preparation to assess potential project impacts and risks as well as issues pertaining to accessibility, affordability, vulnerability, poverty, gender, productive uses and benefits related to electricity. The PSIA included social assessment requirements of OP 4.10, as well as OP 4.01, and has informed project design, the ESMF and the IPPF to address any particular issues.</td>
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<tr>
<td>Safeguard Policy</td>
<td>Triggered?</td>
<td>Explanation</td>
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<tr>
<td>Safeguard Policy</td>
<td></td>
<td>concerning ethnic minorities. Thaton District and the villages near the power station supported by the Myanmar Electric Power Project was covered by the PSIA. Consultations were also undertaken in select villages in Chin and Shan States, and with civil society organizations, including ethnic minority organizations. The preliminary PSIA to inform this ESMF is available as a separate document.</td>
</tr>
<tr>
<td>Involuntary Resettlement</td>
<td>Yes</td>
<td>Since specific project investments are not known by appraisal, it is not possible to rule out that some subproject would involve involuntary resettlement in the form of land acquisition or loss of other assets. The Project will finance distribution networks, including expansion of existing Medium Voltage (MV) substations and construction of new MV substations, (ii) construction of new MV lines, Low Voltage (LV) lines and MV/LV transformers. These investments have a minimal footprint, normally follow existing right-of-way and have some flexibility in terms of specific location to avoid land acquisition or loss of property. However, according to the PSIA some land acquisition or loss of assets may be needed for some subprojects, particular in cases where new substations will be financed or required for distribution systems financed by the project. Off-grid investments, such as mini-hydro systems may also have minor land acquisitions impacts. The PSIA also assessed common arrangements for village based compensation for loss of assets or voluntary donations of land for rural electrification infrastructure undertaken by village cooperatives and other private sector entities. A Resettlement Policy Framework has been prepared as part of the ESMF to provide guidance on the screening and planning process for subprojects concerning involuntary resettlement impacts and includes a protocol for voluntary land donations.</td>
</tr>
<tr>
<td>Safety of Dams</td>
<td>Yes</td>
<td>Project interventions are micro/ mini hydro power installations with capacities less than 1 MW. These are small schemes that normally would not require the construction of dams but weirs to retain water before entering or the off-grid turbine or other small</td>
</tr>
</tbody>
</table>
### Safeguard Policy

<table>
<thead>
<tr>
<th>Safeguard Policy</th>
<th>Triggered?</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impoundment Structures</td>
<td>Yes</td>
<td>Impoundment structures are possible which could be regarded as ‘small dams’ under this policy and hence it is triggered. These small dams/structures if present in off-grid hydro-power subprojects will require good engineering design as stipulated in OP4.37 and safeguard matters and possible risks, if any, will be assessed and managed under the safeguard requirements of OP4.01, in principle through the ESIA or ESMP, as applicable. ‘Large dams’ as defined under OP4.37 are far outside the scope and scale of hydropower off-grid subprojects as expected under NEP (average $40,000-50,000 per subprojects, below 1MW) and hence capacity will not be present with the implementing agencies to review such schemes. Therefore, large dams will not be accepted under the Project and dams/structures that would have a height/water drop of 10m or more will not be considered for Project funding.</td>
</tr>
<tr>
<td>Projects on International Waterways OP/BP 7.50</td>
<td>No</td>
<td>The project interventions are small in nature and in scale not expected to cause any drainage or discharges to surface waters, nor entail any significant usage of surface water for cooling or other purposes, that would affect international waterways.</td>
</tr>
<tr>
<td>Projects in Disputed Areas OP/BP 7.60</td>
<td>No</td>
<td>The project interventions are not in disputed areas as defined by OP 7.60 and will be wholly within the borders of Myanmar.</td>
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</table>

### 6. Environmental and Social Management Framework Approach

#### 6.1. Framework Approach

As the specific infrastructure and location of the grid extension and off grid electrification subprojects as well as specific technical assistance are not identified at this stage, a framework approach has been adopted to assess the potential environmental and social impacts and risks of the NEP. This Environmental and Social Management Framework (ESMF) provides general policies, guidelines and procedures to prevent or minimize environmental and social impacts for all project components and subprojects.
The ESMF provides guidance as follows:

- Subprojects (e.g., distribution line, substations, solar panels, mini-grids) and technical assistance are formulated considering potential environmental and social issues, especially of those people who would be directly benefited or impacted by the proposed project;
- Subprojects and technical assistance are designed considering the unique socio-cultural and environmental situation prevailing in the areas where the specific subproject would be implemented;
- Possible environmental and social impacts of subproject activities during both construction and operational phases are identified during project formulation and design, and appropriate mitigation/enhancement measures are devised and a monitoring plan prepared, as part of the overall environmental and social management instruments;
- Environmental and Social Management Instruments such as Environmental and Social Management Plans (ESMP), Resettlement Action Plans (RAPs), Indigenous Peoples Plans (IPP) and Environmental and Social Codes of Practices (ESCoP) and procedures to prepare and follow these instruments; and
- Project activities comply with the relevant World Bank Group Safeguard Policies, as well as National Regulation. As Myanmar legislative framework is expected to continue developing throughout the life of the Project, appropriate gap analysis will be carried out to fill the possible gaps between National Regulation and World Bank Group Safeguard Policies.

Under the Project, the two implementing agencies – MOEE and DRD, through their respective PMOs – are responsible for identification and screening of subprojects and their adequate environmental and social performance. More particularly, the PMOs will prepare a subproject description (see section 5), carry out an environmental/social screening and will assess the requirements for subsequent environmental and social management instruments (e.g. ESCoP, ESMP, IEE, RAP, IPP).

In general, the environmental and social due diligence to be carried out by the PMOs for each subproject includes: (i) subproject description, (ii) identification of subproject area of influence; (iii) establishment of an environmental and social baseline against which impacts of the proposed subproject would be evaluated; (iv) assessment and evaluation of environmental and social impacts and risks of the subproject both during construction and operation; (v) carrying out public consultations, when applicable, and disclosure; and (vi) application of Environmental and Social Code of Practice (ESCoP) and/or identification of mitigation measures and preparation of environmental and social management plans (ESMP, RAP, IPP, as needed) including implementation arrangements, monitoring requirements, budgeting and grievance redress mechanism. This ESMF presents detailed guidelines for carrying out each of these activities.

The Project and this ESMF supports a consultative process with local communities and other relevant stakeholders. It supports decision making by allowing the public access to information on

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9 Environmental and Social Codes of Practice for each type of subproject (see Annexes 15 to 17) have been prepared to manage minor environmental negative impacts associated with NEP subprojects. The ESCoP sets out measures to be taken to avoid or mitigate environmental and social impacts during planning, preparation, construction and operation. The ESCoP will be incorporated into bidding documents and/or contracts.
environmental and social aspects of the project and involving local communities in preparation of subprojects and their safeguard instruments when required, as included in World Bank Safeguard Policies, including for Environmental Assessment, Involuntary Resettlement and Indigenous Peoples (see Section 11 for details).
7. Description of Typical Infrastructure for Subprojects

7.1. Grid Extension

7.1.1. Expansion of Existing MV Substations and Construction of MV (33/11 KV) Substation

The Project is financing equipment that will be used to expand existing MV substations and construct new MV substations. Then from these substations, distribution lines can be installed that can connect the national grid via distribution line infrastructure to a transformer and to a household. Existing substations will be expanded by: (i) Installing an additional set of relevant Transformer (for example installing an additional 10 MVA Transformer to a 33/11 KV Substation with a 10 MVA Capacity); (ii) Providing a set of substation extension Protection System (for example installing a 33 KV Protection System to a 33/11 KV Substation with a 20 MVA Capacity)

Figure 7.1 Line Diagram of different units of a 33/11 KV substation

Once land for the new Substation or its expansion is selected and acquired, the soil has to be investigated to assess its suitability for constructing infrastructure such as staff housing, control buildings and switch yard. Each new substation needs an estimated 1.2 hectare (3 acres). The civil construction works include the construction of the control room (building) along with the construction of the foundations for different equipment, followed by the construction of the boundary wall and the guard room.

After manufacturing and shipment of the 33 KV auto reclosers (disconnecting switch DS), 11 KV auto reclosers and the 33/11KV single phase transformers, these are installed in the switchyard within the Substation complex. The incoming line, switchgears, transformers and outgoing lines are connected
by 33 KV, 11 KV and 0.4KV cables along with the control cables both inside and outside the control building.
Safeguard measures such as lightening arrestors as well as earthing cables need to be installed to prevent damage of equipment due to lightening during a storm event. The terminal structures for the 33 KV and 11 KV lines need to be constructed within the premises of the Substation for final connectivity with the distribution system.

7.1.2. Construction of 33 KV and 11 KV Distribution Lines, LV lines and MV/LV transformers

The first step in constructing the distribution lines is conducting a survey of the probable routes. A topographical survey is often conducted along the selected routes to assess the need for ground modification and/or preparation. Spun Pre-stressed Concrete (SPC) poles are erected along the selected routes at designated intervals. The height of the poles depends on the supply power. Usually, 12 m poles are used for 33 KV distribution lines, which simultaneously extend the 11KV and 0.4 KV Lines. H- Poles are used to mount 11/0.4 KV transformers from which three phase lines are extended to the domestic users. Figure 7.2 below shows a schematic diagram of such an H-pole with the dual lines for 33 KV and 11 KV power distributions.

After procuring, the SPC Poles are stacked along the route at designated storage areas beside the road. A hydraulic jack and drilling rig equipped truck is generally used to install the SPC Poles. First, the existing short poles are pulled out and the exposed hole is enlarged and deepened by the truck-mounted drilling rig. The 12m SPC Poles (with two concrete blocks at the bottom) are inserted with the help of the hydraulic elbow-jack mounted on the truck. Following erection of poles, assortments are installed for extending the 33 KV, 11 KV and 0.4 KV lines. A copper wire is passed through the poles into the ground to secure earthing. Lightening arrestor is installed at the top. Drop fuses are mounted on top of the H-poles to prevent short-circuiting.

Typical safeguard measures for this type of infrastructure include clearing of vegetation under the power line system ROW (Right of Way), regular monitoring and surveillance of the Power Lines to check for any risk of fire or undesirable accidents and providing necessary repairs and maintenance work regarding the power lines.
Figure 7.2: Typical H-Pole Arrangement along 33 KV and 11 KV Distribution Lines

Typical Arrangement on H-Pole

- 12 meter SPC Pole
- 0.4 KV Distribution Line
- Earthwire
- Red
- Yellow
- Blue
- Street Light
- 11KV/0.4 KV Transformer
- 33 KV Distribution Line
- Drop Fuse
- Lightening Arrestor
- 11 KV Distribution Line
7.1.3. Household Connections and meters

Household connections are distributed from step down transformers (11KV/0.4KV) which are mounted on H-Poles (Figure 7.2) from which three phase lines (400V/220V) are extended to the domestic users. Figure 7.3 shows a Typical Transmission and Distribution System to the Household Level electrification diagram. Before entering the household, a meter box is installed to monitor the electrical supply. A switchboard with chain rover (switch) controls the electrical supply and cut off.

Figure 7.3: Electrical Power Transmission and Distribution System

7.2. Off-Grid Electrification

The descriptions below are indicative. Actual design of each sub-project will vary according to local conditions, technologies used, and available materials.

7.3. Solar Home Systems

A large component of the off-grid electrification program is the installation of solar home systems (SHS). Solar energy is a renewable energy and is considered to be most suitable in regions where the sun shines brightly for at least several hours each day. However, even during the rainy season on most days sufficient solar energy can pass through the clouds and allow the systems to operate.
Solar Home Systems consist of a solar panel (0.02 – 0.05 KW) on a pole or on a house roof, battery, controller, inverter, and indoor wiring of bulb, lamps, cables and switches. Figure 7.4 below shows the components of a Typical Solar Home System.

For environmental purposes, care should be taken to use Lithium-ion batteries instead of the more prevalent but also more toxic Lead-acid batteries. If Lead-acid batteries are used, then safety measures such as safe disposal of used batteries should be systematically planned and considered for recycling. Furthermore, surveillance of the water content in the battery should be monitored to maintain its efficiency and safety against undesirable emission of air pollutants. The DRD PMO will set up a mechanism to take back old or non-functional lead acid batteries and centrally take care of adequate disposal to a reputable recycling firm. Under this scheme the return of those batteries will be incentivized to avoid sales to informal recyclers in Myanmar. It should be noted that a recent study of disposal of used batteries in Myanmar found the collection and recycling of Lithium-ion batteries to be quite underdeveloped, and so less likely to be disposed of or recycled effectively. The DRD PMO should set up a mechanism to take back old or non-functional Lithium-ion batteries, including a safe and sustainable means of disposal.10

The solar home systems should be provided equitably in the communities, to whoever wants and can afford to install a system. No minority ethnic or religious group should be left out, even if done so unintentionally. The SHS program includes installation of solar systems for public buildings (schools, health centers, religious buildings) and for street lighting. Care should be given that the systems are provided for all religious buildings, including those of minorities, and that the street lighting is well distributed in the community, including ethnic minority or poorer neighbourhoods.

Safety measures such as cutting trees branches or any obstacle that might prohibit the sunlight to enter the solar panel should be considered in choosing the installation site of the sub project. Care must be given to assure trees that are considered valuable to the households (such as fruit or other food trees) are not felled without permission from the household. Some households and most public systems may install the solar panel on the roof. Care must be taken to adhere to the relevant technical specification for installing the solar panel to get the maximum absorption of sunlight.

7.4. Results-Based Financing (RBF) Off-Grid Solar

The Results-Based Financing (RBF) Off-Grid Solar sub-project supports the IFC-led Lighting Myanmar effort that aims to develop commercial market solutions for quality-verified solar devices and kits in Central Myanmar. The RBF Off-Grid Solar sub-project will support sale of 95,000 Lighting Global certified systems by the private sector in Myanmar. It consists of two components: (1) results-based subsidies to eligible companies or local NGOs to sell Lighting Global certified products, and (2) implementation support.

The sub-project will increase market capacity and competition, which is expected to lead to availability of quality products at competitive prices. It will address high initial market development costs faced by the private sector in Myanmar, and so contribute to development of the supply chain and provision of improved quality sales and services.

The private companies and NGOs screened by the DRD PMO will offer Lighting Global certified products delivered with 1-3 warranty requirement, depending on product and after sales service. The Lighting Global testing procedure for small solar systems up to 10 watt peak (Wp) has become an international standard IEC-TS 62257-9-5, while the testing procedure for SHS kits up to 350 Wp is planned to be formalised as IEC standard in 2018. The participating companies and NGOs can either select from currently 134 certified products of 65 suppliers, or they can submit their untested products for certification. The Project will reimburse the companies/NGOs after certification of sales on a sample basis by an independent verification agent (IVA) hired by DRD.

Although operating essentially as businesses, the companies/NGOs supported by this sub-project should seek to be as inclusive as possible in marketing the solar lamps and systems, helping meet lighting and electricity needs of ethnic minorities, religious minorities, or other disadvantaged...
groups in the communities. The companies/NGOs will be required to abide by an Environmental Code of Practice (ESCoP), similar to that for the SHS sub-project, which includes various environmental and social measures.

As noted above (in 7.2.1), the greatest environmental concern of solar home systems is the disposal of batteries. The DRD PMO is expected to set up a mechanism to take back old or non-functional lead-acid batteries and centrally take care of adequate disposal to a reputable recycling firm. The DRD PMO is also expected to set up a mechanism to take back old or non-functional Lithium-ion batteries, including a safe and sustainable means of disposal. The companies/NGOs participating in the RBF Off-Grid Solar sub-project will be expected to use these mechanisms.

### 7.5. Mini Grid Solar Photovoltaic (PV)

Under the Project, mini-grids can be built to generate and distribute electricity for villages from hydro, solar, biomass, wind, diesel or some combination of these. A Mini Grid Solar Photovoltaic (PV) usually consists of one or more solar panels (e.g. 50’x6’), cable, power station (charge controller, battery, inverter), AC Lines (3 phase, 4 wire) to users in a village (Figure 7.5). During the rainy season, when solar energy may not be sufficient, this system can be used together with a diesel engine or other source to provide continuous lighting to households.

In addition to the Safeguard measures for the SHS (Solar Home System) mentioned earlier, monitoring and surveillance for prevention of fire hazards, electrocution or any undesirable accidents should be considered during construction and operational stage of a solar powered subproject.

**Figure 7.5 Components of a Typical Solar Mini-Grid System**

![Components of a Typical Solar Mini-Grid System](image)

### 7.6. Bio Gas Power Plant

A Bio Gas Power Plant can consist of a small anaerobic masonry digester constructed below ground level. The system is used to convert animal wastes and plant wastes through anaerobic digestion
processes to produce energy that can be converted to electricity. A buried masonry anaerobic digester may generate gas to lamps. There may also be cook stoves and possibly a small engine.

A dual biogas power plant and system might consist of the following components: inlet tank (for example, cow dung mixed with water at a ratio of 1:1, grinder blades, sieve), bio digestion chamber, anaerobic digestion, gas storage in a dome shape with methane (CH4 60-70%), outlet tank, effluent slurry, gas pipe, water trap, hydrogen sulfide cleaner, 32 HP diesel engine and 30 kVA dynamo, mixer, panel board, 10g copper wire, with 7 meters high concrete posts. A flow-chart and cross section of such a power plant is presented in Figures 7.6 and 7.7.

Another biomass power plant might use plant residue such as rice husks only. Such a system would include the following components: rice husk storage cabinet, screw conveyor, gasifier, dry ash collector, cleaning and purifying devices, liquid and gas separator, cycle water tank, cycle pump, filters, root blower, and gas engine and generator. A flow chart of this type of rice husk biomass system is presented in Figure 7.8.

Safeguard measures such as installing manometer (pressure gauge) to check the pressure of the produced methane from the digestion chamber, water trap to take away the water content from the outlet gases, Sulphur cleaner and outlet pipe to control the hydrogen sulphide produced from the digester before entering the engine / dynamo to convert the bio gas into electrical power. Conventional safe handling practices should be adhered to and usage of safeguard measures such as PPE (Personal protection equipment) such as gloves, boots, masks, etc. should be provided to the worker(s) in operation. End product from the engine-gasifier such as grease / smoke should be disposed properly by installing grease / smoke trap for prevention before entering the soil or nearby water body.

*Figure 7.6: Indicative Flowchart of a BioGas Plant*
Figure 7.7: Indicative Cross-section of Bio Gas Plant

Figure 7.8: Indicative Flow chart of a Rice Husk Biomass Plant
7.7. Diesel Generator for Electrification

Diesel is a less preferred option under the Project due to its environmental and health impacts, however in some circumstances it may nevertheless be an appropriate solution, particularly as part of a hybrid system. It can provide a supplemental source of energy for solar mini-grids during the rainy season when solar energy is not sufficient, or for hydropower mini-grids during the dry season when water flow is inadequate.

The components of a typical diesel generator plant are an air fan, engine, battery, fuel tank, dynamo, exhaust pipe, concrete poles for cables, 3 phase, 4 wiring system to end users (Figure 7.9). A hybrid inverter will link the solar and diesel hybrid systems, while a synchronization panel will link the hydro and diesel hybrid systems, to assure automatic starts to the diesel system when either solar or hydro power production is insufficient.

Safeguards measures such as providing grease / oil traps or containers to capture potential oil spillage from the diesel engine to avoid polluting the soil or nearby water body are to be considered during installation. Growing trees in the compound of the sub project to absorb expected GHG (Green House Gas) emission and particulate matter from the exhaust of the engine. The exhaust pipe from the diesel engine should be checked for its height according to relevant technical specifications.

During operational stage, safety equipment (such as ear plugs) should be provided for workers to mitigate the impact of noise from the engine. If noise is found to exceed 80 dB (WHO Guidelines value), soundproofing should be seriously considered.

Figure 7.9 Layout Plan of a Diesel Generator Plant

7.8. Mini Hydro Power Plant (<1MW)

Mini Hydro Power plants envisioned under the Project are run-of-the-river projects (which require little or no storage of water) and can be installed in place where the water drop and the steady flow
rate are high enough, although systems with small dams and storage reservoirs might also be considered.

A run-of-the-river hydropower mini-grid system requires one or more potential water sources. Figure 7.10 shows several of the components of a typical system, which can include: a head up weir (not shown) rerouting water to a power canal, a de-silting basin (not shown), a headrace to a forebay (if needed) (not shown) before entering the intake gate of a penstock, to the turbine and generator, with the water then flowing out through the tailrace and discharged back into the original natural stream. The electrical power generated from a mini hydro power plant is distributed through a low voltage network with a transformer and transmission lines, concrete poles for cables, a 3 phase 4 wiring system to the end user households.

Safeguard measures should include mesh or other structures at intake to prevent aquatic biota (fish, crabs, snails, etc.) from entering the power canal, and trash racks at the intake gate of the penstock designed to prevent any aquatic biota and other debris that may have entered the system from being sucked into the turbines. Structures should be included to prevent or reduce erosion of the natural stream banks and siltation into the intake, as well as prevent erosion from waters released through the tailrace. Measures to protect the banks with stone pitching and cement grouting should be considered. During operation, the debris from the trash racks should be separated into organic and inorganic matter, with the organic matter used for compost and the inorganic matter disposed according to arrangements set in a waste management plan.

Figure 7.10 Illustration of a Typical Mini Hydro Power Plant
7.9. Wind Energy

Wind turbines range in size. The Project is expected to support only small wind turbines. Small wind turbines have direct drive generators, direct current output, aeroelastic blades, lifetime bearings and use a vane to point into the wind. Larger turbines generally have geared power trains, alternating current output, flaps and are actively pointed into the wind.

As a general rule, wind generators are practical where the average wind speed is 4.5 m/s or greater. Sites are usually pre-selected on the basis of a wind atlas, and validated with on-site wind measurements. Electricity generated with small turbines can be used to charge batteries or used directly.

Safeguard measures could reduce the potential for birds and bats being killed by the rotating blades. Site selection should avoid known migration pathways or areas where birds and bats are highly concentrated such as near wetlands. Turbines can be arrayed to reduce avian mortality (e.g. grouping turbines parallel to known bird movements) and should be considered during design. Efficiency of Vertical Access Wind Turbines has improved greatly, and their use can greatly reduce avian mortality.

Sources of risk to workers during construction and operation, such as blade ejection, overheating of generators, tower collapse, hazardous weather conditions, handling heavy equipment, and fires caused by lightning strikes should be considered. Lightning protection, earthing measures, and good engineering design are among the possible safeguards measures.

8. Addressing Environmental and Social Impacts

8.1. ESMF Implementation Flowchart and Responsibilities for Grid Extension Component

8.1.1. For Activities Implemented by MOEE Utilities and Other MOEE Agencies

Screening and Scoping

The MOEE through its power utilities (ESE, MESC and YESC) will implement most of the grid extension activities, including all expansion of existing and construction of new medium voltage (MV) substations; construction of all new MV lines and 772 MVA of MV/LV transformers; much of the new low voltage (LV) lines, and some of the village networks and household and community connections (health clinics, schools and other public buildings).

For MV Substations and MV Lines: At the time of initial surveys for MV substation works or for the MV line construction, Township engineers of the MOEE utilities should complete the Grid Extension Screening Form (Annex 1), with assistance from the Union PMO safeguards team, to identify
potential environmental or social impacts in or near the area of the substations or along the MV lines.

Many of the environmental issues are dealt with in the ESCoP for MV Substations and MV lines and Transformers, and adherence to which should enable those implementing the projects to avoid or mitigate these impacts. The screening form helps alert the MOEE of the more evident environmental risks as well as the potential risks for people living near the grid extension activities.

Among the environmental issues covered by the screening forms are identification of difficult terrain where erosion or other problems may occur, and the presence of water bodies and waterways, wetlands, forests, and other natural habitats (including those for birds and bats) affected by the civil works. The social issues covered help identify nearby communities, people living along the right of way, land uses by nearby communities, houses or other structures that may need to be moved, and whether ethnic minorities are in any of the areas affected directly or indirectly by the project.

The screening forms are submitted to the MOEE PMO for review along with designs and other materials prepared for the activity. For every segment of the MV lines or construction or expansion of MV substations, the MOEE PMO determines:

- What are the potential environmental or social impacts, either direct or indirect?
- Based on the assessment of these impacts, what World Bank safeguards policies should be applied to the sub-project and any related activities?
- What additional documentation is needed to assure compliance with the safeguards, such as an Environmental and Social Management Plan (ESMP), and Indigenous Peoples’ Plan (IPP), and Initial Environmental Examination (IEE)

The PMO will work with the appropriate MOEE utility staff to prepare the documentation as needed and to carry out consultations and negotiations with people affected by the activities.

For LV Lines and House Connections: Though most community LV networks and house connections will be done by the private contractors engaged by the VECs or by private investors, some of the community works may be done by the utilities. Before beginning any of the works, the utilities staff should complete the Community LV Network Screening Form (Annex 1). These screening forms will be submitted to the MOEE PMO along with preliminary designs for the network. The PMO will assess what additional documentation is needed, aside from the ESCoP for Community LV Networks and House Connections, and will work with the utility staff to prepare the documentation and to carry out consultations and negotiations as needed.

Training

The MOEE PMO Safeguards Team should provide training to MOEE utilities township engineers and to staff of any contractors involved in the grid extension activities. This training should be held on a regular basis (at least twice a year, or before planning for each round of civil works) to include all who are expected to be involved in the project in the coming months. The training should cover environmental and social requirements of the project, the Environmental and Social Code of
Practice, including the workers’ code of conduct, and the grievance redress mechanism. Additional training should be provided for those involved in activities where an ESMP, RAP, and/or IPP is required, to enable them to work with the communities and carry out those plans effectively.

**Monitoring and Evaluation**

The MOEE Union PMO is responsible for monitoring these civil works, and will do so mainly through the MOEE utility township offices, to assure they adhere to the conditions of the ESCoP and any other safeguards plans. As the local representatives of the MOEE, the township engineers and district offices are responsible for following up on any grievances that have been brought to their attention.

The MOEE PMO Safeguards Team should make field visits to selected civil works to confirm compliance to the safeguards, adherence to the ESCoP, and adequate implementation of any other safeguards instruments. If the MOEE PMO has serious questions for any of the works about compliance to the safeguards or adherence to the ESCoP, or if grievances on environmental or social matters are brought to the attention of the MOEE PMO, a field visit and assessment to those particular works is required.

8.1.2. For LV Networks and Household Connections by VECs or Private Investors

Most of the community LV networks and household connections are done by the VECs who engage private contractors to carry out the works or by private investors. There is no screening for these activities as they are out of project and out of MOEE scope. Township engineers can provide technical assistance to the VECs and/or private investors upon request.

**Monitoring and Evaluation**

The MOEE township engineers carry out post installation verification to check the suitability and alignment of these networks with standard designs. As noted above, this is not part of the NEP, as these activities as they are out of project and out of MOEE scope.

8.2. ESMF Implementation Flowchart and Responsibilities for the Off-Grid Component

8.2.1. For Solar Home Systems and RBF Off-Grid Solar Components

**Screening and Scoping**

The activities of the Solar Home System (SHS) and RBF Off-Grid Solar components have in general quite low risk of environmental or social impacts. Screening by DRD of qualified contractors making bids or of the companies and NGOs selected to participate in the RBF Off-Grid Solar programme, training key staff of the contractors and the companies/NGOs in environmental and social requirements, brief en bloc screening at the Township level prior to installation, and adherence to
the Environmental and Social Codes of Practice (ESCoP) for the SHS and the RBF Off-Grid Solar sub-projects should enable the contractors and companies/NGOs to avoid or mitigate these impacts.

**Screening for Inclusion**

**For SHS:** The DRD Township PMO determines the communities to be covered by the SHS and solicits participation by the households in those communities prior to the call for bids. As part of this process, the Township PMO should complete a screening form on basic environmental and social issues, including presence of ethnic, religious, or other minority groups (SHS Township Screening Form, Annex 2).

**For RBF Off-Grid Solar:** The companies/NGOs will complete a screening form for each community where the solar home kits are sold (RBF Off-Grid Solar Screening Form, Annex 2). This form includes questions about ethnic, religious, or other minority or disadvantaged groups in the community, as well as environmental aspects.

The NEP PMO Safeguards Team reviews the Township and Off-Grid Solar screening forms to determine if there are any issues relating to the World Bank safeguards policies that need to be addressed prior to or during installation.

**Training**

**For SHS:** The NEP PMO Safeguards Team and Communications Team should provide training to the contractors (in particular to the supervisors of installation) on environmental and social requirements of the project, the Environmental and Social Code of Practice, including the workers’ code of conduct, and the grievance redress mechanism. This training should be after the contractors have been selected, but before they begin installing the SHS.

**For RBF Off-Grid Solar:** The NEP PMO Safeguards Team and Communications Team should provide training to the companies and NGOs on environmental and social requirements of the project, the Environmental and Social Code of Practice, including the workers’ code of conduct, and the grievance redress mechanism. This training should be after the companies and NGOs have been selected to participate, but before they begin sub-project activities.

**Monitoring and Evaluation**

**For SHS:** The contractor completes several forms after installation, including one on the households not receiving SHS (Form NEP-4: Households not participating in the SHS Programme). The form includes information whether the household is an ethnic or religious minority in the community or a vulnerable household, and the reasons why the SHS was not installed.

**For both SHS and RBF Off-Grid Solar:** Inspection and verification of installation is done by Inspection and Verification Agents (IVA) and recorded in the project’s MIS. Surveys conducted by the IVAs include questions on ethnicity and gender issues, and on adherence to the ESCoP.
These documents are reviewed by the NEP PMO Safeguards Team to evaluate if the SHS program is complying with the environmental and social safeguards.

### 8.2.2. For Mini-Grid Systems

**Screening and Scoping**

For every mini-grid sub-project, the DRD PMO determines the following:

- What are the potential environmental or social impacts, either direct or indirect?
- Based on the assessment of these impacts, what World Bank safeguards policies should be applied to the sub-project and any related activities?
- What additional documentation is needed to assure compliance with the safeguards, such as an Environmental and Social Management Plan (ESMP), and Indigenous Peoples’ Plan (IPP), and Initial Environmental Examination (IEE)

The project proposal process for NEP mini-grids consists of two stages, referred to as “pre-feasibility study” and “feasibility study”. The pre-feasibility study consists of initial descriptions of the proposed sub-project, including descriptions of the communities, energy demand and proposed sources of energy, engineering design, management and organisation, environmental and social aspects including compliance measures, project implementation plan, and financial analysis. The “feasibility study” provides more detailed assessment of each of these categories, including additional information and documentation requested by the DRD PMO and the World Bank. Priority is given to sites pre-selected by the DRD for development of mini-grids, though developers can also propose sites they have identified.

**Pre-feasibility study**

The developer is required to complete an initial screening form, to indicate the possible environmental and social impacts of the sub-project. A separate screening form is available for each type of technology being proposed thus far – solar, biomass, mini-hydro, and solar-diesel, wind-diesel, and biomass-diesel hybrids (Annex 3). Although many of the questions are the same in all the mini-grids, some questions and sections are tailored to the particular technologies, given different expected environmental impacts. The screening form is to be completed with the assistance of VEC members or other village leaders, who are to be identified on the screening form. The screening form is then submitted to the DRD Township Officer, who reviews and confirms the information by signing and dating the form. The developer can request assistance from the DRD Township PMO for this initial visit, particularly if it is a DRD selected site with which the developer is not yet familiar.

Based on the information in the screening form, the developer describes the potentially adverse environmental and social impacts and the proposed mitigation measures to avoid or reduce those impacts, including a list of all additional documentation required at the feasibility study stage. An indicative outline for this section of the pre-feasibility study is provided in Annex 6.
The pre-feasibility study also includes other documents relevant to safeguards, notably the VEC Application for Mini-Grid Screening and the Memorandum of Understanding between the Developer and the VEC, both of which indicate interest on the part of the community for the mini-grid sub-project.

The NEP PMO mini-grid unit receives the pre-feasibility studies, with the Safeguards Team responsible for reviewing the screening form, the sections of the proposal dealing with safeguards and compliance, and other relevant documentation. The Safeguards Team provides comments and recommendations for any additional assessment or documentation needed in the “feasibility study” stage of the proposal. This would include whether or not the sub-project requires an IEE. The Annex 1 of the Environmental Impact Assessment Procedures under the Myanmar Environmental Conservation Law automatically requires and IEE for hydro-power projects of ≥ 1 MW but < 15 MW and with a reservoir area covering < 400 ha. Other technologies under the NEP off-grid component automatically require IEE only if ≥ 5 MW, which is not expected. Even if not automatically required, the NEP PMO may require an IEE if any significant environmental and/or social impacts are possible.

Other information or documentation that the Safeguards Team may require for the feasibility study stage could include, but not be limited to, an ESMP, IPP, Resettlement Action Plan (RAP) for compensation of land or loss of livelihoods, Waste Management Plan (if not already included in an ESMP), evidence of public consultation with the communities (including neighbouring or downstream communities if affected by the project), photographic evidence (of consultations, environmental conditions), proof that information provided to and consultation with the local community is in the language they understand (including that of any minority ethnic group within the community) recordings (audio or video) of further consultation meetings, environmental measurements, and assessments of the impacts of the project on women, ethnic and/or religious minorities, or the poor and other disadvantaged groups in the community.

**Feasibility study**

After the NEP PMO approves the pre-feasibility study, the developer prepares a feasibility study, which includes all the additional information and documentation indicated by the developer as well as the additional information and documentation requested by the NEP PMO. If an ESMP and/or IPP and/or RAP are required, the developer should prepare according to the guidelines provided in Annexes 2, 6 & 7 and 8 & 10 of this report).

The developer carries out further consultations with the community and any other affected people and/or stakeholders during this stage, presenting the proposed project, the expected environmental and social impacts and mitigation measures. Sufficient evidence of these consultations should be included in the feasibility study, including photographs, written minutes of meetings, lists of participants with their signatures or markings, and if possible audio or video recordings. A representative of the Township PMO should attend community level consultations as a witness and to provide additional information about the project, its objectives, safeguards, etc., if requested.
If it has been determined that the World Bank Safeguard on Indigenous Peoples (OP 4.10) is triggered, the developer must show (1) that the ethnic minorities were engaged in free, prior, and informed consultation during project preparation in their language and with means of communication appropriate to their culture, (2) that their views have been adequately ascertained and incorporated in the design, and (3) that there is broad community support for the sub-project, by both men and women.

The NEP PMO reviews the draft feasibility study after submission by the developer, with the Safeguards Team responsible for review of all the environmental and social aspects, assuring the documentation is sufficient and the compliance mechanisms are adequate to mitigate any of the expected impacts.

The feasibility study can be sent back to the developer for revision if any aspects are not adequately addressed. This can be done any number of times until the NEP PMO is satisfied. Once approved, the final proposal document is sent to the World Bank for review and comments and possible further revisions.

Once final approval is given to the sub-project, a tripartite agreement is signed between the NEP DRD, the developer, and the VEC of the community or communities to be served by the mini-grid. The contract with the developer will include all the implementation plans (ESMP, IPP, RAP, etc., as required) and the Environmental Code of Practice and the Workers’ Code of Conduct.

**Training**

The NEP PMO Safeguards Team and Communications Team should provide training to the developers (in particular to construction supervisors) on environmental and social requirements of the project, the Environmental and Social Code of Practice (ESCoP), including the workers’ code of conduct, and the grievance redress mechanism.

**Monitoring and Evaluation**

Overall responsibility for monitoring and evaluation is with the DRD PMO, who will work through the Township DRD office to monitor construction of the sub-projects and assure they adhere to the conditions of the contract and tripartite agreement. As the local representative of the DRD, the Township PMO is responsible for following up on any grievances that have been brought to its attention.

The developer prepares monthly reports, which include reports of compliance to the environmental and social safeguards, and adherence to the ESCoP and any environmental or social plans, including progress in any actions required.

The NEP PMO Safeguards Team reviews the reports from the developer and provides comments and requests additional information as needed. The Safeguards Team should join the Mini-Grid Unit on field visits to sub-projects to confirm compliance to the safeguards, adherence to the ESCoP, and adequate implementation of any other safeguards instruments. If the NEP PMO has serious
questions about compliance to the safeguards or adherence to the ESCoP, or if grievances on
environmental or social matters are brought to the attention of the NEP PMO, a field visit and
assessment to the sub-project is required.

Consultants

Consultants can be engaged by the developer to conduct the IEE and prepare other safeguards
documents, on condition that the consultant abides by all World Bank safeguards policies. The
developer is responsible for all actions of the consultant in the field, including all interactions with
the local communities and residents. The developer remains responsible for all the documents
prepared and information provided by the consultants, and must show sufficient knowledge of all
aspects of the work conducted by and materials prepared by the consultants.

The PMOs may contract consultants to support monitoring of compliance with environmental and
social safeguards by a sub-projects or group of sub-projects. The responsible PMO prepares a TOR
and procures the contractor for safeguards implementation supervision/monitoring in accordance
with World Bank procurement rules.

The PMO includes reporting on safeguard implementation as a chapter of its normal project status
reports and regular monitoring reports.

World Bank environmental and social specialists will supervise compliance and inform the World
Bank’s Regional Safeguard advisor.

Application of World Bank Safeguards and ESMF to Other Financiers

The World Bank Environmental and Social Safeguards and this Environmental and Social
Management Framework apply to all components or sub-projects of the NEP Project, even if that
component or sub-projects are funded entirely by another Development Partner or private party.

8.3. Guidelines for environmental and social screening of sub-projects

Potential impacts of each component or sub-project have been divided into:

(A) impacts during construction, and

(B) impacts during operations.

For each phase, the impacts have been further categorized into: ecological, physical-chemical
impacts, and social impacts. A number of parameters have been identified for each of these
categories: extent, duration, magnitude/intensity, probability and significance. During the screening
process, the significance of each impact will be classified as "significant", "moderate" or "low". This
classification will inform the level of detail of the further environmental and social analysis required.
8.3.1. Ecological Impacts

Generally, four parameters have been considered for screening of ecological impacts during construction phase:

1. presence of Natural Habitats land and water areas where the biological communities are formed largely by native plant and animal species and human activity has not essentially modified the area’s primary ecological functions) for which protection is required under WB Safeguard policies (including Natural Habitats) and Myanmar Laws,
2. felling of trees,
3. clearing of vegetation, and
4. impact on terrestrial / aquatic / avian habitat.

If the subproject or related infrastructure affects a Natural Habitat, then alternative design should be made if possible for those elements of the sub-project to avoid risk to biodiversity, vegetation and natural habitats. However, it may not be possible in all cases to avoid these areas, even with alternative design. The proposed route, for example, of a power line subproject may need to pass through biodiversity areas and a notable biological corridor. It would be necessary to identify possible route(s) that would reduce the risk to biodiversity, vegetation and natural habitats. In such a case, when it is not possible to completely avoid such sensitive areas, and the responsible PMO deems it necessary to implement this sub-project, then the possible impacts on biodiversity must be further analysed with an IEE or an ESIA appropriate to the expected impacts and mitigation measures proposed.

Hydropower projects will necessarily have an impact on the aquatic ecology, and other sub-projects may also affect waterways with pollution, sewage and waste disposal, and other potential impacts. Wind turbines can affect birds and bats, with potential impacts to migratory patterns, preferred habitats, and feeding patterns, as well as death from collision with the blades of the turbine. The electromagnetic field (EMF) of MV electrical power lines should also be screened for the potential impact on communities and biodiversity, mostly avian. The potential for these various environmental impacts can each be assessed as significant, moderate or insignificant.

For the impact on natural habitats located close to the proposed sub-project, the potential adverse impacts during construction and operation, such as discharge of waste/wastewater, spills and leaks of oil and other chemicals, should each be assessed as significant, moderate or insignificant depending on proximity of the proposed sub-project to the habitat and the severity of its impact if there are no mitigation measures.

For felling of trees and clearing of vegetation, the impact of each could be classified as significant, moderate or insignificant depending on the number of trees or the amount of biomass removed and its importance for ecosystems nearby, as well as its impact on hydrology and erosion.
If any of these impacts are considered significant, the responsible PMO can request preparation of either an IEE or ESIA, depending on the potential severity of the impacts.

8.3.2. Physical-Chemical Impacts

The parameters considered for screening of physical-chemical impacts during construction phase of a subproject include:

- noise and air pollution
- water pollution or land pollution
- changes in water flow or drainage congestion

If construction of the sub-project involves use of equipment/machines producing significant noise (e.g., generators, pile drivers) and if the proposed subproject site is located close to human settlements/schools/hospitals, then noise pollution would be significant (in the absence of mitigation measures). Similarly, use of stone crushers, excavation works and vehicle movements generate dust and air pollution. Possible air pollution from activities involved in subproject construction is not likely to be significant, and could be classified as "minor", unless the subproject site is located very close to human settlements.

If there is a water body (pond/stream) located close to the proposed sub-project location, then the potential adverse impact (e.g., through discharge of waste/wastewater from subproject activities, spills and leaks of oil/chemical) on water quality could be classified as "significant" or "moderate" or "insignificant", depending on the of the proposed subproject location to the water body and the nature of the water body (i.e., whether it is an important habitat for aquatic flora/fauna).

If the location of proposed sub-project infrastructure, such as a sub-station site, obstructs the flow of natural drainage water, then it could generate "significant' drainage congestion/water logging during both construction and operational phases of the substation; otherwise impacts on drainage would most likely be "minor". Hydropower sub-projects will affect the flow of the water sources. The affect of the project on water flow can be classified as "significant' or "moderate" or "insignificant", depending on the extent and duration of disruption. For example, impact may be considered “significant" if the minimum environmental flow is not maintained for more than several days.

During the operation of a subproject, physical or chemical environmental parameters would include, but not be limited to noise level, air pollution, erosion and siltation, drainage congestion, water logging, water pollution, solid/liquid waste disposal, and likelihood of hazardous materials. These should all be screened for their potential impact as significant, moderate or insignificant depending on the likely severity without mitigation measures.

If any of these impacts are considered significant, the responsible PMO can request the developer to prepare either an IEE or ESIA, depending on the potential severity of the impacts.
8.3.3. Social Impacts

The proposed sub-projects are expected to result in a number of positive social impacts. This could include improvements in livelihoods and economic development, improved health and education services and community safety, as well as improvement in women’s lives. Some positive impacts will be the direct result of project activities, while others could result from initiatives undertaken by development partners and businesses, as well as by the local residents themselves, following the improved access to electricity.

Even so, some sub-projects could pose social risks to and have adverse social impacts on local communities and households. Such adverse impacts and risks could include:

- Permanent loss of land and assets on the land such as trees and standing crops needed for the infrastructure, or temporary loss of land for construction sites, or loss of livelihoods because of limited use imposed on some lands or other resources;
- Social exclusion, for the individual households that cannot afford access to the electricity services or for neighbourhoods or nearby communities that do not yet have access;
- Indebtedness, due to the cost of electricity and purchase of new electrical appliances and devices;
- Negative impacts to ethnic minorities and other vulnerable groups, in particular due to potential exclusion from project benefits such as access to electricity and improvements in health and education services;
- Variable governance and capacity within Village Electrification Committees (VECs), which can affect the quality of implementation of sub-projects and the level of benefits achieved.

For most sub-projects, the primary potential adverse social impacts concern loss of land and livelihoods, and social exclusion of poor and other vulnerable households and groups. As much of the grid extension and most of the off-grid projects are in more remote regions of the country where most of the ethnic minorities reside, there is also the potential for adverse impacts on those ethnic minorities, as well as on other vulnerable groups such as religious minorities.

Land and Livelihoods: The potential impacts of sub-projects to land and livelihoods could include direct or indirect changes of land use; loss of income through temporary or permanent change in land or other resource use; and the need for land acquisition. The footprint of sub-projects is generally small and it is not expected that people would need to relocate or resettle, although the Resettlement Policy Framework (RPF) allows for this should it be needed in exceptional cases. Sub-projects may also include instances of voluntary land donation where infrastructure will be built. While OP 4.12 on Involuntary Resettlement does not directly cover such donations, they are closely related and should only occur under strict conditions. There must be alternative sites available for that infrastructure, so the land owner/user can decline a request to donate the land and the sub-

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12 OP 4.12 covers direct economic and social impacts that result from Bank-assisted investment projects, and are caused by the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) lost of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location.
project can use the alternative site. If no alternative site is available, the land owner/user must receive compensation at market price. If land is donated, it cannot account for more than 20 percent of the land owner/user’s total productive land holdings. A protocol for voluntary land donation is presented at Annex 9.

It is important to assess early the potential impacts of proposed subprojects on livelihoods within the proximity of the proposed subprojects, both those livelihoods linked to use of land and also other livelihoods that may be affected by the proposed subproject. The RPF provides the protocol for compensation for permanent and temporary loss of livelihoods and loss of assets, in addition to the permanent and temporary loss of lands and assets.

**Ethnic Minorities and Vulnerable Groups:** There is the potential that ethnic minorities and other vulnerable groups may not be able to receive equitable benefits from NEP subprojects. They may be excluded from local decision-making processes that discuss strategies and approaches to access electricity. Contractors or developers working in their communities may not be aware of or respect their local customs and culture.

Under the NEP, screening for the presence of ethnic minorities will be undertaken to determine the need for free, prior and informed consultation with these communities, and to determine whether the developer should prepare a sub-project Indigenous Peoples Plans (IPP), as required by OP 4.10. (see the Indigenous Peoples Planning Framework, Annex 9) Consultation and social assessment—at a scale proportional to the sub-project’s potential impacts—may be required to gain insights into potential cultural, language and other dimensions that need to be considered in order to ensure that sub-projects provide appropriate benefits to, and do not have adverse impacts on, ethnic minorities.

Whether and IPP is deemed necessary or not, communication and consultations with local communities should be in the language they understand. If there is more than one ethnic group in a community using more than one language, communications and consultation should be made in all the languages used in that community, so that no persons or groups are intentionally left out of the process. If the contractor for SHS or the developer of a sub-project does not have in-house capacity in any of these languages, they will need to engage translators or staff who can communicate with those ethnic minorities.

The screening process can also be used to identify other vulnerable groups and individuals that could be affected by subprojects, including potential exclusion from involvement in subproject activities. Such vulnerable groups could include religious minorities, refugees and displaced communities, while vulnerable individuals could include widows, single mothers, orphans, the elderly, disabled persons, and women more generally.
8.3.4. Physical Cultural Resources

Subprojects are also screened to ascertain their likely impacts on physical cultural resources. Guidelines for identification of physical cultural resources are presented in Annex 7. Procedures in case of a “chance find” (that is, the discovery of an object or site of archaeological, historical, or cultural importance to the nation, region, or local community) are presented in Annex 8.

8.3.5. Local Benefits

The screening process should also be used to identify and optimise the potential local benefits that each subproject could contribute within the communities where it will be implemented. Such benefits could include creation of opportunities to employ local businesses and workers in subproject construction, and in operations and maintenance, and also to provide training and skills for these opportunities.

The Project also intends to provide electricity to social infrastructure within communities - such as health clinics and schools - and to provide streetlights to enhance community safety, particularly for women and children. The screening process will be used to identify the best locations for the public electricity infrastructure, as agreed through consultations with the community. Provision of the social infrastructure must include facilities used by ethnic or religious minorities or other vulnerable groups, and the streetlights should be well distributed throughout the community to cover neighbourhoods of ethnic minorities or poor or other vulnerable groups.

8.4. Optional Approach to Score Environmental and Social Impacts

In general, the screening process will identify the nature of potential impacts (positive and negative) that the subproject could generate within its area of influence (see section 8.5. below). This will inform the selection of the safeguards instrument that would be required to assess the potential impacts in further detail. The choice of safeguards instrument primarily depends on the degree of significance of anticipated environmental and social impacts and the level of associated environmental and social risks.

During the scoping stage, the PMOs will confirm the key environmental and social issues, risks and potential impacts that were identified during the screening process. The scoping stage can highlight potential issues at the early phase of sub-project development thereby allowing design changes to be made to mitigate potential environmental and social impacts and the project location to be modified.
If helpful for certain subprojects, the PMOs can use an Impact Assessment Matrix to identify the likely significance of each identified potential environmental and social impact. Scores are provided for each potential impact by considering four variables: the physical *Extent* of the impact, the expected *Duration* of that impact, the *Probability* the impact will occur, and finally the *Magnitude* of the potential impact. Each variable is assigned a score of 1 to 3 based on the criteria in Table 8.1. A list of potential environmental impacts for all the types of NEP subprojects is presented in Annex 4, and a list of potential social impacts is presented in Annex 5.

### Table 8.1. Scoring for Extent, Duration, Probability and Magnitude

<table>
<thead>
<tr>
<th>SCORE</th>
<th>Extent</th>
<th>Duration</th>
<th>Probability</th>
<th>Magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direct impact zone: Within the works/site area or immediate surroundings</td>
<td>Short: The impact is short term (0-12 months) or intermittent</td>
<td>Low</td>
<td>Low: No or negligible alterations to environmental functions and processes</td>
</tr>
<tr>
<td>2</td>
<td>Locally: Effects measurable/noticeable outside the works area and immediate surroundings</td>
<td>Medium: Medium term (1-2 years)</td>
<td>Medium</td>
<td>Medium: Natural ecosystems are modified</td>
</tr>
<tr>
<td>3</td>
<td>Wide Area: The activity has impact on a larger scale such as sub-catchment or entire city</td>
<td>Long: the impact persists beyond the construction phase for years or the operational life of the project and may be continuous</td>
<td>High</td>
<td>High: Environmental functions altered</td>
</tr>
</tbody>
</table>

The significance of the impact is then deemed as low, medium, or high by using this formula:

\[
\text{Significance} = (\text{Extent} + \text{Duration} + \text{Probability}) \times \text{Magnitude}
\]

A potential impact is rated as low-risk when the total is less than 9, as medium-risk when the total is between 10 and 14, and as high-risk when the total is 15 or above.
Although most of the impacts being measured will be negative, some potential impacts could also be positive. Those using the Impact Assessment Matrix should first determine if any of the impacts are expected to be positive, and calculate accordingly.

If most of the potential impacts are shown to be low risk, the only safeguard instruments required could be the ESCoP with adequate monitoring and post-construction assessment. However if some of the impacts are rated as moderate to high, an ESMP may be required, depending on the type and severity of the impacts. If there is involuntary loss of land, assets or livelihoods, a RAP is required, and if the sub-project is in a community or area with ethnic minorities, an IPP is required. If some impacts are rated as high, with potential for serious environmental or social harm, an IEE may be required in addition to an ESMP, RAP and/or IPP.

8.5. Sub-project Area of Influence

It is critical that the sub-project area of influence includes all people or areas that are potentially affected by the sub-project. The area of influence can be defined as the geographic area where the environmental and social impacts of a sub-project would or could be experienced. This consists of the sub-project’s direct area of influence and the area of influence of its activities. In order to establish a sub-project area of influence, the activities to be carried out and processes that would take place during both the construction and operations phases of a sub-project need to be carefully evaluated.

When defining a sub-project’s area of influence, it is important to consider both the type of sub-project (SHS, mini hydro, biomass, etc.) and the area where it will be implemented (e.g. near a water body, a school, a house, productive land, etc.). For the majority of the sub-projects, the area of influence is likely to be limited to the footprint of the works (land plots, corridors of power lines, access roads, etc.) and its direct vicinity. Some impacts however, such as noise and air pollution, can have effects beyond the footprint of the works. Attention is required also for impacts on waterways because hydropower mini-grids can have downstream effects and cumulative impacts to other water uses. Disposal sites for waste and hazardous materials also need to be considered as part of the sub-project’s area of influence, even if at a distant location.

In defining the area of influence, it is also important to carefully consider land ownership and use. In some cases, land can be communally owned and/or used by groups that may not live in immediate proximity to the sub-project site. Such groups may also be required to be included within the sub-project’s area of influence.

Similarly, if items of physical cultural resources or cultural heritage are included within the geographic area where the environmental and social impacts of a sub-project would or could be experienced, they would need to be considered in defining the sub-project area of influence.

Table 8.2 below provides general guidelines to identify the sub-project area of influence when limited to the footprint of the works and direct vicinity. As mentioned above, depending on the sub-project, the area within which it will be implemented and the significance of the identified potential
impacts, the area of influence may include a sub-catchment for mini-hydro impacts on sediment flow/ecosystems or an air basin for diesel impacts on air quality.

**Table 8.2 Guidelines for identifying direct area of influence when limited to the works\(^\text{13footprint}\)**

<table>
<thead>
<tr>
<th>Subproject</th>
<th>Area of Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Substation</strong></td>
<td>Areas and communities surrounding the location of the Substation who may be affected by construction activities. Areas on either side within ~15 m (49 ft) of the access road from the main road to the Substation</td>
</tr>
<tr>
<td><strong>Power Line</strong></td>
<td>Right of Way for the Distribution line:</td>
</tr>
<tr>
<td></td>
<td>For 33 kV Distribution Power Line - 12 ft (3.6 m)</td>
</tr>
<tr>
<td></td>
<td>≤ 11 kV Distribution - 8 ft (2.4m)</td>
</tr>
<tr>
<td></td>
<td>No building or human habitation within the ROW of the Distribution Power Lines</td>
</tr>
<tr>
<td><strong>Household meters and connections</strong></td>
<td>No defined particular distance</td>
</tr>
<tr>
<td><strong>Bio Gas Plant</strong></td>
<td>Surrounding area within 50 ft (15m) of sub-project effluent slurry (no tube to be drilled to prevent pathogen / ecoli infection)</td>
</tr>
<tr>
<td><strong>SHS (Solar Home System)</strong></td>
<td>Areas and communities 0.2 km (0.12 mile) around a solar home system using Acid Type Battery</td>
</tr>
<tr>
<td><strong>Mini Grid Solar Photovoltaic (PV)</strong></td>
<td>Areas and communities 0.5 km (0.31 mile) around a mini grid solar photovoltaic (PV) system</td>
</tr>
<tr>
<td><strong>Mini-Hydro</strong></td>
<td>Area 0.5 km (0.31 mile) within forebay water shed area and 2 km downstream of Mini Hydro Power Plant</td>
</tr>
<tr>
<td><strong>Diesel Engine for Electricity</strong></td>
<td>Within 7m (23 ft) of the surrounding area from a diesel engine (&lt;500 kVA)</td>
</tr>
</tbody>
</table>

\(^{13}\text{Information provided by Union PMOs (MOEP/MLFRD) during site visit in February 2015 and confirmed with ESE and DRD Officers in Nay Pyi Taw on 28 April 2015}\)
### Ancillary Facilities

Although the Project will finance specific sections of grid and off-grid electrification, some ancillary facilities (such as HV transmission lines; access roads; water supply lines) could be essential for the NEP to achieve its development objectives. Therefore, and as part of the World Bank OP 4.01 requirement for environmental and social impact assessment to include “the area likely to be affected by the Project, including all its ancillary aspects”, the Project will carry out reasonable due diligence in relation to existing or simultaneously built ancillary facilities that will be connected to and/or that can be affected by the Project. As part of this due diligence it is expected that the PMOs will:

- Determine the type and location of ancillary facilities (e.g. power plants and HV transmission lines) that will be feeding and or are a fundamental part of the grid roll out or rural pre/electrification schemes.
- Carry out an audit to assess the environmental and social performance of the ancillary facilities, and develop an action plan if non-compliance with the World Bank Group Operational Policies identified as pertinent to the Project is identified.

### 8.6. Selection of Safeguards Instruments

#### 8.6.1. Environmental and Social Code of Practice (ESCoP)

Every type of sub-project has an Environmental Code of Practice (ESCoP), which describes the types of measures to be taken to prevent or minimise environmental or social harm. For many of the sub-projects, the ESCoP will be considered sufficient, as the environmental and social impacts are expected to have very low impact, over a limited area, and low risk of occurring. The ESCoPs provide the guidelines to assure those potential impacts are avoided.

For the grid extension component, the ESCoPs for MV works and for LV works and connections are automatically included as a part of any work order for the utility companies and of any work by VECs including work carried out by private investors or companies for VECs (Annex 15).

For the off-grid component, the ESCoP for SHS is included as part of the contracts with the companies that win the block bids, and the ESCoP for the RBF Off-Grid Solar sub-project is provided to any supplier selected by the DRD PMO to participate (Annex 16). The ESCoPs for the mini-grid sub-projects are designed for each type of technology being used, with the appropriate ESCoP included in each contract (Annex 17). Every ESCoP includes a Workers’ Code of Conduct, providing rules of behaviour for workers and other staff when implementing the sub-projects.
8.6.2. Environmental and Social Management Plan (ESMP)

An Environmental and Social Management Plan (ESMP) will be prepared for those sub-projects where there are more than a few potential environmental and/or social risks, even if the impacts are classified as low or medium. The primary objective of the ESMP is to record environmental and social impacts resulting from the sub-project activities and ensure implementation of the identified mitigation measures. An ESMP is prepared in order to reduce adverse impacts and enhance positive impacts. It is also intended to address any unexpected or unforeseen environmental and social impacts that may arise during the construction and operations phases of the sub-projects.

The ESMP should clearly lay out:

(a) the measures to be taken during both the construction and operations phases of a sub-project in order to maximise potential positive environmental and social impacts and eliminate or offset adverse impacts, or reduce them to acceptable levels;

(b) the actions needed to implement these measures;

(c) who is responsible for implementing each of these measures;

(d) how community consultation will be incorporated in the process;

(e) a monitoring plan to assess the effectiveness of the mitigation measures employed; and

(f) a cost estimate of implementing the ESMP.

The ESMP should be carried out as an integrated part of the sub-project planning and execution. It must not be seen merely as an activity limited to monitoring and regulating activities against a pre-determined checklist of required actions. Rather it should be used as a dynamic management approach, dealing flexibly with environmental and social impacts, both expected and unexpected, as sub-project implementation proceeds. For those sub-projects requiring an ESMP, it should be a part of the Contract Document.

The ESMP will be prepared by the developer or contractor, and reviewed and approved by the responsible Union PMO.

8.6.3. Resettlement Policy Framework (RPF) and Resettlement Action Plan (RAP)

A Resettlement Policy Framework (RPF) (Annex 11) has been prepared for the NEP in the event that an activity carried out under the project leads to
any persons needing to be resettled or relocated,
the acquisition of land,
the loss of private assets,
the temporary occupation of private land, or
the loss of income or any portion of people’s livelihoods, either permanent or temporary.

The RPF describes procedures and requirements to assess these impacts, and the types of safeguards measures that would be required. Voluntary donations of land are permitted under the project under strict conditions. The protocol and method of reporting these donations is provided in the RPF and separately in Annex 12. If compensation is required for any of the permanent or temporary losses of land, assets, or income/livelihoods, either a Resettlement Action Plan (RAP) or an abbreviated RAP will be prepared. The developer or contractor will prepare the RAP with guidance from the safeguards team of the responsible PMO. An indicative outline for an abbreviated RAP is presented in Annex 13.

Contracts should not be signed for the sub-projects or grid extension section covered by the RAP until all compensation or other entitlements are agreed to in writing by the project affected persons and included in the final RAP, which is then provided to the responsible PMO for approval. Acquisition of land, compensation payments, and any other entitlements should be done only after the PMO has approved the final RAP with the compensation agreements included.

If land has already been purchased by the developer or contractor, including purchases prior to preparation of the project proposal, the responsible PMO will undertake a due diligence assessment and report to assess if land acquisition has followed national requirements and is consistent with the objectives of the World Bank Involuntary Resettlement Safeguard (OP 4.12). The PMO will then prepare an action plan for the developer to address any gaps identified in the due diligence process.

8.6.4. Indigenous Peoples Plan (IPP)

An Indigenous Peoples Plan (IPP) will be required for grid extension activities and mini-grid subprojects where there are ethnic minority communities and other vulnerable groups. An Indigenous Peoples Planning Framework (IPPF) is provided as Annex 9, with an indicative outline for an IPP provided as Annex 10.

A key requirement of the World Bank safeguard on Indigenous People (OP 4.10) is to obtain broad community support from ethnic minorities (as identified under the project) for all project activities and impacts affecting them. This includes both potentially harmful impacts as well as those deemed

14 Broad community support means that ethnic minority community has indicated its support or consent as a group through its leaders or other recognised representatives. There can be broad community support even if some individuals object to the project; however, those individuals should not be a significant portion of the community.
positive by the project, since people from another culture may have a different sense or belief of what might benefit them or not.

Consultations held with ethnic minority organisations during preparation of the NEP did not reveal any opposition to the project, as improved electrical services are widely in demand in all states and regions of the country. Even so, as each community is identified as affected by a mini-grid sub-project or a segment of the grid extension, obtaining their free, prior and informed consent is required before that activity can be carried out. Consent or support of the activity should be obtained, rather than only a lack of opposition.

The IPP includes, among other information:

- definition of the affected ethnic minority groups (or other vulnerable group) in the project area of influence, with an assessment of the lands and resources of these groups and how they would be affected by the project
- summary of disclosures to and consultations with the groups, including any concerns they raise, and the responses to those concerns
- framework for further consultations during implementation
- measures to insure the ethnic minorities receive social and economic benefits in a manner that is culturally acceptable
- financing plan for the IPP
- description of the grievance redress mechanism available to the ethnic minorities
- the proposed monitoring and evaluation measures for the IPP and reporting

With the great number of ethnic minorities in Myanmar with diverse cultures and languages, and with many communities having a mix of ethnic groups, special consideration is needed to assure the ethnic minority groups are informed and consulted in a language understood by all, and using methods that are culturally appropriate and understandable to the group.

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15 Free, Prior and Informed Consent (FPIC) is a specific right that pertains to indigenous peoples and is recognised in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), of which Myanmar is a signatory. “Free” means that the consultations are held and the consent is given voluntarily and without coercion, intimidation or manipulation of the ethnic community. “Prior” means well in advance of an activity being initiated, usually at the scoping or planning stages. “Informed” means that the people are provided with the information needed to make decisions, and that the information is presented in the language they understand and in a manner that is culturally acceptable to them. The community must be able to make decisions through their customary processes. It is also understood that they can withdraw their consent at any stage, and so the process of consultation must continue through planning and implementation.
8.6.5. Initial Environmental Examination (IEE) and Environmental and Social Impact Assessment (ESIA)

Under Myanmar’s current Environmental Impact Assessment Procedures, all typical NEP subprojects do not require either an Initial Environmental Examination (IEE) nor an Environmental Impact Assessment (EIA) or ESIA. For power lines, only those ≥115 kVA and <230 kVA over 50 kilometres length and those of ≥230 kVA of any length require an IEE none of which are included in the Project’s Grid Extension component. For the off-grid projects, none of the technologies being used require an IEE at the expected level of production, with the possible exception of hydropower projects producing ≥1MW. Other technologies under NEP do not require an IEE if less than 5 MW (wind, heat) or less than 50 MW (solar, waste), all of which are well above the levels of power production by any of the mini-grid sub-projects.

Even so, the responsible PMO can require an IEE if potential impacts on natural habitats, ethnic minorities or vulnerable groups are categorized as high-risk during the scoping process, even if other potential impacts are classified as low- or medium-risk. In exceptional cases an ESIA may be required by the responsible PMO if potential impacts are unavoidable and severe without adequate mitigation measures. Some cases where an ESIA might be required are a power line traversing a sensitive biodiversity area, a sub-project located near the habitat of a vulnerable species, or a sub-project possibly affecting lands and other resources which an ethnic minority community depends on for their livelihood.

If an IEE or ESIA is deemed necessary, the developer or contractor will prepare (or engage a consultant to prepare) the document under the procedures outlined in the Government of Myanmar’s Environmental Conservation Rules (adopted since 2014). Having been produced with the assistance of the Asian Development Bank (ADB), the IEE and ESIA procedures of the GoM are considered largely equivalent with the requirements of multilateral development banks such as the World Bank. The IEE or ESIA would have to be approved by the Ministry of Natural Resources and Environmental Conservation (MONREC) before the sub-project can be approved and funded by the Project.
9. Monitoring and Evaluation

A number of implementing agencies will have monitoring and evaluation responsibilities during the implementation of the Project. The Union PMO has overall responsibility for NEP Environmental and Social performance, including monitoring the implementation of the ESMF and subsequent preparation, implementation and monitoring of Environmental and Social Safeguards Instruments for sub-projects.

During project implementation, the Union PMO (either directly or through the District or Township PMOs) will check with local environmental authorities to determine if the project implementation is meeting all safeguard requirements specified in this ESMF and sub-project safeguard instruments (e.g. ESCoP, ESMP, RAP, IPP), as well as those required by national legislation. The Union PMO (either directly or through the District or Township PMOs) will also perform supervision site visits during the construction and operations phases of the sub-projects to confirm that environmental and social safeguards instruments are being adequately implemented. The Union PMO will prepare a site visit report which will include the environmental and social management issues reviewed during the supervision site visit.

The Union PMO will regularly inform the Project Steering Committee and World Bank Task Team regarding the status of ESMF implementation and provide an overview report of the implementation of sub-project environmental and social safeguards instruments. The PMOs will prepare quarterly and annual reports on the key steps, outputs and results of the environmental and social management actions taken to support the implementation of the ESMF and the sub-projects. The PMOs will inform the Project Steering Committee and World Bank Task Team of any shortcomings in the implementation of the ESMF and of any circumstances or occurrences that could have a materially adverse impact on the environmental and social performance of the project that go beyond the impacts envisioned and managed through the processes outlined within this ESMF.

9.1. Monitoring plan for a subproject

The primary objective of environmental monitoring is to verify the absence of or record environmental and social impacts resulting from the subproject activities and to ensure compliance with the "mitigation measures" identified earlier under the ESCoP and the ESMP, RAP and/or IPP, in order to prevent or reduce adverse impacts and enhance positive impacts from project activities.

Monitoring during construction:

During implementation of all subprojects, the PMOs will be responsible to monitor and make sure that the environmental and social mitigation/enhancement measures (including health and safety measures) outlined in the ESCoP and the ESMP, RAP and/or IPP, for the particular subproject are being implemented.
Apart from general monitoring of mitigation/enhancement measures and health and safety protocols (as outlined in the ESMF and Tender Document), important environmental parameters to be monitored during the construction phase of the subprojects include noise level, water quality, drainage congestion, and traffic problems. However, the requirement and frequency of monitoring would depend on the type of subproject, the anticipated impacts and the field situation, and will be determined by the selection of the ESCoP and, if required, the preparation of the ESMP.

Routine monitoring work will be done by the respective PMO to ensure that:

- All personnel at work sites shall be provided with protective gears like helmets, goggles, boots, etc. Workforce, likely to be exposed to noise levels beyond regulatory stipulated limits, shall be provided with protective gears like earplugs etc. and regularly rotated.

- Dust suppression measures like sprinkling of water shall be ensured at all operations areas.

- Construction camps, if needed, shall have health care facilities and all construction personnel shall be subjected to routine vaccinations and other preventive / healthcare measures.

- The work and campsites shall have suitable facilities for handling any emergency situation like fire, explosion, electrocution, etc.

- All areas intended for storage of hazardous materials shall be quarantined and provide with adequate facilities to combat emergency situations. All required permits for storage of inflammable / hazardous materials are to be obtained.

- The construction workers, supervisors and engineers shall be properly trained and with sufficient experience.

- The operational areas shall be access controlled and entry shall be allowed only under authorization.

- Construction camps, if needed, shall have in-house community / common entertainment facilities.

- The work supervisors conduct regular checks on ESCoP and ESMP requirements.

- Measures outlined in the RAP and/or IPP, if any, are implemented as described in the plans (RAPs and IPPs will also include specific monitoring arrangements).

Sub-projects with medium- or high-risk impacts will require more stringent monitoring. Table 9.1 provides a general example of the arrangements for such a sub-project.
Table 9.1: Guidelines for monitoring of environmental parameters during construction for subprojects with medium/high risk impacts

<table>
<thead>
<tr>
<th>Monitoring Parameter and Scenario</th>
<th>Monitoring Frequency</th>
<th>Resource Required and Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise Level</td>
<td>Once every week, particularly during operation of heavy equipment</td>
<td>Contractor, under guidance of PMOs</td>
</tr>
<tr>
<td>Surface Water Quality (pH, BOD₅/ COD)</td>
<td>Once during construction period (at a location downstream of the work area)</td>
<td>Contractor, under the guidance of PMOs</td>
</tr>
<tr>
<td>Appropriate Disposal of Chemical Oil</td>
<td>Once a week during operation period as and when needed</td>
<td>Contractor, under the guidance of PMOs</td>
</tr>
<tr>
<td>Visual observation of drainage congestion within around subproject location</td>
<td>Monthly</td>
<td>Contractor, VEC staff</td>
</tr>
<tr>
<td>Visual observation of traffic within around sub project location Occupational health and safety of project personnel (also includes general health, water supply and sanitary provision, etc.)</td>
<td>Once a week, when drainage / traffic congestion suspected Once a week, and as and when needed</td>
<td>Contractor, under the guidance of PMOs</td>
</tr>
<tr>
<td>Monitoring and surveillance for prevention of fire hazard</td>
<td>Once a week, and as and when needed</td>
<td>VEC staff under the guidance of</td>
</tr>
</tbody>
</table>

**Monitoring during operation**

During operational phase, monitoring of environmental parameters would be required for the subproject.

**10. Estimated Budget for Environmental and Social Mitigation and Management**

The indicative cost estimate for basic implementation of the environmental and social components under the ESMF is approximately USD 1,800,000. This amount is an estimate and may differ from the final cost under this ESMF.
The Contractor carrying out the construction of the subproject is assumed to include the cost of compliance with the ESMF in the bid or project proposal. These estimates should be prepared for all mitigation and monitoring measures required under the ESCoP, and proposed in the ESMP, RAP and IPP when required.

Costs of implementing sub-project safeguard instruments, including monitoring activities, needs to be estimated by the developer or contractor as a part the sub-project budget, of the preparation of the ESMP/RAP/IPP. Many of the activities to be carried out as a part of ESMP/RAP/IPP would not involve any additional direct cost e.g., employing local work force, where appropriate; keeping subproject vehicles in good operating condition; scheduling deliveries of materials/ goods in off-peak hours; good housekeeping, avoiding spills; prohibiting use of fuel wood for heating bitumen; etc. On the other hand, a number of activities would require additional cost. Environmental and social monitoring during both construction and operational phases would involve direct cost.

At the same time, a number of mitigation measures (including health and safety measures) would also require additional cost; these include installation of septic tank/sanitary latrine/portable toilets, installation of health and safety signs, awareness documents (signs/ posters), water sprinkling on aggregates and unpaved surfaces, traffic control (e.g., deputing flagman), traffic light, plantation, and protective gear. Costs for compensation for land acquisition and related impacts, as defined in the RPF, will be funded by the project implementer (MOEE or its utilities for grid extension, private developers for mini-grid subprojects) in agreement with the respective local authorities depending on the type of subproject; and this should be included in the subproject budget.

Funds can be shifted between categories of the ESMF budget as needed.

**Table 10.1: Estimated Budget for ESMF Implementation**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost Estimate (USD)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safeguard Capacity Building, including training</td>
<td>300,000</td>
<td></td>
</tr>
<tr>
<td>Translation and Publication of ESMF material for implementation</td>
<td>150,000</td>
<td></td>
</tr>
<tr>
<td>Screening, Monitoring of subproject safeguards instruments</td>
<td>300,000</td>
<td></td>
</tr>
<tr>
<td>Baseline Studies (air, water, data collection, measurements, social surveys), and consultations with local communities (not including those to be done by private contractors)</td>
<td>300,000</td>
<td></td>
</tr>
<tr>
<td>TA and Consultants</td>
<td>600,000</td>
<td></td>
</tr>
<tr>
<td>Contingency (10%)</td>
<td>165,000</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED BUDGET</strong></td>
<td><strong>1,815,000</strong></td>
<td></td>
</tr>
</tbody>
</table>
11. Community Engagement, Consultation and Public Disclosure

The GoM emphasizes the importance of “good governance, clean government” and is taking a series of actions to improve participation, public consultation and disclosure. However, implementation of these will rely on strategies, legislation and procedures that are still to be prepared and passed. The Project will follow World Bank Group Safeguard Policies for participation, consultation, and disclosure concerning safeguard aspects of the Project as described in this ESMF, including particular procedures included in the IPPF and RPF.

The Project aims at achieving meaningful consultation that is a two-way process in which beneficiaries provide advice and input on the design or the proposed subproject that affect their lives and environment. Meaningful consultation shall promote dialogue between government, communities, NGOs and implementing agencies to discuss relevant aspects of the Project and its subprojects. Consultation is an on-going process and will be carried out both during subproject preparation and implementation. Consultations with project-affected people have been undertaken as part of preparation of the NEP and will continue throughout project implementation (see below and Annex 9 on the IPPF).

The Project supports decision making by allowing the public access to information on environmental and social aspects of the project, as included in World Bank Safeguard Policies, including for Environmental Assessment, Involuntary Resettlement and Indigenous Peoples. This ESMF and the site specific ESCOPs/ESMPs/RAPs/IPPs prepared for the subprojects will be disclosed to the public. Safeguard instruments should be made available to communities and interested parties at accessible locations, including through local government authorities – district and township level MOEE or utility offices, district and township DRD offices, and Township General Administration Department (GAD) offices – and in the communities themselves before works may commence. They should be made publicly available in a manner understandable to affected people, which may include local languages if needed. The IPP, where prepared, should also be made available to the affected ethnic minority communities in places, and in a manner and language that are accessible to them.

The PMOs and partners will also provide periodic reports to the affected communities and other relevant stakeholders on the implementation status or any modification to environmental and social management plans. The PMOs will use a variety of communication tools that will be included in the communication strategy and could include infographics, leaflets and frequent questions and answers to be distributed among different stakeholders, a phone-line to the PMOs, etc.

In addition to consultations carried out regarding this ESMF, the Project will consult communities where grid and off-grid components are to be implemented. The objective of the community consultation is to encourage potential beneficiaries to participate in the project, as relevant, by informing them of various benefits, and ensuring that they are also aware of potential negative environmental and social impacts, mitigation measures, and the contacts for the GRM, VEC and Safeguard Focal Point within the MOEE and DRD PMOs.

Community engagement and consultation is embedded in the Project and is considered a strategic part of its Results Framework. As part of its citizen engagement (CE), the PMOs will consider the number of consultations and the average number of beneficiaries and share of vulnerable people participating in each public consultation for grid and of grid electrification as
an indicator of success. In the Project’s results framework the “number of villages with at least one public consultation was held” is a key indicator. For many subprojects more than one public consultation would be required. The CE is designed to enhance project performance as well as help address several important issues, including gender, inclusion, and achievement of maximum connection (for grid and mini-grid, and maximum adoption of SHS for the off-grid). Topics of the general consultation (in addition to any required consultations concerning safeguards) will include:

1. Informing and explaining to villages about the project, connection cost, electricity tariff;
2. Canvassing and/or soliciting for maximum connections from villagers and possibly take applications from villagers for electricity connections;
3. Gather information to explain who do not sign up for connection, whether they are from ethnic minorities or other vulnerable groups (religious minority, poor, elderly, female headed households, etc.) and why (to gather information to identify individuals in need of assistance, how much assistance villagers will need, and to propose programs like Power to the Poor which aims to provide financial and other assistance to vulnerable households);
4. Educate villagers, both men and women, on the dangers of electricity and safe practices, proper house wiring (many utilities have safety standards for house wiring), efficient use of electricity, how to select efficient lighting and home appliances;
5. For SHS and the RBF Off-Grid Solar sub-projects, inform villagers, both men and women, how the program works, how much the solar home system costs, the types of battery used, the appropriate size of system for their family, which lighting and appliances are the best fit for the system, how to maintain and operate the SHS, safety concerns, and quality assurance and guarantees; and
6. Gender sensitive consultations to educate women on the use of electricity for cooking (such as electric rice cookers), empowering women by providing information and educating women on electricity tariffs, and efficient electric appliances to reduce monthly electricity bills.

The key stakeholder groups identified during project preparation and consulted when preparing the original ESMF are presented in Table 11.1.

**Table 11.1: Key stakeholder groups**

| Government and regulatory agencies | DRD, ESE, States/Regions, Districts and Townships. |


<table>
<thead>
<tr>
<th>Stakeholder Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private sector companies and social enterprises</td>
<td>Private sector companies with the skills and capabilities, and interest, in implementing subprojects. This may include both national and international companies and, for the off-grid component, may also include social enterprises.</td>
</tr>
<tr>
<td>Non-government organizations</td>
<td>National, regional and local civil society and Non-government organizations, including environmental and ethnic minority organizations.</td>
</tr>
<tr>
<td>Local stakeholders</td>
<td>Community-based organizations (CBOs), Municipal and district-level committees, unions, and other local groups.</td>
</tr>
<tr>
<td>Academic and research institutions</td>
<td>Environmental research groups, universities, and technical institutes.</td>
</tr>
<tr>
<td>Beneficiaries and affected communities and households</td>
<td>Project beneficiaries, both men and women, will be consulted at a community level during the preparation of subprojects. In addition, potential subproject affected households will be consulted on the potential impacts and mitigation measures. Particular attention will be made to include the poor, female-headed households, widows and other vulnerable households and groups to enhance their benefits and avoid or mitigate adverse impacts. For the mini-grid subprojects, consultations will continue as needed throughout implementation.</td>
</tr>
</tbody>
</table>
If projects are planned in areas with ethnic minority communities, a process of free, prior and informed consultations will be undertaken with those ethnic minority communities in the project area of influence (see IPPF, Annex 9)

Other development organizations engaged in the energy sector in Myanmar

During the process of preparing the ESMF the PSIA to inform the ESMF involved stakeholder consultations. More than 20 organizations based in Yangon were consulted; many of which were CSOs with a specific focus on ethnic minorities, land and/or gender. In addition, key resource persons identified as those that could provide insights relevant to ethnic minorities were interviewed. An early consultative meeting was held on January 30, 2015 in Yangon with civil society organizations, including some ethnic minority organizations. Background documentation on the proposed project was prepared in Myanmar and English and provided in advance of this meeting. In addition, meetings and discussions were held with community leaders and CSOs in Chin and Shan States during the PSIA field visits.

The first draft of the ESMF and Preliminary PSIA were disclosed in English and Myanmar on May 5, 2015 prior to public consultations. Public consultations were held in Mandalay on May 14, in Taunggyi (Shan State) on May 16 and Yangon on May 18. See Annex 14 for more details on the consultation process during preparation of the Project and the ESMF.

The draft of this revised ESMF was disclosed in English and Myanmar on xxxxxxx 2018. Various channels were provided, including social media, for comments to the MOEE and DRD PMOs for one month after disclosure.

12. Grievance Redress Mechanism

A grievance redress mechanism (GRM) was prepared for the Project to create an enabling environment for affected communities and individuals to raise complaints to implementing entities in regard to the preparation and implementation of subprojects. It aims to enable the PMOs to receive and facilitate resolution of the specific concerns of affected communities and project participants regarding project environmental and social performance. The GRM aims to resolve concerns promptly, in an impartial and transparent process tailored to the specific community, and at no cost and without retribution to the complainant/s. The GRM is based on the following six principles: fairness; objectiveness and independence; simplicity and
accessibility; responsiveness and efficiency; speed and proportionality; participatory and social inclusion. While still following the principles and processes described below, the respective PMOs have since established GRMs according to their institutional arrangements and using available technologies.

The GRM will be communicated to different stakeholders. It is intended that information about the GRM be disseminated widely in meetings and through pamphlets and brochures in Myanmar language, and ethnic languages as needed/relevant. Specifically, information will be provided about how and where to lodge complaints/grievances. Villagers will be encouraged to seek clarification or remediation through the mechanism if they have any questions or complaints/grievances.

Sub-project specific safeguard instruments (ESMP, RAP, IPP) will describe the GRM in detail based on the following procedures for addressing grievances:

**Stage 1:** An initial stage, within the local village or township level, in which any person/s aggrieved by any aspect of the Project can lodge an oral or written complaint/grievance to the local Village Electrification Committee (VEC) or implementing partner/operator. The VEC or implementing partner/operator should keep a written record of complaints/grievances raised by villagers and their resolution; they should inform the District DRD or MOEE PMO of such complaints and resolutions.

If the complaint cannot be resolved within 15 days of receipt between the aggrieved person/s and the VEC or implementing partner/operator, it should be escalated to the second step of the process.

**Stage 2:** If the aggrieved person is not satisfied with the outcome of the initial stage, she/he/they can lodge the complaint to the District DRD or MOEE PMO. During the dialogue
process the issues raised will be reviewed, and the parties will agree upon actions for resolution. The dialogue will seek a resolution to the grievance as long as all the parties involved are amenable to the process. The District DRD or MOEE PMO should keep a written record of complaints/grievances raised by villagers and inform the State/Region and National PMOs of such complaints.

If the complaint cannot be resolved within 15 days of receipt between the aggrieved person/s and the District DRD or MOEE PMO it should be escalated to the third step of the process.

**Stage 3:** If the aggrieved person is still dissatisfied following review by the District DRD or MOEE PMO, the case should be referred to the respective State/Region and/or National PMOs. The State/Region and/or National DRD should keep a written record of complaints/grievances raised by villagers and inform the NEEC (or equivalent body when established) and World Bank of such complaints.

If the complaint cannot be resolved within 20 days of receipt between the aggrieved person/s and the District DRD or MOEE PMO, the aggrieved person/s may proceed to legal proceedings in accordance with the GoM’s laws and procedures.

The VECs and respective PMOs will keep a record of all complaints received, including a description of issues raised and the outcome of the review process. A grievance database template will be prepared to ensure that all key information is captured. Written feedback will be provided to aggrieved persons or parties to the dispute throughout the GRM process.

For the off-grid component, the DRD has set up a GRM using social media. FaceBook is by far the most popular social media in Myanmar, used by people on their mobile phones in even the most remote areas. The DRD Communications and Grievance Team has set up a FaceBook page to provide information to the public and for people to contact the project through Messenger. This is provided as an alternative focal point for grievances.

Regular monitoring of the effectiveness of the GRM will be included in the monitoring and evaluation (M&E) approach for the Project. In undertaking the regular M&E activities, the following questions will be raised:

- Does the project have clear, formal, and transparent internal mechanisms and rules for addressing grievances?
- Do project officials responsible for grievance redress have the authority to take or demand remedial action?
- Are officials responsible for grievance redress obliged to take action on all grievances?
- Do project-affected people feel that they can lodge grievances without fear of retaliation?
- Are project beneficiaries aware of their right to file a grievance and of the grievance redress procedure in general?
- Are there internal processes in place to record, track, and monitor the grievances and the action taken on them?
- Does the GRM provide timely feedback (written or otherwise) to the petitioner on actions taken?
- Is there an appeals process in place that GRM users can access if they are not satisfied with how their grievance has been resolved?
Grievance redress monitoring indicators may include:

- Number of complaints/ grievances registered.
- Percentage of grievances resolved.
- Percentage of grievances resolved within stipulated time period.
- Time required to resolve complaints (disaggregated by different types of grievances).
- Percentage of complainants satisfied with response and grievance redress process.
- Percentage of project beneficiaries that have access to the GRM.

13. Capacity Building and Training Plan

Overall capacity for environmental and social management within the PMOs needs to be developed. Although both DRD and MOEE have recent experience implementing a World Bank-financed projects, there is limited experience within the Ministries in environmental and social management and World Bank safeguard policies. Furthermore the relatively junior engineering staff assigned to the safeguards teams has not been drawn from the other World Bank projects, and so they are becoming familiar with safeguards policies and procedures only since they have started to work on this project.

Delays in setting up the safeguards teams and in engaging national and international experts make the need for rapid capacity building more urgent, as many project activities have been implemented or are will into the planning stages. Fortunately the activities thus far have been generally low risk and with potentially low environmental or social impacts.

Even so the lack of effective safeguards screening and monitoring is itself highly risky for the project, should problems arise that could have been avoided or mitigated with a well-functioning safeguards procedure. This is especially so as project activities increase in pace and scope. The off-grid mini-grid subprojects are probably the most likely to have more significant environmental and social impacts, with their greater infrastructure, longer periods of construction, and many more workers staying for longer time in villages. As of mid-2018, 6 mini-grid subprojects have been implemented, while another 6 are well along the planning stage. But dozens more will be built in the next 2-3 years, many in more remote areas peopled with a diverse mix of ethnic minorities, and in more difficult terrain.

For these reasons, Institutional Strengthening and Implementation support together with a structured Capacity Building program are required to assist the PMOs in implementing the ESMF and providing safeguard related outcomes in a timely manner.
PMO Institutional Strengthening and Implementation Support

Target Groups for Capacity Building

**Safeguards Teams:** The main targets for the capacity building activities must be the safeguards teams of the Union PMOs. They are the focus for the safeguards efforts of the project, and the other target groups will be trained and learn through (and by) the safeguards teams.

They must become sufficiently knowledgeable of the safeguards policies to be able to screen and guide the sub-projects in identifying environmental and social risks and in the practical application of the safeguards instruments. It is not enough to know the policies and instruments; but they also need to learn how judge where, when, and how to apply the instruments, and to guide those implementing the subprojects in identifying, planning and implementing mitigation measures. They need to know how to conduct consultations, and to train others how to conduct consultations, how to include women and vulnerable groups, and especially how to conduct consultations with ethnic minorities.

**Other PMO Units:** The safeguards teams can help build capacity of other PMO units, and in particular those involved with planning, designing, supervising, and monitoring field activities, by helping those units understand the role of the safeguards in avoiding, or at least reducing problems. Work by the safeguards teams can then become integrated more easily into the activities of the other PMO units, such as sub-project screening and planning, field visits, monitoring, and training.

**District and Township Officers and Engineers:** The DRD township officers and engineers, and the township engineers for the MOEE utilities, have key roles throughout the sub-projects. They do the environmental and social screening or initial reviews and approval if others screen, and they do most of the monitoring of compliance with the safeguards during construction and installation works. As such, they should know the reasons for the questions being asked in the screening, understand the consultation process, and understand the issues covered in the ESCoPs, ESMPs, RAPs, and IPPs. District level officials also need to understand the purpose and application of safeguards, as they are the direct supervisors of the township offices and also involved at an appellate stage of the grievance redress mechanism.

**Private Sector Participants:** Sub-project developers for the mini-grid systems are responsible for screening, carrying out consultations, identifying potential environmental and social issues, proposing mitigation measures, and if necessary preparing ESMPs, RAPs, and IPPs with the assistance of the safeguards team. They are also responsible for compliance with the safeguards by following the conditions of the ESCoPs and the other plans. They need to be trained in the use of and understand the reasons for these safeguards instruments and processes. Other contractors and private companies or social enterprises involved in the project may also be involved in screening, and will certainly be responsible for compliance with the safeguards.
VECs and Other Villager Leaders: In addition to learning through consultations about potential environmental and social impacts and their mitigation through the safeguards instruments, VEC members and other village leaders from communities where additional safeguards instruments (ESMP, RAP, IPP) will need training to understand in greater detail the contents of those plans, so they can help assure that the developers, contractors, etc., are adhering to the plans and in compliance with the safeguards.

Institutional Strengthening

In order to ensure that there is adequate capacity to implement and monitor the ESMF, environmental and social experts will be hired as members of the Union PMOs. The specifics tasks carried out by the Environmental and Social Safeguard Staff with support from the experts will include:

- Supervise sub-projects progress as it relates to compliance with the ESMF guidelines, resolving implementation bottlenecks, and ensuring that overall project implementation proceeds smoothly;
- Preparing annual work programs and budgets linked to the implementation of ESMPs and/or with a focus on environmental and social management aspects;
- Reviewing and assessing environmental and social information relevant to the project and accounts (i.e., environmental and social monitoring by township offices and independent verification assessment reports);
- Ensuring that the implementing bodies are supported adequately and that they adhere to the principles of the project, specific to compliance with the ESMF guidelines;
- Verifying, through field trips, compliance of service providers with ESMF; and
- Responsibility for the organization and provision of training sessions, including a training plan and its modules, in environmental and social screening and environmental and social management and also involuntary resettlement and indigenous peoples safeguard policies.

The environmental and social experts engaged by the NEP will also:

- Contribute to the daily PMU Safeguard Team operations, resolving implementation bottlenecks, and ensuring that overall project implementation proceeds smoothly
- Contribute to the preparation, review and implementation of adequate safeguards instruments (e.g. Terms of Reference, ESIA, ESMP, RAP, IPP) as per the ESMF
- Supervise and monitor sub-projects progress as it relates to compliance with the ESMF and provide technical inputs and quality control of Environmental and Social Monitoring reports, including timely information on the implementation of Environmental and Social Management Plans and status of analytical work
- Contribute to design and implementation of Safeguard Related Capacity Building Program, Technical Assistance and Analytical work including Environmental and Social Baseline, Surveys, and others
• Contribute to the PMOs Stakeholder Engagement, including grievance mechanism, and support in the implementation of related activities on stakeholder and community engagement, including grievance mechanisms
• Contribute to the preparation of annual work programs and budgets linked to the implementation of ESMPs and/or with a focus on environmental and social management aspects as well PMOs continue Capacity Building needs assessment and Program
• Organize and participate in Project-related missions and workshops

Efforts will be made to ensure that both male and female staff of the relevant agencies and communities have equal opportunity to participate in the capacity building and training support from the Project. To the extent possible, gender disaggregated data will be collected. Efforts will also be made to ensure that ethnic minority representatives are included among those trained.

Implementation Support

It is envisioned that the Union PMO safeguards teams will need on the job training and periodic assessment of their ability to carry out their tasks. Consultants should be engaged to provide this support, to work with the safeguards teams to ensure sound safeguard management and compliance with the requirements of the ESMF. The specifics of the consultancies will be further developed and modified during implementation as needed but it is envisioned that it will cover the following activities:

• Provide on the job training to PMOs Safeguard Units concerning review, preparation and implementation of adequate safeguards instruments (e.g. Screening and Scoping Reports, ESCoP, ESMP, RAP, IPP) and their preparation;
• Work closely with the PMOs to clarify subproject cycles including safeguards requirements at each stage, from identification to monitoring, including rules and responsibilities, procedures, and clearances from the World Bank and the GoM.
• Assist the PMOs in the review and approval of subproject safeguard instruments.
• Liaise closely with the PMOs in the design and implementation of training, knowledge exchanges, and mentoring. This will include either directly providing in house training as well as drafting TOR and technical specifications to contract specific capacity building initiatives, where needed;
• Provide guidance and quality control for the reporting process during early stages of the project;
• Advise the PMOs on Stakeholder Engagement, including assessing the grievance redress mechanism, and support in the implementation of related activities;
• Support in organizing and participating in missions, field trips, seminars and workshops; and Safeguard-related activities as required by the PMOs.
Additional Staff

As the number of subprojects increases in coming years, the safeguards teams may find themselves overstretched. Even though most subprojects will only require the initial screening and application of the ESCoPs, reviewing and assessing the screening, the consultations, proposed mitigation measures, and monitoring compliance with safeguards and the ESCoPs will be a sizeable responsibility. Add to that their work to assess the need for and help prepare and review additional safeguards instruments (ESMP, RAP, IPP) for some of the subprojects, train local staff, village leaders, and participating private companies, and their reporting responsibilities, it is evident the safeguards teams may well need additional help. It is suggested that others from within the project who have been trained about and understand the safeguards process, either from within NEP or from other World Bank (or ADB) supported projects, be assigned to assist the team as needed.

Safeguards Capacity Building Program

For the PMO Safeguards Teams

The highest priority must be given to capacity building of the Union PMO safeguards teams, as they are crucial to successful implementation of the entire safeguards program. Much of this requires good comprehension of English, as most materials on safeguards are in English, training by World Bank and other outside experts is in English, and reports to the World Bank need to be in English. The team needs to be able to take these lessons from international training and documents, then process and apply them to local situations, and then train local staff, developers, and village leaders. This requires a level of English comprehension that the teams do not yet have. It is therefore strongly recommended that the Union PMO safeguards teams be given regular English lessons as part of their capacity building.

The safeguards teams also should continue to receive training to become sufficiently familiar with the safeguards policies, and with the practical application of those policies in the NEP. They need to know why the screening questions are being asked, so they can assess the responses adequately, and then how, where, and when (and how rigorously) the various safeguards instruments should be applied.

They need continued training in how to conduct village consultations, and involve women and vulnerable groups in the process (in the DRD, this is to be done together with the PMO Communications and Grievance Team). Additional training would be needed on the consultation and decision making processes with ethnic minorities.

They need continued training in the preparation and application of the safeguards instruments, including

- What is the purpose of the ESCoP and how should it be modified as needed;
What are the purposes of the ESMP, RAP, IPP; when and where should each of these be applied; and how are they prepared; and

- How to monitor compliance with the safeguards and in particular monitoring implementation of each of the specific plans.

**Other PMO Units**

While other key staff of the PMO might participate in training from outside experts, to help raise their awareness of the safeguards policies and application, most the capacity building of the other PMO units should be done informally by the safeguards team. Whether over lunches or in informal discussions or workshops, the safeguards team should strive to help the other units understand the role of safeguards and how the work of the safeguards team can best be integrated with that of the other units.

**District and Township Officers and Engineers**

The safeguards team should provide training to the local level officers and engineers, so they will understand the role of safeguards, be able to use the safeguards instruments (screening forms, others as needed), the importance of monitoring and how best to monitor, and the grievance mechanism (as the township offices are one of the first contacts).

Some of this training can be done through formal workshop and training sessions, while the rest is best done through on-the-job support from the safeguards team, whether through field visits to sub-project sites or discussions in the township offices.

**Private Sector Participants:**

Training will be provided to private sector participants at crucial stages in their involvement.

MOEE contractors will be trained on the ESCoP and other relevant safeguards policies for their work after they have won the bids for contracts, but before they begin any construction or installation works

SHS contractors will be trained on the ESCoP and other relevant safeguards policies for their work after they have won the bids for contracts, but before they begin installation.

Companies or social enterprises joining the RBF Off-Grid Solar sub-project will be trained after they have joined the program, but before they begin sales.

Developers of the mini-grid subprojects will be trained in at least 2 stages: (1) after the call for proposals, to understand the consultation process and how to work with villagers (with additional training for those who will work with ethnic minorities), to understand how to include environmental and social matters in their project proposals, and to be informed of the safeguards process throughout planning and implementation; and (2) after review of the pre-
feasibility studies, but before preparation of the feasibility studies, to understand the requirements of the ESCoP, and to learn how to prepare and implement other instruments (ESMP, RAP, IPP) as needed. Special training may be required for those working with ethnic minorities that will require an IPP.

**VEC Members and Other Village Leaders**

Training will be given to VEC members and other village leaders where the DRD mini-grid subprojects are being built, to help them understand in greater detail the safeguards instruments and the application of the ESCoP, to help assure that the developers, contractors, etc., adhere to the plans and are in compliance with the safeguards. Additional training would be needed to VEC members and other village leaders for those subprojects where any additional safeguards instruments are needed (ESMP, RAP and/or IPP) so they will understand in greater detail the contents of those plans, and help assure that the developers, contractors, etc., adhere to the plans and comply with the safeguards.

**Training Schedule**

To meet some of the needs described above, the DRD PMO safeguards team with assistance from the national safeguards expert prepared a list of training activities they will conduct in the coming months, presented below in Table 13.1

Table 13.1 Draft Training Plan for 2018-2019 Prepared by DRD PMO Safeguards Team

<table>
<thead>
<tr>
<th>Training Needs</th>
<th>Target Stakeholders</th>
<th>Target Timeline</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental &amp; Social Management Framework and related documents</td>
<td>DRD Safeguard Team (Union)</td>
<td>July, 2018</td>
<td></td>
</tr>
<tr>
<td>Environmental and Social Codes of Practice &amp; Screening Forms</td>
<td>DRD Staff (State &amp; Region)</td>
<td>June, 2018</td>
<td>Completed</td>
</tr>
<tr>
<td>Project procedure concerning safeguard guidelines</td>
<td>Mini-grid Developer</td>
<td>September, 2018</td>
<td></td>
</tr>
<tr>
<td>Project procedure concerning safeguards guidelines and monitoring</td>
<td>DRD Township Engineer</td>
<td>October, 2018</td>
<td></td>
</tr>
<tr>
<td>Environmental &amp; Social Safeguard Compliance</td>
<td>Mini-grid Developer</td>
<td>September, 2018</td>
<td></td>
</tr>
<tr>
<td>Introducing Safeguard Screening Forms and ESCoPs (mini-grid)</td>
<td>Mini-grid Developer</td>
<td>September, 2018</td>
<td></td>
</tr>
<tr>
<td>Workers' Safety &amp; Working Conditions</td>
<td>Mini-grid Developer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introducing Safeguard Training and ESCoPs (SHS)</td>
<td>SHS Developer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental and Social Safeguards Awareness Training</td>
<td>Communities</td>
<td>During Monitoring Trip</td>
<td></td>
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<tr>
<td>------------------------------------------------------</td>
<td>-------------</td>
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</tr>
</tbody>
</table>

Myanmar National Electrification Project
Environmental and Social Management Framework

Volume 2: Annexes

June 27, 2018
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Annex 1: Screening Forms for Potential Environmental & Social Safeguards Issues for the Grid Extension Program under MOEE

Screening forms have been prepared for each type of expected subproject under NEP.

For the Grid Extension Component, two screening forms have been prepared:

1. Grid Extension Screening Form: to be completed by the MOEE utility township engineers, with assistance from the MOEE safeguards team
2. Community LV Network Screening Form: to be completed if an MOEE utility does the village network. This is to be completed by MOEE utility township engineers
**Screening Form for Grid Extension of MV substations and MV / LV Lines**

<table>
<thead>
<tr>
<th>Region / State</th>
<th>Township</th>
<th>Village</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Pcode</th>
<th>Can be entered later</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Project Name</th>
<th>To be completed by township engineer conducting the survey</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>MOEE Utility Township Engineer</th>
<th>Signature and Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>VEC Members (or other villagers) Consulted</th>
<th>Should consult with one or more VEC members or other village leaders</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

### 1. Community Support and Consultation

- **a.** Are there communities along the grid extension that might be affected by the project, either during construction or operation? If “Yes”, name the communities
- **a.** Are there nearby communities that might be affected by the project, either during construction or operation? If “Yes”, name the communities
- **a.** Has there been public consultation about the project in communities along or near the grid extension activity? If “Yes”, list the date(s)
- **b.** What are the ethnic groups in the communities? List the ethnic groups and note which is the majority group
- **c.** Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in public consultations? If “No”, list those that did not participate
- **d.** Do most people in the community support the project? If “Yes”, percent supporting
- **e.** Do any people or groups in the community object to or have doubts about the project? If “Yes”, what are those objections or doubts?
- **f.** Was the community informed about plans for construction, including location of structures and infrastructure (both permanent and temporary), workers housing, and other impacts (noise, dust, etc.)?  

### 2. Ethnic Minority Groups

- **a.** Do any of the ethnic groups in the communities have a long-term and traditional attachment (for many generations) to the land or resources in the If “Yes”, contact Project Safeguards Unit and the World Bank to determine if additional
b.1. Do most people in any of the ethnic groups in the community understand only their language?

b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?

If “Yes”, how (in meeting, documents, etc.) and when

If “Yes”, approximately what percent of the group supports the project.

3. Land Acquisition / Land Use

a. Permanent Infrastructure

a.1. Is any of the land where the infrastructure is to be located on privately owned lands?

If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

a.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)

If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

b. Temporary Infrastructure

b.1. Will any temporary infrastructure such as access roads, workers housing, or other temporary construction uses (such as storage), be on privately owned lands?

If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

b.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)

If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

5. Physical Cultural Resources

a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that might be affected by the project?

If “Yes”, describe what and how. If the sites or structures will be significantly disturbed, the design should be changed to avoid or minimize impacts.

6. Vegetative Clearing

a. Is significant vegetative clearing required for any parts of the project?

If “Yes”, describe types of vegetation (bush, grassland, bamboo, etc.) Describe the area
<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>Example Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Vegetation</td>
<td>a. Will clearing be required?</td>
<td>where clearing is needed.</td>
</tr>
<tr>
<td></td>
<td>b. Is removal / cutting of trees required?</td>
<td>If “Yes”, approximately how many trees?</td>
</tr>
<tr>
<td>6. Water Bodies</td>
<td>a. Will any construction be near water bodies?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Will the flow of any waterways (rivers, streams) be affected by the project construction activities?</td>
<td>If “Yes”, explain how.</td>
</tr>
<tr>
<td></td>
<td>c. Will the flow of any waterways (rivers, streams) be affected by the project infrastructure?</td>
<td>If “Yes”, explain how.</td>
</tr>
<tr>
<td>7. Wildlife</td>
<td>a. Will the project significantly disturb or destroy any wildlife or their habitat, whether directly disturbing the habitat or from air pollution, dust or noise?</td>
<td>If “Yes”, what animals</td>
</tr>
<tr>
<td>8. Natural Habitats, Aesthetics or Vistas</td>
<td>a. Is the project near a National Park, protected area, or similar important natural habitat; and will it have a significant impact on that park or area?</td>
<td>If “Yes”, what park, area or habitat</td>
</tr>
<tr>
<td></td>
<td>b. Is any part of the project in an area vulnerable to landslides or erosion?</td>
<td>If “Yes”, what part, where.</td>
</tr>
<tr>
<td></td>
<td>c. Is the draining or filling of wetlands (swamps) required?</td>
<td>If “Yes”, stop and change the location of infrastructure or alignment of project to avoid these wetlands.</td>
</tr>
<tr>
<td></td>
<td>c. Is the project in an area susceptible to earthquakes?</td>
<td></td>
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<tr>
<td></td>
<td>d. Will the project significantly disturb any natural views or beauty in the area?</td>
<td></td>
</tr>
<tr>
<td>9. Waste Management</td>
<td>a. Is there a plan for proper collection and disposal of construction waste?</td>
<td></td>
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<tr>
<td></td>
<td>b. Is there a plan for proper collection and disposal of waste (garbage, sewage) in the workers’ housing?</td>
<td></td>
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<tr>
<td>10. Noise / Dust / Emissions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
a. Does the contractor have a plan to control noise during construction?

b. Does the contractor have a plan to control dust during construction?

c. Does the contractor have a plan to control emissions from machinery during construction?

11. Health and Safety

a. Has the contractor been instructed about the applicable health and safety procedures, including proper safety equipment for workers?

b. Has the contractor been instructed about the NEP Environmental and Social Code of Practice?

c. Has the contractor prepared a plan for worker housing, and their water and sanitation needs, according to the Environmental and Social Code of Practice?

d. Does the contractor have plans for fires, explosions, or other emergencies during construction?

e. Has the contractor prepared plans for fires, explosions, or other emergencies during operation?

f. Have the communities been informed of health and safety issues that may affect them during construction?

g. Has the community been informed of health and safety issues in operation and maintenance of the project, and in household use?

12. Grievance Redress Mechanism

a. Has the Grievance Redress Mechanism been explained to the community?

b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them?

c. Has a member of the Village Electrification Committee (VEC) been selected as focal person to receive comments and grievances?
| d. Has the community been informed of other contact persons for questions, comments or complaints? | If “Yes”, how were they informed. |
### Screening Form for Community LV Networks

**Region / State**

**Township**

**Villages**

**Pcode** Can be entered later

**Project Name**

**MOEE Utility Township Engineer** Form to be completed by township engineer conducting the survey

**MOEE Utility Township Engineer Signature and Date**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

**1. Community Description**

- **a. How many households are in the community?**
  
  Give number (an estimate is acceptable if more accurate data are not available)

- **b. Has the community been informed about the programme?**
  
  If “Yes”, list the date(s)

- **c. Have most people agreed to participate in the programme?**
  
  If “Yes”, percent participating

- **d. Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in discussions about the programme?**
  
  If “No”, list those that did not participate

- **e. Do any groups in the community object to or have doubts about the programme?**
  
  If “Yes”, what are those objections or doubts?

- **f. Has the community been informed about plans for installation, including possible timing?**
  
  If “No”, give the reason (such as, no installation plans yet)

**2. Public Lighting**

- **a. Are there schools or other educational buildings in the community?**
  
  If “Yes”, how many are there, and which of them will be provided with electricity?

- **b. Are there health centres or other health facilities in the community?**
  
  If “Yes”, how many are there, and which of them will be provided with electricity?

- **d. Are there religious buildings (temples, churches, mosques) in the community?**
  
  If “Yes”, how many are there, and which of them will be provided with electricity?
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>e. Will public street lights be installed, and has the community been consulted about their placement?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Will the public street lights be placed evenly and fairly throughout the community?</td>
<td>If “No”, what parts of the community will not receive street lights.</td>
<td></td>
</tr>
</tbody>
</table>

3. Ethnic Minority Groups

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there any ethnic minorities in the village?</td>
<td>If “Yes”, give the name of each ethnic group and the approximate number of households of each group.</td>
<td></td>
</tr>
<tr>
<td>b.1. Do most people in any of the ethnic groups in the community understand only their language?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?</td>
<td>If “Yes”, how (in meeting, documents, etc.) and when</td>
<td></td>
</tr>
<tr>
<td>c. Will the majority of the people in the ethnic minority group or groups participate in the programme?</td>
<td>If “Yes”, approximately what percent of the group supports the programme.</td>
<td></td>
</tr>
<tr>
<td>d. Did representatives of the ethnic minority groups participate in discussions about public street lighting and lighting of public buildings?</td>
<td></td>
<td></td>
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</tbody>
</table>

4. Physical Cultural Resources

<p>| | | |</p>
<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that should be avoided by the project?</td>
<td>If “Yes”, describe what and where in the community.</td>
<td></td>
</tr>
</tbody>
</table>

5. Physical and Environmental Aspects

<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>a. Are there any topographical features that should be considered when installing the network?</td>
<td>If “Yes”, describe</td>
<td></td>
</tr>
<tr>
<td>b. Would access to the community be difficult for trucks bringing the materials and installation equipment?</td>
<td>If “Yes”, describe, and suggest how to solve</td>
<td></td>
</tr>
<tr>
<td>c. Are there any other logistical matters that should be considered by the installation team?</td>
<td>If “Yes”, describe</td>
<td></td>
</tr>
<tr>
<td>d. Are there any other environmental aspects that should be considered by the installation team?</td>
<td>If “Yes”, describe</td>
<td></td>
</tr>
</tbody>
</table>
### 6. Grievance Redress Mechanism

<table>
<thead>
<tr>
<th>a. Has the Grievance Redress Mechanism been explained to the community?</th>
<th>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them?</td>
<td>If “Yes”, who</td>
</tr>
<tr>
<td>c. Has a member of the Village Electrification Committee (VEC) been selected as focal person to receive comments and grievances?</td>
<td>If “Yes”, give the name and contact information</td>
</tr>
<tr>
<td>d. Has the community been informed of other contact persons for questions, comments or complaints?</td>
<td>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</td>
</tr>
</tbody>
</table>
Annex 2: Screening Forms for Potential Environmental & Social Safeguards Issues for Solar Home Systems

Screening forms have been prepared for each type of expected subproject under NEP.

For the Off-Grid Component, screening forms have been prepared according to the level of intervention in the communities and the type of sub-project technologies.

Two screening forms have been prepared for SHS sub-projects:

1. **SHS Township Screening Form**: to be completed by DRD Township engineers for the regular SHS programme of the NEP
2. **RBF Off-Grid Solar Screening Form**: to be completed by participating companies or social enterprises for the RBF funded Off-Grid Solar subproject
### Screening Form for Solar Home Systems (by DRD)

<table>
<thead>
<tr>
<th>Region / State</th>
<th>Township</th>
<th>Village / Village Tract</th>
<th>Pcode</th>
<th>Can be entered later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Township Name</td>
<td>Township Signature and Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VEC Members (or other villagers) Consulted</td>
<td>Should consult with one or more VEC members or other village leaders</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Township Engineer Name | Township Engineer Signature and Date |

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Community Description</strong></td>
<td></td>
</tr>
<tr>
<td>a. How many households are in the community?</td>
<td>Give number (an estimate is acceptable if more accurate data are not available)</td>
</tr>
<tr>
<td>b. Has the community been informed about the programme?</td>
<td>If “Yes”, list the date(s)</td>
</tr>
<tr>
<td>c. Have most people agreed to participate in the programme?</td>
<td>If “Yes”, percent participating</td>
</tr>
<tr>
<td>d. Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in discussions about the programme?</td>
<td>If “No”, list those that did not participate</td>
</tr>
<tr>
<td>e. Do any groups in the community object to or have doubts about the programme?</td>
<td>If “Yes”, what are those objections or doubts?</td>
</tr>
<tr>
<td>f. Has the community been informed about plans for installation, including possible timing?</td>
<td>If “No”, give the reason (such as, no installation plans yet)</td>
</tr>
</tbody>
</table>

<p>| <strong>2. Public Lighting</strong> |
| a. Are there schools or other educational buildings in the community? | If “Yes”, how many are there, and which of them will be provided with electricity? |
| b. Are there health centres or other health facilities in the community? | If “Yes”, how many are there, and which of them will be provided with electricity? |</p>
<table>
<thead>
<tr>
<th>d. Are there religious buildings (temples, churches, mosques) in the community?</th>
<th>If “Yes”, how many are there, and which of them will be provided with electricity?</th>
</tr>
</thead>
<tbody>
<tr>
<td>e. Has the community been consulted about the placement of public street lights?</td>
<td>If “No”, what parts of the community will not receive street lights.</td>
</tr>
<tr>
<td>f. Will the public street lights be placed evenly and fairly throughout the community?</td>
<td></td>
</tr>
</tbody>
</table>

3. Ethnic Minority Groups

<table>
<thead>
<tr>
<th>a. Are there any ethnic minorities in the village?</th>
<th>If “Yes”, give the name of each ethnic group and the approximate number of households of each group.</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.1. Do most people in any of the ethnic groups in the community understand only their language?</td>
<td>If “Yes”, how (in meeting, documents, etc.) and when</td>
</tr>
<tr>
<td>b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?</td>
<td></td>
</tr>
<tr>
<td>c. Will the majority of the people in the ethnic minority group or groups participate in the programme?</td>
<td>If “Yes”, approximately what percent of the group supports the programme.</td>
</tr>
<tr>
<td>d. Did representatives of the ethnic minority groups participate in discussions about public street lighting and lighting of public buildings?</td>
<td></td>
</tr>
</tbody>
</table>

4. Physical Cultural Resources

| a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that should be avoided by the project? | If “Yes”, describe what and where in the community. |

5. Physical and Environmental Aspects

<table>
<thead>
<tr>
<th>a. Are there any topographical features that should be considered when placing the SHS? (For example, mountains blocking sun for part of the day)</th>
<th>If “Yes”, describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Would access to the community be difficult for trucks bringing the SHS and installation equipment?</td>
<td>If “Yes”, describe, and suggest how to solve</td>
</tr>
<tr>
<td>c. Are there any other logistical matters that should be considered by the installation team?</td>
<td>If “Yes”, describe</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>d. Are there any other topographical or environmental aspects that should be considered by the installation team?</td>
<td></td>
</tr>
<tr>
<td>6. Grievance Redress Mechanism</td>
<td></td>
</tr>
<tr>
<td>a. Has the Grievance Redress Mechanism been explained to the community?</td>
<td></td>
</tr>
<tr>
<td>b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them?</td>
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<tr>
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</tr>
<tr>
<td>d. Has the community been informed of other contact persons for questions, comments or complaints?</td>
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</tbody>
</table>
Screening Form for Solar Home Systems (in the RBF Off-Grid Solar Program)

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<tr>
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<tbody>
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<td>Should consult with one or more VEC members or other village leaders when completing the form</td>
</tr>
<tr>
<td>Company Representative Name</td>
<td></td>
</tr>
<tr>
<td>Company Representative Signature and Date</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

1. Community Description

a. How many households are in the community?  
   - Give number (an estimate is acceptable if more accurate data are not available)

b. How many have been informed about the programme?

c. How many households are interested in buying the Lighting Global Systems?

d. Did women, members of any the ethnic minorities, and other vulnerable groups (such as the poor, elderly, disabled) participate in discussions about the programme?  
   - If “Yes”, list those that did participated

e. Did members of the community have any comments about the programme, (positive or negative)?  
   - If “Yes”, what were their comments?

f. Has a time been set for installation for those who plan to purchase the systems?

3. Ethnic Minorities and Other Vulnerable Groups

a. Are there any ethnic minorities in the village?  
   - If “Yes”, give the name of each ethnic group and the approximate number of households of each group.

b.1. Do most people in any of the ethnic groups in the community understand only their language?
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.2. If so, were they informed about the programme in their language?</td>
<td>If “Yes”, how (in meeting, documents, etc.) and when</td>
</tr>
<tr>
<td>c. Will any households of the ethnic minority group or groups participate in the programme?</td>
<td>If “Yes”, approximately how many households of each ethnic minority.</td>
</tr>
<tr>
<td>d. Will any households of other vulnerable group or groups participate in the programme?</td>
<td>If “Yes”, approximately how many households of each vulnerable group.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Physical Cultural Resources</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that should be avoided?</td>
<td>If “Yes”, describe what and where in the community.</td>
</tr>
</tbody>
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<table>
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<tr>
<th>5. Physical and Environmental Aspects</th>
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<tr>
<td>a. Are there any topographical features that should be considered when placing the SHS? (For example, mountains blocking sun for part of the day)</td>
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<td>If “Yes”, describe, and suggest how to solve</td>
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<tr>
<td>c. Are there any other logistical matters that should be considered by the installation team?</td>
<td>If “Yes”, describe</td>
</tr>
<tr>
<td>d. Are there any other topographical or environmental aspects that should be considered by the installation team?</td>
<td>If “Yes”, describe</td>
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<table>
<thead>
<tr>
<th>6. Grievance Redress Mechanism</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Does the community know who they should contact for questions, comments or complaints?</td>
<td>If “Yes”, give the name and contact information</td>
</tr>
<tr>
<td>b. Has the community been informed of another contact person (such as the DRD Township Engineer) for questions, comments or complaints?</td>
<td>If “Yes”, give the name and contact information</td>
</tr>
</tbody>
</table>
Annex 3: Screening Forms for Potential Environmental & Social Safeguards Issues for Off-Grid Mini-Grid Projects

Screening forms have been prepared for each type of expected subproject under NEP.

For the **Off-Grid Component**, screening forms have been prepared according to the level of intervention in the communities and the type of sub-project technologies.

Six screening forms have been prepared for various types of mini-grid technologies that have been or are expected to be proposed. If a new technology or another hybrid is introduced, the DRD safeguards team can prepare a new screening form.

As all the NEP mini-grids are being implemented by private developers, the forms are to be completed by the developer and reviewed and approved by the DRD Township Officer before being submitted to the DRD PMO safeguards team for review:

1. **Solar Mini-Grid Screening Form**: for mini-grids using only solar power. A few were among earlier subprojects
2. **Biomass Mini-Grid Screening Form**: for mini-grids using only biomass
3. **Hydropower Mini-Grid Screening Form**: for mini-hydro power subprojects
4. **Solar-Diesel Mini-Grid Screening Form**: solar power mini-grids in future will all have back-up diesel generation
5. **Wind-Diesel Mini-Grid Screening Form**: though no wind power systems have been proposed, there has been some discussion of potential wind-diesel hybrid systems
6. **Biomass-Diesel Mini-Grid Screening Form**: while not common, at least one such hybrid has been proposed and others may follow
**Screening Form for Solar (only) Mini-Grids**

<table>
<thead>
<tr>
<th>Region / State</th>
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<tbody>
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<td>Project Name</td>
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<td>Form to be completed by developer</td>
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<td>Developer Representative Signature and Date</td>
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<tr>
<td>DRD Township Officer Signature and Date</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
</table>

**1. Community Support and Consultation**

<table>
<thead>
<tr>
<th>a. Has there been public consultation about the project in the community?</th>
<th>If “Yes”, list the date(s)</th>
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<tbody>
<tr>
<td>b. What are the ethnic groups in the community?</td>
<td>List the ethnic groups and note which is the majority group</td>
</tr>
<tr>
<td>c. Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in public consultations?</td>
<td>If “No”, list those that did not participate</td>
</tr>
<tr>
<td>d. Do most people in the community support the project?</td>
<td>If “Yes”, percent supporting</td>
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<tr>
<td>e. Do any groups in the community object to or have doubts about the project?</td>
<td>If “Yes”, what are those objections or doubts?</td>
</tr>
<tr>
<td>f. Was the community informed about plans for construction, including location of structures and infrastructure (both permanent and temporary), workers housing, and other impacts (noise, dust, etc.)?</td>
<td></td>
</tr>
<tr>
<td>g.1. Are there neighbouring or other nearby communities that might be affected by the project, either during construction or operation?</td>
<td>Impacts could be construction of an access road, noise, dust, water pollution or changes in water flow, loss of access to resources.</td>
</tr>
<tr>
<td>g.2. Have these neighbouring or other nearby communities been informed about the project?</td>
<td>If “Yes”, how have they been informed (meeting, letter, other communication), and when.</td>
</tr>
</tbody>
</table>
2. Ethnic Minority Groups

<table>
<thead>
<tr>
<th>a. Do any of the ethnic groups in the community have a long-term and traditional attachment (for many generations) to the land or resources in the area?</th>
<th>If “Yes”, contact Project Safeguards Unit and the World Bank to determine if additional consultations are needed under the safeguards policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.1. Do most people in any of the ethnic groups in the community understand only their language?</td>
<td></td>
</tr>
<tr>
<td>b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?</td>
<td>If “Yes”, how (in meeting, documents, etc.) and when</td>
</tr>
<tr>
<td>c. Do the majority of the people in the ethnic group or groups support the project?</td>
<td>If “Yes”, approximately what percent of the group supports the project</td>
</tr>
</tbody>
</table>

3. Land Acquisition / Land Use

**a. Solar Panels / Batteries**

<table>
<thead>
<tr>
<th>a.1. Is any of the land where the infrastructure for solar panels and storage batteries is to be located on privately owned lands?</th>
<th>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1</td>
</tr>
</tbody>
</table>

**b. Batteries Storage**

<table>
<thead>
<tr>
<th>b.1. Is any of the land that will be used for storage of replacement batteries or other materials needed during operation located on privately owned lands?</th>
<th>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1</td>
</tr>
</tbody>
</table>

**c. Other Permanent Infrastructure**

<table>
<thead>
<tr>
<th>c.1. Will any other permanent infrastructure such as electric poles, transformers, be on privately owned lands?</th>
<th>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>c.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1</td>
</tr>
</tbody>
</table>
### d. Temporary Infrastructure

| d.1. Will any temporary infrastructure such as access roads, workers housing, or other temporary construction uses (such as storage), be on privately owned lands? | If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1. |
| d.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural) | If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1. |

### 4. Access to Mini-Grid

| a.1. Are there any households in the community not covered by the mini-grid? | If “Yes”, list the households and their reasons not to join the grid in Form 4. |
| a.2. Are any of these households are from minority ethnic groups? | If “Yes”, what group(s) and how many in each group. |
| b. Is any physical section of the community not covered by the mini-grid? | If “Yes”, what groups or types of people live in the area not covered by the mini-grid. |
| c. Will the public street lights be placed evenly and fairly throughout the community? | If “No”, what parts of the community will not receive street lights. |
| d. Are there schools or other educational buildings in the community? | If “Yes”, how many are there, and which of them will be provided with electricity? |
| e. Are there health centres or other health facilities in the community? | If “Yes”, how many are there, and which of them will be provided with electricity? |
| f. Are there religious buildings (temples, churches, mosques) in the community? | If “Yes”, how many are there, and which of them will be provided with electricity? |

### 5. Physical Cultural Resources

| a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that might be affected by the project? | If “Yes”, describe what and how. If the sites or structures will be significantly disturbed, the design should be changed to avoid or minimize impacts. |

### 6. Vegetative Clearing

<p>| a. Is significant vegetative clearing required for any parts of the project? | If “Yes”, describe types of vegetation (bush, grassland, bamboo, etc.) Describe the area where clearing is needed. |
| b. Is removal / cutting of trees required? | If “Yes”, approximately how many trees? |</p>
<table>
<thead>
<tr>
<th>c. Is the draining or filling of wetlands (swamps) required?</th>
<th>If “Yes”, <strong>stop and change the location</strong> of infrastructure or alignment of project to avoid these wetlands.</th>
</tr>
</thead>
</table>

7. **Wildlife**

a. Will the project significantly disturb or destroy any wildlife or their habitat, whether directly disturbing the habitat or from air pollution, dust or noise?

If “Yes”, what animals

8. **Natural Habitats, Aesthetics or Vistas**

a. Is the project near a National Park, protected area, or similar important natural habitat; and will it have a significant impact on that park or area?

If “Yes”, what park, area or habitat

b. Is any part of the project in an area vulnerable to landslides or erosion?

If “Yes”, what part, where.

c. Is the project in an area susceptible to earthquakes?

d. Will the project significantly disturbs any natural views or beauty in the area?

9. **Waste Management**

a. Is there a plan for proper collection and disposal of construction waste?

b. Is there a plan for proper collection and disposal of waste (garbage, sewage) in the workers’ housing?

10. **Noise / Dust / Emissions**

a. Does the contractor have a plan to control noise during construction?

b. Does the contractor have a plan to control dust during construction?

b. Does the contractor have a plan to control emissions from machinery during construction?

11. **Health and Safety**
a. Has the contractor been instructed about the applicable health and safety procedures, including **proper safety equipment** for workers? If “Yes”, how has the contractor been instructed

b. Has the contractor been instructed about the NEP Environmental and Social Code of Practice? If “Yes”, how has the contractor been instructed

c. Has the contractor prepared a plan for worker housing, and their water and sanitation needs, according to the Environmental and Social Code of Practice?

d. Does the contractor have plans for fires, explosions, or other emergencies during construction?

e. Has the contractor prepared plans for fires, explosions, or other emergencies during operation?

f. Has the community been informed of health and safety issues that may affect them during construction? If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)

g. Has the community been informed of health and safety issues in operation and maintenance of the project, and in household use? If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)

12. Grievance Redress Mechanism

a. Has the Grievance Redress Mechanism been explained to the community? If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)

b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them?

c. Has a member of the Village Electrification Committee (VEC) been selected as focal person to receive comments and grievances? If “Yes”, who

d. Has the community been informed of other contact persons for questions, comments or complaints? If “Yes”, how were they informed.
## Screening Form for Biomass Mini-Grids

<table>
<thead>
<tr>
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<tr>
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<td>Developer Representative Name</td>
<td>Form to be completed by developer</td>
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<tr>
<td>DRD Township Officer Name</td>
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<tr>
<td>DRD Township Officer Signature and Date</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

### 1. Community Support and Consultation

- **a.** Has there been public consultation about the project in the community? If “Yes”, list the date(s)
- **b.** What are the ethnic groups in the community? List the ethnic groups and note which is the majority group
- **c.** Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in public consultations? If “No”, list those that did not participate
- **d.** Do most people in the community support the project? If “Yes”, percent supporting
- **e.** Do any groups in the community object to or have doubts about the project? If “Yes”, what are those objections or doubts?
- **f.** Was the community informed about plans for construction, including location of structures and infrastructure (both permanent and temporary), workers housing, and other impacts (noise, dust, etc.)?
- **g.1.** Are there neighboring or other nearby communities that might be affected by the project, either during construction or operation? Impacts could be construction of an access road, noise, dust, water pollution, changes in water flow, loss of access to some resources.
- **g.2.** Have these neighboring or other nearby communities been informed about the project? If “Yes”, how have they been informed (meeting, letter, other communication), and when.
### 2. Ethnic Minority Groups

<table>
<thead>
<tr>
<th>a. Do any of the ethnic groups in the community have a long-term and traditional attachment (for many generations) to the land or resources in the area?</th>
<th>If “Yes”, contact Project Safeguards Unit and the World Bank to determine if additional consultations are needed under the safeguards policy</th>
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<tr>
<td>b.1. Do most people in any of the ethnic groups in the community understand only their language?</td>
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<tr>
<td>b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?</td>
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<tr>
<td>c. Do the majority of the people in the ethnic group or groups support the project?</td>
<td>If “Yes”, approximately what percent of the group supports the project.</td>
</tr>
</tbody>
</table>

### 3. Land Acquisition / Land Use

#### a. Gasification / Power Generation Infrastructure

<table>
<thead>
<tr>
<th>a.1. Is any of the land where the gasification infrastructure or the power generation infrastructure is to be located on privately owned lands?</th>
<th>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
</tr>
</tbody>
</table>

#### b. Storage Facilities

<table>
<thead>
<tr>
<th>b.1. Is any of the land that will be used to store raw materials on privately owned lands?</th>
<th>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
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</tbody>
</table>

#### c. Other Permanent Infrastructure

<table>
<thead>
<tr>
<th>c.1. Will any other permanent infrastructure such as electric poles, transformers, be on privately owned lands?</th>
<th>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>c.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
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<tr>
<td><strong>d. Temporary Infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>d.1. Will any temporary infrastructure such as access roads, workers housing, or other temporary construction uses (such as storage), be on privately owned lands?</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
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<tr>
<td>d.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
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<tr>
<th><strong>4. Access to Mini-Grid</strong></th>
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</thead>
<tbody>
<tr>
<td>a.1. Are there any households in the community not covered by the mini-grid?</td>
<td>If “Yes”, list the households and their reasons not to join the grid in Form 4.</td>
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<td>a.2. Are any of these households are from minority ethnic groups?</td>
<td>If “Yes”, what group(s) and how many in each group.</td>
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<td>b. Is any physical section of the community not covered by the mini-grid?</td>
<td>If “Yes”, what groups or types of people live in the area not covered by the mini-grid?</td>
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<td>c. Will the public street lights be placed evenly and fairly throughout the community?</td>
<td>If “No”, what parts of the community will not receive street lights.</td>
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<tr>
<td>d. Are there schools or other educational buildings in the community?</td>
<td>If “Yes”, how many are there, and which of them will be provided with electricity?</td>
</tr>
<tr>
<td>e. Are there health centers or other health facilities in the community?</td>
<td>If “Yes”, how many are there, and which of them will be provided with electricity?</td>
</tr>
<tr>
<td>f. Are there religious buildings (temples, churches, mosques) in the community?</td>
<td>If “Yes”, how many are there, and which of them will be provided with electricity?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5. Physical Cultural Resources</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that might be affected by the project?</td>
<td>If “Yes”, describe what and how. If the sites or structures will be significantly disturbed, the design should be changed to avoid or minimize impacts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>6. Vegetative Clearing</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Is significant vegetative clearing required for any parts of the project?</td>
<td>If “Yes”, describe types of vegetation (bush, grassland, bamboo, etc.) Describe the area where clearing is needed.</td>
</tr>
<tr>
<td>b. Is removal / cutting of trees required?</td>
<td>If “Yes”, approximately how many trees?</td>
</tr>
</tbody>
</table>
c. Is the draining or filling of wetlands (swamps) required? | If “Yes”, stopping and changing the location of infrastructure or alignment of project to avoid these wetlands.

7. Wildlife

a. Will the project produce any runoff into a waterway that could significantly disturb fish or other aquatic life?

b. Will the project significantly disturb or destroy any other wildlife or their habitat (whether by directly disturbing the habitat or from air pollution, dust or noise)? | If “Yes”, what animals

8. Natural Habitats, Aesthetics or Vistas

a. Is the project near a National Park, protected area, or similar important natural habitat; and will it have a significant impact on that park or area? | If “Yes”, what park, area or habitat

b. Is any part of the project in an area vulnerable to landslides or erosion? | If “Yes”, what part, where.

c. Is the project in an area susceptible to earthquakes?

d. Will the project significantly disturb any natural views or beauty in the area?

9. Waste Management

a. Is there a plan for proper collection and disposal of construction waste?

b. Is there a plan for proper collection and disposal of waste (garbage, sewage) in the workers’ housing?

c. Is there a plan for proper collection and disposal of any waste from gasification or power generation?

10. Noise / Dust / Emissions

a. Does the contractor have a plan to control noise during construction?

b. Does the contractor have a plan to control dust during construction?

c. Does the contractor have a plan to control emissions from machinery during construction?
d. Does the contractor have a plan to control noise during operation?  

<p>| | |</p>
<table>
<thead>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Health and Safety</td>
<td></td>
</tr>
<tr>
<td>a. Has the contractor been instructed about the applicable health and safety procedures, including <strong>proper safety equipment</strong> for workers?</td>
<td>If “Yes”, how has the contractor been instructed</td>
</tr>
<tr>
<td>b. Has the contractor been instructed about the NEP Environmental and Social Code of Practice?</td>
<td>If “Yes”, how has the contractor been instructed</td>
</tr>
<tr>
<td>c. Has the contractor prepared a plan for worker housing, and their water and sanitation needs, according to the Environmental and Social Code of Practice?</td>
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<tr>
<td>d. Does the contractor have plans for fires, explosions, or other emergencies during construction?</td>
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<tr>
<td>e. Has the contractor prepared plans for fires, explosions, or other emergencies during operation?</td>
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<tr>
<td>f. Has the community been informed of health and safety issues that may affect them during construction?</td>
<td>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</td>
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<td>g. Has the community been informed of health and safety issues in operation and maintenance of the project, and in household use?</td>
<td>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</td>
</tr>
</tbody>
</table>

| 12. Grievance Redress Mechanism |  |
| a. Has the Grievance Redress Mechanism been explained to the community? | If “Yes”, how has the community been informed (meetings, brochures, posters, by VEC, etc.) |
| b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them? |  |
| c. Has a member of the Village Electrification Committee (VEC) been selected as focal person to receive comments and grievances? | If “Yes”, who |
| d. Has the community been informed of other contact persons for questions, comments or complaints? | If “Yes”, how were they informed. |
# Screening Form for Hydropower Mini-Grids

<table>
<thead>
<tr>
<th>Region / State</th>
<th>Township</th>
<th>Village</th>
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</thead>
<tbody>
<tr>
<td>Township</td>
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<td></td>
</tr>
<tr>
<td>Village</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pcode</td>
<td>Can be entered later</td>
<td></td>
</tr>
<tr>
<td>Project Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developer Representative Name</td>
<td>Form to be completed by developer</td>
<td></td>
</tr>
<tr>
<td>Developer Representative Signature and Date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VEC Members (or other villagers) Consulted</td>
<td>Should consult with one or more VEC members or other village leaders when completing the form</td>
<td></td>
</tr>
<tr>
<td>DRD Township Officer Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRD Township Officer Signature and Date</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Community Support and Consultation</strong></td>
<td></td>
</tr>
<tr>
<td>a. Has there been public consultation about the project in the community?</td>
<td>If “Yes”, list the date(s)</td>
</tr>
<tr>
<td>b. What are the ethnic groups in the community?</td>
<td>List the ethnic groups and note which is the majority group</td>
</tr>
<tr>
<td>c. Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in public consultations?</td>
<td>If “No”, list those that did not participate</td>
</tr>
<tr>
<td>d. Do most people in the community support the project?</td>
<td>If “Yes”, percent supporting</td>
</tr>
<tr>
<td>e. Do any groups in the community object to or have doubts about the project?</td>
<td>If “Yes”, what are those objections or doubts?</td>
</tr>
<tr>
<td>f. Was the community informed about plans for construction, including location of structures and infrastructure (both permanent and temporary), workers housing, and other impacts (noise, dust, etc.)?</td>
<td></td>
</tr>
<tr>
<td>g.1. Are there neighboring or other nearby communities that might be affected by the project, either during construction or operation?</td>
<td>Impacts could be the construction of an access road, noise, dust, water pollution, changes in water flow, loss of access to resources.</td>
</tr>
</tbody>
</table>
g.2. Have these neighboring or other nearby communities been informed about the project?  
If “Yes”, how have they been informed (meeting, letter, other communication), and when.

### 2. Ethnic Minority Groups

a. Do any of the ethnic groups in the community have a long-term and traditional attachment (for many generations) to the land or resources in the area?  
If “Yes”, contact Project Safeguards Unit and the World Bank to determine if additional consultations are needed under the safeguards policy.

b.1. Do most people in any of the ethnic groups in the community understand only their language?

b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?  
If “Yes”, how (in meeting, documents, etc.) and when.

c. Do the majority of the people in the ethnic group or groups support the project?  
If “Yes”, approximately what percent group supports the project.

### 3. Land Acquisition / Land Use

a. **Powerhouse**

a.1. Is any of the land where the powerhouse is to be located on privately owned lands?  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

a.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

b. **Reservoir**

b.1. If a dam and reservoir are planned, is any part of the land that will be flooded by the reservoir on privately owned lands?  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

b.2. If any of this is public land, any part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

c. **Other Permanent Infrastructure**

c.1. Will any other permanent infrastructure such as the dam or weir, power canal, penstock, electric poles, transformers, be on privately owned lands?  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.
c.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)

| | If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1. |

**d. Temporary Infrastructure**

d.1. Will any temporary infrastructure such as access roads, workers housing, or other temporary construction uses (such as storage), be on privately owned lands?

| | If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1. |

d.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)

| | If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1. |

**4. Access to Mini-Grid**

a.1. Are there any households in the community not covered by the mini-grid?

| | If “Yes”, list the households and their reasons not to join the grid in Form 4. |

a.2. Are any of these households are from minority ethnic groups?

| | If “Yes”, what group(s) and how many in each group. |

b. Is any physical section of the community not covered by the mini-grid?

| | If “Yes”, what groups or types of people live in the area not covered by the mini-grid? |

c. Will the public street lights be placed evenly and fairly throughout the community?

| | If “No”, what parts of the community will not receive street lights. |

d. Are there schools or other educational buildings in the community?

| | If “Yes”, how many are there, and which of them will be provided with electricity? |

e. Are there health centres or other health facilities in the community?

| | If “Yes”, how many are there, and which of them will be provided with electricity? |

f. Are there religious buildings (temples, churches, mosques) in the community?

| | If “Yes”, how many are there, and which of them will be provided with electricity? |

**5. Physical Cultural Resources**

a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that might be affected by the project?

| | If “Yes”, describe what and how. If the sites or structures will be significantly disturbed, the design should be changed to avoid or minimize impacts. |

**6. Water Diversion or Damming of Waterways**

a. Will any waterways be diverted or dammed?
b. If the waterway is to be diverted or dammed, has the *Minimum Environmental Flow* been determined? If “Yes”, how many times, at what frequency (for example, 1 time each month for 12 months.

c. If the waterway is to be dammed, has the maximum area to be flooded by the reservoir been determined? If “Yes”, what is the maximum area that will be flooded.

d. If there is a dam with reservoir, has the contractor prepared a plan to minimize erosion and siltation into the reservoir?

### 7. Vegetative Clearing

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Is any of the area that will be flooded presently covered by trees or other natural growth?</td>
<td>If “Yes”, describe the types of vegetation, such as bush, grassland, bamboo, scattered trees.</td>
</tr>
<tr>
<td>b. Are there plans to remove trees or vegetation in that area before the dam is completed?</td>
<td></td>
</tr>
<tr>
<td>c. Is any other vegetative clearing required for other parts of the project?</td>
<td>If “Yes”, describe types of vegetation (bush, grassland, bamboo, etc.) Describe the area where clearing is needed.</td>
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<tr>
<td>d. Is removal / cutting of trees required?</td>
<td>If “Yes”, approximately how many trees?</td>
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<tr>
<td>e. Is the draining or filling of wetlands (swamps) required?</td>
<td>If “Yes”, stop and change the location of infrastructure or alignment of project to avoid these wetlands.</td>
</tr>
</tbody>
</table>

### 8. Aquatic Life

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Do the local people obtain fish or other food from the waterway that will be used for the project?</td>
<td>If “Yes”, how often do people in the community eat fish or other aquatic food (daily, frequent, occasional)</td>
</tr>
<tr>
<td>b. Has the <em>Minimum Environmental Flow</em> been calculated to minimize or avoid significant changes to the aquatic habitat?</td>
<td></td>
</tr>
</tbody>
</table>

### 9. Other Wildlife

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>b. Will the project significantly disturbs or destroy any other wildlife or their habitat (whether by directly disturbing the habitat or from air pollution, dust or noise)?</td>
<td>If “Yes”, what animals</td>
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### 10. Natural Habitats, Aesthetics or Vistas
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<tr>
<th>Question</th>
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<tr>
<td>a. Is the project near a National Park, protected area, or similar important natural habitat; and will it have a significant impact on that park or area?</td>
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<td>b. Is any part of the project in an area vulnerable to landslides or erosion?</td>
<td>If “Yes”, what part, where.</td>
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<td>c. Is the project in an area susceptible to earthquakes?</td>
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<td>d. Will the project significantly disturb any natural views or beauty in the area?</td>
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**11. Waste Management**

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<td>a. Is there a plan for proper collection and disposal of construction waste?</td>
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<td>b. Is there a plan for proper collection and disposal of waste (garbage, sewage) in the workers’ housing?</td>
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**12. Noise / Dust / Emissions**

<table>
<thead>
<tr>
<th>Question</th>
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<tr>
<td>a. Does the contractor have a plan to control noise during construction?</td>
<td></td>
</tr>
<tr>
<td>b. Does the contractor have a plan to control dust during construction?</td>
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<td>c. Does the contractor have a plan to control emissions from machinery during construction?</td>
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**13. Health and Safety**

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<td>a. Has the contractor been instructed about the applicable health and safety procedures, including <strong>proper safety equipment</strong> for workers?</td>
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**14. Grievance Redress Mechanism**

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<th>Question</th>
<th>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</th>
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<td>e. Has the contractor prepared plans for fires, explosions, or other emergencies during operation?</td>
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<td>f. Has the community been informed of health and safety issues that may affect them during construction?</td>
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<td>b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them?</td>
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<tr>
<td>c. Has a member of the Village Electrification Committee (VEC) been selected as focal person to receive comments and grievances?</td>
<td>If “Yes”, who</td>
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<td>d. Has the community been informed of other contact persons for questions, comments or complaints?</td>
<td>If “Yes”, how were they informed.</td>
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</table>
Screening Form for Solar-Diesel Mini-Grids

| Region / State |  |
| Township |  |
| Village |  |
| Pcode | Can be entered later |
| Project Name |  |
| Developer Representative Name | Form to be completed by developer |
| Developer Representative Signature and Date |  |
| VEC Members (or other villagers) Consulted | Should consult with one or more VEC members or other village leaders when completing the form |
| DRD Township Officer Name |  |
| DRD Township Officer Signature and Date |  |

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td><strong>1. Community Support and Consultation</strong></td>
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<td></td>
</tr>
<tr>
<td>a. Has there been public consultation about the project in the community?</td>
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<td>If “Yes”, list the date(s)</td>
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<td>b. What are the ethnic groups in the community?</td>
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<td>List the ethnic groups and note which is the majority group</td>
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<td>c. Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in public consultations?</td>
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<td>If “No”, list those that did not participate</td>
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<tr>
<td>d. Do most people in the community support the project?</td>
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<td>If “Yes”, percent supporting</td>
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<tr>
<td>e. Do any groups in the community object to or have doubts about the project?</td>
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<td>If “Yes”, what are those objections or doubts?</td>
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<td>f. Was the community informed about plans for construction, including location of structures and infrastructure (both permanent and temporary), workers housing, and other impacts (noise, dust, etc.)?</td>
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<td>Impacts could be the construction of an access road, noise, dust water pollution, changes in water flow, loss of access to some resources.</td>
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<tr>
<td>g.1. Are there neighbouring or other nearby communities that might be affected by the project, either during construction or operation?</td>
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g.2. Have these neighboring or other nearby communities been informed about the project?  

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<tbody>
<tr>
<td>If “Yes”, how have they been informed (meeting, letter, other communication), and when.</td>
<td></td>
</tr>
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</table>

2. Ethnic Minority Groups

a. Do any of the ethnic groups in the community have a long-term and traditional attachment (for many generations) to the land or resources in the area?  

<p>| | |</p>
<table>
<thead>
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<tr>
<td>If “Yes”, contact Project Safeguards Unit and the World Bank to determine if additional consultations are needed under the safeguards policy</td>
<td></td>
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</table>

b.1. Do most people in any of the ethnic groups in the community understand only their language?  

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</tbody>
</table>

b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?  

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>If “Yes”, how (in meeting, documents, etc.) and when</td>
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c. Do the majority of the people in the ethnic group or groups support the project?  

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>If “Yes”, approximately what percent of the group supports the project.</td>
<td></td>
</tr>
</tbody>
</table>

3. Land Acquisition / Land Use

a. Solar Panels / Diesel Generators / Batteries

a.1. Is any of the land where the infrastructure for solar panels, diesel generators, and storage batteries is to be located on privately owned lands?  

<p>| | |</p>
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a.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)  

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b. Batteries / Diesel Storage

b.1. Is any of the land that will be used to store diesel fuel, replacement batteries, or other materials needed during operation located on privately owned lands?  

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c. Other Permanent Infrastructure

c.1. Will any other permanent infrastructure such as electric poles, transformers, be on privately owned lands?  

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**d. Temporary Infrastructure**

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<tr>
<th>d.1. Will any temporary infrastructure such as access roads, workers housing, or other temporary construction uses (such as storage), be on privately owned lands?</th>
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**4. Access to Mini-Grid**

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<td>b. Is any physical section of the community not covered by the mini-grid?</td>
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<td>c. Will the public street lights be placed evenly and fairly throughout the community?</td>
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<td>d. Are there schools or other educational buildings in the community?</td>
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**5. Physical Cultural Resources**

| a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that might be affected by the project? | If “Yes”, describe what and how. If the sites or structures will be significantly disturbed, the design should be changed to avoid or minimize impacts. |

**6. Vegetative Clearing**
| a. Is significant vegetative clearing required for any parts of the project? | If “Yes”, describe types of vegetation (bush, grassland, bamboo, etc.) Describe the area where clearing is needed. |
| b. Is removal / cutting of trees required? | If “Yes”, approximately how many trees? |
| c. Is the draining or filling of wetlands (swamps) required? | If “Yes”, stop and change the location of infrastructure or alignment of project to avoid these wetlands. |

7. Wildlife

a. Will the project produce any runoff, including accidental spills, into a waterway that could significantly disturb fish or other aquatic life?  

b. Will the project significantly disturb or destroy any other wildlife or their habitat (whether by directly disturbing the habitat or from air pollution, dust or noise)?  

If “Yes”, what animals |

8. Natural Habitats, Aesthetics or Vistas

a. Is the project near a National Park, protected area, or similar important natural habitat; and will it have a significant impact on that park or area?  

If “Yes”, what park, area or habitat |

b. Is any part of the project in an area vulnerable to landslides or erosion?  

If “Yes”, what part, where. |

c. Is the project in an area susceptible to earthquakes?  

d. Will the project significantly disturb any natural views or beauty in the area?  

9. Waste Management

a. Is there a plan for proper collection and disposal of construction waste?  

b. Is there a plan for proper collection and disposal of waste (garbage, sewage) in the workers' housing?  

10. Noise / Dust / Emissions

a. Does the contractor have a plan to control noise during construction?
<p>| | | |</p>
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<td></td>
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<tr>
<td>d. Does the contractor have a plan to control noise of diesel engines during operation?</td>
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<td></td>
</tr>
<tr>
<td>e. Does the contractor have a plan to control emissions during operation?</td>
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<td></td>
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</table>

**11. Health and Safety**

| a. Has the contractor been instructed about the applicable health and safety procedures, including **proper safety equipment** for workers? |   | If “Yes”, how has the contractor been instructed |
|---|---|
| b. Has the contractor been instructed about the NEP Environmental and Social Code of Practice? |   | If “Yes”, how has the contractor been instructed |
| c. Has the contractor prepared a plan for worker housing, and their water and sanitation needs, according to the Environmental and Social Code of Practice? |   |   |
| d. Does the contractor have plans for fires, explosions, accidental fuel spills, or other emergencies during construction? |   |   |
| e. Has the contractor prepared plans for fires, explosions, accidental fuel spills, or other emergencies during operation? |   |   |
| f. Has the community been informed of health and safety issues that may affect them during construction? |   | If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.) |
| g. Has the community been informed of health and safety issues in operation and maintenance of the project, and in household use? |   | If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.) |

**12. Grievance Redress Mechanism**

| a. Has the Grievance Redress Mechanism been explained to the community? |   | If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.) |
b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them?

c. Has a member of the Village Electrification Committee (VEC) been selected as focal person to receive comments and grievances?  
   If “Yes”, who

d. Has the community been informed of other contact persons for questions, comments or complaints?  
   If “Yes”, how were they informed.
## Screening Form for Wind-Diesel Mini-Grids

<table>
<thead>
<tr>
<th>Region / State</th>
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<td>Form to be completed by developer</td>
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**Developer Representative Name**

**Developer Representative Signature and Date**

**VEC Members (or other villagers) Consulted**

Should consult with one or more VEC members or other village leaders

**DRD Township Officer Name**

**DRD Township Officer Signature and Date**

<table>
<thead>
<tr>
<th>YES</th>
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### 1. Community Support and Consultation

a. Has there been public consultation about the project in the community?  
   If “Yes”, list the date(s)

b. What are the ethnic groups in the community?  
   List the ethnic groups and note which is the majority group

c. Did women, all the ethnic groups, and other vulnerable groups (such as the poor, elderly, disabled) participate in public consultations?  
   If “No”, list those that did not participate

d. Do most people in the community support the project?  
   If “Yes”, percent supporting

e. Do any groups in the community object to or have doubts about the project?  
   If “Yes”, what are those objections or doubts?

f. Was the community informed about plans for construction, including location of structures and infrastructure (both permanent and temporary), workers housing, and other impacts (noise, dust, etc.)?  
   Impacts could be the construction of an access road, noise, water pollution, changes in water flow, loss of access to some resources.

g.1. Are there neighbouring or other nearby communities that might be affected by the project, either during construction or operation?
g.2. Have these neighboring or other nearby communities been informed about the project?  
If “Yes”, how have they been informed (meeting, letter, other communication), and when.

2. Ethnic Minority Groups

a. Do any of the ethnic groups in the community have a long-term and traditional attachment (for many generations) to the land or resources in the area?  
If “Yes”, contact Project Safeguards Unit and the World Bank to determine if additional consultations are needed under the safeguards policy.

b.1. Do most people in any of the ethnic groups in the community understand only their language?  

b.2. If so, were they informed about the project and its possible environmental and social impacts in their language?  
If “Yes”, how (in meeting, documents, etc.) and when.

c. Do the majority of the people in the ethnic group or groups support the project?  
If “Yes”, approximately what percent of the group supports the project.

3. Land Acquisition / Land Use

a. Wind Turbines / Diesel Generators / Batteries

a.1. Is any of the land where the infrastructure for wind turbines, diesel generators, and storage batteries is to be located on privately owned lands?  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

a.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

b. Batteries / Diesel Storage

b.1. Is any of the land that will be used to store diesel fuel, replacement batteries, or other materials needed during operation located on privately owned lands?  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

b.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

c. Other Permanent Infrastructure

c.1. Will any other permanent infrastructure such electric poles, transformers, be on privately owned lands?  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.
c.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)  
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<tr>
<td>d.1. Will any temporary infrastructure such as access roads, workers housing, or other temporary construction uses (such as storage), be on privately owned lands?</td>
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### 4. Access to Mini-Grid

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<tr>
<td>a.1. Are there any households in the community not covered by the mini-grid?</td>
<td>If “Yes”, list the households and their reasons not to join the grid in Form 4.</td>
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<td>c. Will the public street lights be placed evenly and fairly throughout the community?</td>
<td>If “No”, what parts of the community will not receive street lights.</td>
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<td>a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that might be affected by the project?</td>
<td>If “Yes”, describe what and how. If the sites or structures will be significantly disturbed, the design should be changed to avoid or minimise impacts.</td>
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<tr>
<td>b. Is removal / cutting of trees required?</td>
<td>If “Yes”, approximately how many trees?</td>
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<td>c. Is the draining or filling of wetlands (swamps) required?</td>
<td>If “Yes”, stop and change the location of infrastructure or alignment of project to avoid these wetlands.</td>
</tr>
</tbody>
</table>

### 7. Wildlife

| a. Has the selection of the site for the wind turbines included an assessment of bird or bat deaths that might be caused by the wind turbine blades? | If “Yes”, stop and change the location of infrastructure or alignment of project to avoid these wetlands or mangrove forest, as these are common habitats for birds. |
| b. Is the site of the wind turbines near a wetland (swamp or marsh) or a coastal mangrove forest? | If “Yes”, stop and change the location of infrastructure or alignment of project to avoid these wetlands or mangrove forest, as these are common habitats for birds. |
| c. Will the project produce any runoff, including accidental spills, into a waterway that could significantly disturb fish or other aquatic life? | If “Yes”, what animals |
| d. Will the project significantly disturb or destroy any other wildlife or their habitat (whether by directly disturbing the habitat or from air pollution, dust or noise)? | |

### 8. Natural Habitats, Aesthetics or Vistas

| a. Is the project near a National Park, protected area, or similar important natural habitat; and will it have a significant impact on that park or area? | If “Yes”, what park, area or habitat |
| b. Is any part of the project in an area vulnerable to landslides or erosion? | If “Yes”, what part, where. |
| c. Is the project in an area susceptible to earthquakes? | |
| d. Will the project significantly disturb any natural views or beauty in the area? | |

### 9. Waste Management

| a. Is there a plan for proper collection and disposal of construction waste? | |
b. Is there a plan for proper collection and disposal of waste (garbage, sewage) in the workers’ housing?

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Screening Form for Biomass-Diesel Mini-Grids

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<tr>
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### 1. Community Support and Consultation

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### 3. Land Acquisition / Land Use

#### a. Gasification / Biomass Power Generation Infrastructure / Diesel Generators

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<tr>
<th>Question</th>
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<tr>
<td>a.1. Is any of the land where the gasification, biomass power generation, and diesel generator infrastructure, is to be located on privately owned lands?</td>
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</tr>
<tr>
<td>a.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
</tr>
</tbody>
</table>

#### b. Biomass and Diesel Storage Facilities

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.1. Is any of the land that will be used to store raw materials or diesel fuel on privately owned lands?</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
</tr>
<tr>
<td>b.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
</tr>
</tbody>
</table>

#### c. Other Permanent Infrastructure

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>c.1. Will any other permanent infrastructure such electric poles, transformers, be on privately owned lands?</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
</tr>
</tbody>
</table>
c.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)  
If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.

### d. Temporary Infrastructure

<table>
<thead>
<tr>
<th>Question</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>d.1. Will any temporary infrastructure such as access roads, workers housing, or other temporary construction uses (such as storage), be on privately owned lands?</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
</tr>
<tr>
<td>d.2. If any of this is public land, is all or part of it being used by a renter, farmer, or for any other purposes? (either agricultural or non-agricultural)</td>
<td>If “Yes”, follow the land protocol for each plot in Form 2, after completing this Basic Screening Form 1.</td>
</tr>
</tbody>
</table>

### 4. Access to Mini-Grid

<table>
<thead>
<tr>
<th>Question</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.1. Are there any households in the community not covered by the mini-grid?</td>
<td>If “Yes”, list the households and their reasons not to join the grid in Form 4.</td>
</tr>
<tr>
<td>a.2. Are any of these households are from minority ethnic groups?</td>
<td>If “Yes”, what group(s) and how many in each group.</td>
</tr>
<tr>
<td>b. Is any physical section of the community not covered by the mini-grid?</td>
<td>If “Yes”, what groups or types of people live in the area not covered by the mini-grid?</td>
</tr>
<tr>
<td>c. Will the public street lights be placed evenly and fairly throughout the community?</td>
<td>If “No”, what parts of the community will not receive street lights.</td>
</tr>
<tr>
<td>d. Are there schools or other educational buildings in the community?</td>
<td>If “Yes”, how many are there, and which of them will be provided with electricity?</td>
</tr>
<tr>
<td>e. Are there health centres or other health facilities in the community?</td>
<td>If “Yes”, how many are there, and which of them will be provided with electricity?</td>
</tr>
<tr>
<td>f. Are there religious buildings (temples, churches, mosques) in the community?</td>
<td>If “Yes”, how many are there, and which of them will be provided with electricity?</td>
</tr>
</tbody>
</table>

### 5. Physical Cultural Resources

<table>
<thead>
<tr>
<th>Question</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there any spirits, shrines, sacred trees, sacred groves, graves, or other cultural or spiritual or religious sites or structures that might be affected by the project?</td>
<td>If “Yes”, describe what and how. If the sites or structures will be significantly disturbed, the design should be changed to avoid or minimise impacts.</td>
</tr>
</tbody>
</table>

### 6. Vegetative Clearing
a. Is significant vegetative clearing required for any parts of the project?  
If “Yes”, describe types of vegetation (bush, grassland, bamboo, etc.) Describe the area where clearing is needed.

b. Is removal / cutting of trees required?  
If “Yes”, approximately how many trees?

c. Is the draining or filling of wetlands (swamps) required?  
If “Yes”, stop and change the location of infrastructure or alignment of project to avoid these wetlands.

### 7. Wildlife

a. Will the project produce any runoff into a waterway that could significantly disturb fish or other aquatic life?

b. Will the project significantly disturb or destroy any other wildlife or their habitat (whether by directly disturbing the habitat or from air pollution, dust or noise)?  
If “Yes”, what animals

### 8. Natural Habitats, Aesthetics or Vistas

a. Is the project near a National Park, protected area, or similar important natural habitat; and will it have a significant impact on that park or area?  
If “Yes”, what park, area or habitat

b. Is any part of the project in an area vulnerable to landslides or erosion?  
If “Yes”, what part, where.

c. Is the project in an area susceptible to earthquakes?

d. Will the project significantly disturb any natural views or beauty in the area?

### 9. Waste Management

a. Is there a plan for proper collection and disposal of construction waste?

b. Is there a plan for proper collection and disposal of waste (garbage, sewage) in the workers' housing?

c. Is there a plan for proper collection and disposal of any waste from gasification or power generation?

### 10. Noise / Dust / Emissions
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Does the contractor have a plan to control noise during construction?</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Does the contractor have a plan to control dust during construction?</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Does the contractor have a plan to control emissions from machinery during construction?</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Does the contractor have a plan to control noise from biomass generation during operation?</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Does the contractor have a plan to control noise from diesel generation during operation?</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Does the contractor have a plan to control emissions from biomass generation during operation?</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Does the contractor have a plan to control emissions from diesel generation during operation?</td>
<td></td>
</tr>
</tbody>
</table>

### 11. Health and Safety

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Has the contractor been instructed about the applicable health and safety procedures, including proper safety equipment for workers?</td>
<td>If “Yes”, how has the contractor been instructed</td>
</tr>
<tr>
<td>b</td>
<td>Has the contractor been instructed about the NEP Environmental and Social Code of Practice?</td>
<td>If “Yes”, how has the contractor been instructed</td>
</tr>
<tr>
<td>c</td>
<td>Has the contractor prepared a plan for worker housing, and their water and sanitation needs, according to the Environmental and Social Code of Practice?</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Does the contractor have plans for fires, explosions, or other emergencies during construction?</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Has the contractor prepared plans for fires, explosions, or other emergencies during operation?</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Has the community been informed of health and safety issues that may affect them during construction?</td>
<td>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</td>
</tr>
<tr>
<td>g</td>
<td>Has the community been informed of health and safety issues in operation and maintenance of the project, and in household use?</td>
<td>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</td>
</tr>
</tbody>
</table>

### 12. Grievance Redress Mechanism

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Has the Grievance Redress Mechanism been explained to the community?</td>
<td>If “Yes”, how has the community been informed (meetings, brochures, posters, through VEC, etc.)</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>b. Have brochures or posters about the Grievance Redress Mechanism been posted in public places (such as a community board) where all can see them?</td>
<td>If “Yes”, who</td>
<td></td>
</tr>
<tr>
<td>c. Has a member of the Village Electrification Committee (VEC) been selected as focal person to receive comments and grievances?</td>
<td>If “Yes”, how were they informed.</td>
<td></td>
</tr>
<tr>
<td>d. Has the community been informed of other contact persons for questions, comments or complaints?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ANNEX 4: Expected Key Environmental Impacts, mitigation measures and corresponding expected environmental safeguard instruments

<table>
<thead>
<tr>
<th>Expected Key Environmental Impacts</th>
<th>Mitigation Measures</th>
<th>Expected Environmental Safeguard Instrument (ESCoP, ESMP, IEE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subproject 1 – Grid Extension Substation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Construction Stage</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Impact 1: Risk of Lightning, electrocution | Measure 1:  
- Provide Lightning Arrestors / Earthing | ESCoP |
| Impact 2: Risk of Fire | Measure 2:  
- Safety measures for fire extinguishers, design for prevention of fire hazards | ESCoP |
| Impact 3: Change in Land cover | Measure 3:  
- Land acquisition for least impact on change in land cover, clear vegetation only at relevant areas for construction work | ESCoP / ESMP |
| Impact 4: Occupational Health and Safety | Measure 4:  
- Adherence to good engineering practice of hoisting poles and towers and preventive measure to prevent accidents and mishaps  
- Equip workers with relevant PPE and provide health and safety measures while working at height. | ESCoP / ESMP |
<p>| Impact 5: Noise Level | Measure 5: | ESCoP / ESMP |</p>
<table>
<thead>
<tr>
<th>Impact 6: Air pollution</th>
<th>Measure 6:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check for dust during construction work of sub project: ensure all project vehicles are in good operating condition: spray water on dry surfaces / unpaved roads regularly, maintain adequate moisture content of soil during transportation, compaction and handling.</td>
<td></td>
</tr>
<tr>
<td>Avoid use of equipment such as stone crusher at site, which produce significant amount of particulate matter</td>
<td></td>
</tr>
<tr>
<td>Provide relevant PPE to workers</td>
<td></td>
</tr>
<tr>
<td>Ensure technically sound installation procedures for a substation and checking for environmental performance during commissioning of plant.</td>
<td></td>
</tr>
</tbody>
</table>

**ESCoP / ESMP**

<table>
<thead>
<tr>
<th>Operational Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact 1: Change in Noise levels from running equipment</td>
</tr>
<tr>
<td>Provide relevant PPE (Personal protection equipment) such as ear plugs, gloves, boots, masks, etc. should be provided to the worker(s) in operation.</td>
</tr>
</tbody>
</table>

**ESCoP / ESMP**

**Check for noise level during construction**
**Use noise suppressors and mufflers in heavy construction equipment. Avoid prolonged exposure to noise (produced by equipment) by workers.**
**Limit the use of construction equipment producing excessive noise from 9:00 a.m. to 5:00 p.m.**
- If noise level exceeds 80 dB, measures for providing acoustic (sound proof) system should be seriously considered.

**Impact 2: Risk of Fire**

**Measure 2:**
- Safeguard measures such as measurement of dielectric strength, status of transformer oil (acidity test) and other safety measures carried out during operation of a substation.
- Regular Cleaning of cable duct at substation

**Impact 3: Health and Safety of Workers**

**Measure 3:**
- Avoid utilizing PCB Transformers, However, if used, follow ESCOP (Annex 10)
- Provide PPE to workers.

**Impact 4: Soil / water pollution from spills and leaks of oil, toxic chemicals**

**Measure 4:**
- Good housekeeping, proper handling of lubricating oil and fuel
- Collection, proper treatment and disposal of spills
- Provide grease / oil traps

**Overall subproject characterization:**
- Category B

--‘Typical (most common) safeguard instrument for total subproject

--‘Possible significant impacts that could require full IEE preparation:
- “Medium” Impact Significance for BPC / SEC issue of change in land cover, drainage, water, air,
<table>
<thead>
<tr>
<th>Noise, resettlement private land, change in habitat, socio economic status such as livelihood, health, and economy.</th>
</tr>
</thead>
</table>

--‘Impacts that may trigger Category A classification (and therefore not eligible)

| Subproject in ECA (Environmental Critical Areas), |
| “High” impact Significance for each scored BPC/SEC issue for overall four parameters of extent, duration, magnitude and probability (Refer ESMF Table 8.2/8.3). |

**Subproject 2 – Grid Extension Distribution and Power Lines**

**Construction Stage**

<table>
<thead>
<tr>
<th>Impact 1: Change in land cover</th>
<th>Measure 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route survey and analysis of alternative routes for finalizing alignments of distribution lies for least impact to land cover and encroachment of private land</td>
<td></td>
</tr>
<tr>
<td>Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 2: Electrocution</th>
<th>Measure 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equip workers with relevant PPE and provide</td>
<td></td>
</tr>
</tbody>
</table>

ESCoP / ESMP
<table>
<thead>
<tr>
<th>Impact 3: Occupational Health and Safety</th>
<th>Measure 3:</th>
<th>ESCoP / ESMP</th>
</tr>
</thead>
</table>
|                                         | • Adherence to good engineering practice of hoisting poles and towers and preventive measure to prevent accidents and mishaps  
• Equip workers with relevant PPE and provide health and safety measures while working at heights. |              |              |

**Operational Stage**

<table>
<thead>
<tr>
<th>Impact 1: Risk of fire hazard and electrocution</th>
<th>Measure 1:</th>
<th>ESCoP / ESMP</th>
</tr>
</thead>
</table>
|                                                 | • Clearing of ROW by cutting / trimming trees where necessary especially before the onset of monsoon  
• Regular Patrolling along the power lines to identify immediate maintenance operation.  
• Timely repair / replacement of faulty lines and accessories  
• Ensure proper placement of dustbins or trash containers that are along power line ROW  
• Prohibit placing trash container that would attract undesirable pests or dogs under the H-pole. |              |              |

**Overall subproject characterization:**

--- Typical (most common) safeguard instrument for total subproject: ESCoP / ESMP (IEE)

--- Possible significant impacts that could require IEE preparation: “Medium” Impact Significance for BPC / SEC issue of change in land cover, drainage, water, air,
noise, resettlement private land, change in habitat, socio economic status such as livelihood, health, and economy.

--‘Impacts that may trigger Category A classification (and therefore not eligible)

- Subproject in ECA (Environmental Critical Areas),
- “High” impact significance for each scored BPC/SEC issue for overall four parameters of extent, duration, magnitude and probability (Refer ESMF Table 8.2/8.3).

Subproject 3– Grid Extension Household Connections and Meters

**Construction Stage**

<table>
<thead>
<tr>
<th>Impact 1: Change in land cover</th>
<th>Measure 1:</th>
<th>ESCoP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Route survey and analysis of alternative routes for finalizing alignments of distribution lines to household</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 2: Risk of Electrocution</th>
<th>Measure 2:</th>
<th>ESCoP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equip workers with relevant PPE and provide health and safety measures while working on</td>
<td></td>
</tr>
<tr>
<td>Impact 3: Occupational Health and Safety</td>
<td>Measure 3:</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Adherence to good engineering practice of hoisting poles and towers and preventive measure to prevent accidents and mishaps&lt;br&gt;• Equip workers with relevant PPE and provide health and safety measures while working at heights.</td>
<td>ESCoP / ESMP</td>
</tr>
</tbody>
</table>

**Operational Stage**

<table>
<thead>
<tr>
<th>Impact 1: Risk of fire hazard and electrocution</th>
<th>Measure 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Clearing of ROW by cutting / trimming trees where necessary especially before the onset of monsoon&lt;br&gt;• Regular Patrolling along the power lines to identify immediate maintenance operation.&lt;br&gt;• Maintenance work to household electrification such as bulb / lamp replacement, repair of fuse, and other wiring connections to ensure undisturbed electrification&lt;br&gt;• Ensure proper placement of dustbins or trash containers that are along power line ROW, household premises.&lt;br&gt;• Prohibit placing trash container that would attract undesirable pests or dogs under the H-pole.&lt;br&gt;• Check for quality assurance of material and equipment, including procurement of meter box, distribution panel, main switch, fuse, circuit breaker, internal switches, cables, bulbs, lamps, concrete poles for power lines and other relevant equipment.</td>
</tr>
</tbody>
</table>
accessories to household connections
- Prevent electricity pilferage (losses) by supply check / counter check the meter box seal (cover, terminal, box)
- Law enforcement according to Order 504/2009 if breaching of electrical consumption without a household meter box installed at household level.

**Overall subproject characterization:**

<table>
<thead>
<tr>
<th>Category B</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCoP / ESMP (IEE)</td>
</tr>
<tr>
<td><strong>Category B</strong></td>
</tr>
</tbody>
</table>

---

**Typical (most common) safeguard instrument for total subproject**

---

**Possible significant impacts that could require full IEE preparation:**

- “Medium” Impact Significance for BPC / SEC issue of change in land cover, drainage, water, air, noise, resettlement private land, change in habitat, socio economic status such as livelihood, health, and economy.

---

**Impacts that may trigger Category A classification (and therefore not eligible)**

- Subproject in ECA (Environmental Critical Areas),
- “High” impact Significance for each scored BPC/SEC issue for overall four parameters of extent, duration,
### Subproject 4 – Off-Grid Bio Gas Power Plant

#### Construction Stage

<table>
<thead>
<tr>
<th>Impact 1: Change in land cover</th>
<th>Measure 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Route survey and analysis of alternative site for subproject land acquisition and for finalizing alignments of distribution lines to household</td>
</tr>
<tr>
<td></td>
<td>• Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.</td>
</tr>
<tr>
<td></td>
<td>ESCoP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 2: Occupational Health and Safety</th>
<th>Measure 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Adherence to good engineering practice of hoisting poles and towers and preventive measure to prevent accidents and mishaps</td>
</tr>
<tr>
<td></td>
<td>• Equip workers with relevant PPE and provide health and safety measures while working on heights or handling wastes</td>
</tr>
<tr>
<td></td>
<td>ESCoP / ESMP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 3: Noise Level</th>
<th>Measure 3:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Check for noise level during construction</td>
</tr>
<tr>
<td></td>
<td>• Use noise suppressors and mufflers in heavy construction equipment. Avoid prolonged exposure to noise (produced by equipment) by workers.</td>
</tr>
<tr>
<td></td>
<td>• Limit the use of construction equipment producing excessive noise from 9:00 a.m. to 5:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>ESCoP /ESMP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 4: Air pollution</th>
<th>Measure 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Check for dust during construction work of sub</td>
</tr>
<tr>
<td></td>
<td>ESCoP /ESMP</td>
</tr>
</tbody>
</table>
project: ensure all project vehicles are in good operating condition: spray water on dry surfaces / unpaved roads regularly, maintain adequate moisture content of soil during transportation, compaction and handling.
- Avoid use of equipment such as stone crusher at site, which produce significant amount of particulate matter
- Provide relevant PPE to workers
- Ensure technically sound installation procedures for a Bio Gas Power Plant and checking for environmental performance during commissioning of plant.

### Operational Stage

<table>
<thead>
<tr>
<th>Impact 1: Risk of fire hazard and electrocution</th>
<th>Measure 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Regular Patrolling along the power lines to identify immediate maintenance operation.</td>
</tr>
<tr>
<td></td>
<td>- Maintenance work to household electrification such as bulb / lamp replacement, repair of fuse, and other wiring connections to ensure undisturbed electrification</td>
</tr>
<tr>
<td></td>
<td>- Ensure proper placement of dustbins or trash containers that are along power line ROW, household premises.</td>
</tr>
<tr>
<td></td>
<td>- Monitoring and surveillance for safety measure to prevent fire hazard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 2: Occupational Health and Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

ESCoP / ESMP
- Health and safety measures while working on heights or handling wastes
  - Supervision for avoidance for improper waste handling during operation
  - Check for methane pressure, noise and smell
  - Monitor the environmental performance of subproject and equipment including manometer, water trap, Sulpher cleaner, engine, dynamo and power lines to household connections

**Impact 4: Soil / water pollution from spills and leaks of oil, toxic chemicals**

**Measure 4:**
- Good housekeeping, proper handling of lubricating oil and fuel
- Collection, proper treatment and disposal of spills
- Provide grease / oil traps

**Impact 5: Noise Level**

**Measure 5:**
- Provide relevant PPE (Personal protection equipment) such as ear plugs, gloves, boots, masks, etc. should be provided to the worker(s) in operation.

---

**Overall subproject characterization:**

- **Category B**
  - 'Typical (most common) safeguard instrument for total subproject'
  - ESCoP / ESMP (IEE)
  - 'Possible significant impacts that could require full IEE preparation: “Medium” Impact Significance for BPC / SEC issue of change in land
---‘Impacts that may trigger Category A classification (and therefore not eligible)

<table>
<thead>
<tr>
<th>Subproject 5 – Off-Grid Solar Home System</th>
<th>Construction Stage</th>
<th>Measure 2:</th>
<th>ESCoP / ESMP</th>
</tr>
</thead>
</table>
| Impact 1: Electrocution / Occupational Health of workers | Equip workers with relevant PPE and provide health and safety measures while working on heights and electrification work  
Tree cutting to allow sunlight on solar panel  
Ensure technically sound installation of the solar panel and its accessories for SHS Electrification and check for its environmental performance during | | |
### Operational Stage

<table>
<thead>
<tr>
<th>Impact 1: Risk of fire hazard and electrocution</th>
<th>Measure 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Regular Patrolling of public lighting systems to identify immediate maintenance operation.</td>
</tr>
<tr>
<td></td>
<td>- Maintenance work to household electrification such as bulb / lamp replacement, repair of fuse, and other wiring connections to ensure undisturbed electrification</td>
</tr>
<tr>
<td></td>
<td>- Monitoring and surveillance for safety measure to prevent fire hazard</td>
</tr>
<tr>
<td></td>
<td>ESCoP / ESMP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 2: Health impact from batteries</th>
<th>Measure 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Explore options for recycling of used batteries.</td>
</tr>
<tr>
<td></td>
<td>- Collection of used batteries and plan for proper disposal</td>
</tr>
<tr>
<td></td>
<td>- Proper disposal of used batteries (lead acid or nickel-cadmium) if acid batteries utilized</td>
</tr>
<tr>
<td></td>
<td>- Use dry cell batteries instead of acid / lead batteries for SHS.</td>
</tr>
<tr>
<td></td>
<td>- Use of old lead batteries under the subproject is not allowed.</td>
</tr>
<tr>
<td></td>
<td>- The central PMOs will set up a mechanism to take back old or non-functional lead acid batteries and centrally take care of adequate disposal to a reputable recycling firm. Under this scheme the</td>
</tr>
<tr>
<td></td>
<td>ESCoP / ESMP</td>
</tr>
</tbody>
</table>
return of those batteries will be incentivized to avoid sales to informal recyclers in Myanmar.

<table>
<thead>
<tr>
<th><strong>Overall subproject characterization:</strong></th>
<th><strong>Category B</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>-- Typical (most common) safeguard instrument for total subproject</td>
<td>ESCoP / ESMP (IEE)</td>
</tr>
<tr>
<td>-- Possible significant impacts that could require full IEE preparation:</td>
<td>“Medium” Impact Significance for BPC / SEC issue of change in land cover, drainage, water, air, noise, resettlement private land, change in habitat, socioeconomic status such as livelihood, health, and economy.</td>
</tr>
</tbody>
</table>
| -- Impacts that may trigger Category A classification (and therefore not eligible) | • Subproject in ECA (Environmental Critical Areas),  
• “High” impact Significance for each scored BPC/SEC issue for overall four parameters of extent, duration, magnitude and probability (Refer ESMF Table 8.2/8.3). |
## Subproject 6 – Mini Grid Solar Photovoltaic (PV) System

### Construction Stage

<table>
<thead>
<tr>
<th>Impact 1: Change in land cover</th>
<th>Measure 1:</th>
<th>ESCoP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Route survey and analysis of alternative site for subproject land acquisition for mini grid solar panel (50’x 60’) and surrounding areas and for finalizing alignments of distribution lines to household</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Supervision of vegetation clearance for installation of the mini grid solar panel for maximum sunlight absorption</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 2: Electrocution / Occupational Health of workers</th>
<th>Measure 2:</th>
<th>ESCoP / ESMP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Equip workers with relevant PPE and provide health and safety measures while working on heights and electrification work</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Ensure technically sound installation of the mini grid solar panel and its accessories for electrification and check for its environmental performance during commissioning.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 3: Health impact from batteries</th>
<th>Measure 3:</th>
<th>ESCoP /ESMP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Explore options for recycling of used batteries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Proper disposal of used batteries (lead acid or nickel-cadmium) if acid batteries utilized, through central PMOs facility to take back old lead-acid batteries.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Use dry cell batteries instead of acid / lead batteries</td>
<td></td>
</tr>
</tbody>
</table>

### Operational Stage

<table>
<thead>
<tr>
<th>Impact 1: Risk of fire hazard and</th>
<th>Measure 1:</th>
<th>ESCoP /ESMP</th>
</tr>
</thead>
</table>
electrocution

- Regular Patrolling along the power lines to identify immediate maintenance operation.
- Maintenance work to household electrification such as bulb / lamp replacement, repair of fuse, and other wiring connections to ensure undisturbed electrification
- Ensure proper placement of dustbins or trash containers that are along power line ROW, household premises.
- Monitoring and surveillance for safety measure to prevent fire hazard

**Overall subproject characterization:**

<table>
<thead>
<tr>
<th>Category B</th>
<th>ESCoP / ESMP (IEE)</th>
</tr>
</thead>
</table>

- Typical (most common) safeguard instrument for total subproject
- Possible significant impacts that could require full IEE preparation:
  - “Medium” Impact Significance for BPC / SEC issue of change in land cover, drainage, water, air, noise, resettlement private land, change in habitat, socio economic status such as livelihood, health, and economy.

- Impacts that may trigger Category A classification (and therefore not eligible)
  - Subproject in ECA (Environmental Critical Areas),
  - “High” impact Significance for each
scored BPC/SEC issue for overall four parameters of extent, duration, magnitude and probability (Refer ESMF Table 8.2/8.3).

**Subproject 7 – Off-Grid Diesel Generator**

**Construction Stage**

<table>
<thead>
<tr>
<th>Impact 1: Change in land cover</th>
<th>Measure 1:</th>
<th>ESCoP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Route survey and analysis of alternative site for subproject land acquisition and for finalizing alignments of distribution lines to household</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 2: Electrocution / Occupational Health of workers</th>
<th>Measure 2:</th>
<th>ESCoP / ESMP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equip workers with relevant PPE and provide health and safety measures while working on heights or handling wastes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 3: Noise Level</th>
<th>Measure 3:</th>
<th>ESCoP /ESMP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check for noise level during construction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use noise suppressors and mufflers in heavy construction equipment. Avoid prolonged exposure to noise (produced by equipment) by workers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limit the use of construction equipment producing excessive noise from 9:00 a.m. to 5:00 p.m.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 4: Air pollution</th>
<th>Measure 4:</th>
<th>ESCoP /ESMP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Check for dust during construction work of sub project: ensure all project vehicles are in good operating condition: spray water on dry surfaces / unpaved roads regularly, maintain adequate moisture content of soil during transportation, compaction and handling.
- Avoid use of equipment such as stone crusher at site, which produce significant amount of particulate matter
- Provide relevant PPE to workers
- Ensure technically sound installation procedures for a Diesel Generator Plant and choice of generator equipment; checking for environmental performance during commissioning of plant.

**Operational Stage**

<table>
<thead>
<tr>
<th>Impact 1: Risk of fire hazard and electrocution</th>
<th>Measure 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Regular Patrolling along the power lines to identify immediate maintenance operation.</td>
</tr>
<tr>
<td></td>
<td>• Maintenance work to household electrification such as bulb / lamp replacement, repair of fuse, and other wiring connections to ensure undisturbed electrification</td>
</tr>
<tr>
<td></td>
<td>• Ensure proper placement of dustbins or trash containers that are along power line ROW, household premises.</td>
</tr>
<tr>
<td></td>
<td>• Monitoring and surveillance for safety measure to prevent fire hazard</td>
</tr>
</tbody>
</table>

ESCoP /ESMP
<table>
<thead>
<tr>
<th>Impact 2: Occupational Health and Safety</th>
<th>Measure 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Equip workers with relevant PPE and provide health and safety measures while working on heights or handling wastes</td>
</tr>
<tr>
<td></td>
<td>• Supervision for avoidance for improper waste handling during operation</td>
</tr>
<tr>
<td></td>
<td>• Check for methane pressure, noise and smell</td>
</tr>
<tr>
<td></td>
<td>• Monitor the environmental performance of subproject and equipment including air fan, engine, battery, fuel tank, dynamo, exhaust pipe, and wiring system.</td>
</tr>
<tr>
<td>Impact 3: Noise Level</td>
<td>Measure 3:</td>
</tr>
<tr>
<td></td>
<td>• Provide PPE to workers in operation</td>
</tr>
<tr>
<td></td>
<td>• Noise mitigation measure such as acoustic system / sound proof system in plant / generator, engine room</td>
</tr>
<tr>
<td>Impact 4: Air pollution from exhaust emission, vapor, etc.</td>
<td>Measure 4:</td>
</tr>
<tr>
<td></td>
<td>• Grow trees within subproject compound and environs to absorb GHG (Green House Gas) emission and Particulate Matter</td>
</tr>
<tr>
<td></td>
<td>• Ensure exhaust pipe height according to technical specification</td>
</tr>
<tr>
<td>Impact 5: Soil / water pollution from spills and leaks of oil, toxic chemicals</td>
<td>Measure 5:</td>
</tr>
<tr>
<td></td>
<td>• Good housekeeping, proper handling of lubricating oil and fuel</td>
</tr>
<tr>
<td></td>
<td>• Collection, proper treatment and disposal of spills</td>
</tr>
<tr>
<td></td>
<td>• Provide grease / oil traps</td>
</tr>
</tbody>
</table>

ESCoP / ESMP
Overall subproject characterization:

--Typical (most common) safeguard instrument for total subproject

Category B ESCoP / ESMP (IEE)

--Possible significant impacts that could require full IEE preparation:

“Medium” Impact Significance for BPC / SEC issue of change in land cover, drainage, water, air, noise, resettlement private land, change in habitat, socio economic status such as livelihood, health, and economy.

--Impacts that may trigger Category A classification (and therefore not eligible)

- Subproject in ECA (Environmental Critical Areas),
- “High” impact Significance for each scored BPC/SEC issue for overall four parameters of extent, duration, magnitude and probability (Refer ESMF Table 8.2/8.3).

Subproject 8 – Off-Grid Mini Hydro Power Plant (< 1 MW)

Construction Stage

Impact 1: Change in land cover

Measure 1:
- Route survey and analysis of alternative site for subproject land acquisition and for finalizing ESCoP
<table>
<thead>
<tr>
<th>Impact</th>
<th>Description</th>
<th>Measure</th>
<th>ESCoP / ESMP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact 2: Electrocution / Occupational Health of workers</strong></td>
<td>Alignments of distribution lines to household Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.</td>
<td>Measure 2: Adherence to good engineering practice of hoisting poles and towers, constructing infrastructure for a mini hydro power plant and preventive measure to prevent accidents and mishaps Equip workers with relevant PPE and provide health and safety measures while working on heights.</td>
<td><strong>ESCoP / ESMP</strong></td>
</tr>
<tr>
<td><strong>Impact 3: Noise Level</strong></td>
<td><strong>Measure 3:</strong> Check for noise level during construction Use noise suppressors and mufflers in heavy construction equipment. Avoid prolonged exposure to noise (produced by equipment) by workers. Limit the use of construction equipment producing excessive noise from 9:00 a.m. to 5:00 p.m.</td>
<td><strong>ESCoP /ESMP</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Impact 4: Air Pollution</strong></td>
<td><strong>Measure 4:</strong> Check for dust during construction work of sub project: ensure all project vehicles are in good operating condition: spray water on dry surfaces / unpaved roads regularly, maintain adequate moisture content of soil during transportation, compaction and handling. Avoid use of equipment such as stone crusher at site, which produce significant amount of</td>
<td><strong>ESCoP /ESMP</strong></td>
<td></td>
</tr>
<tr>
<td>Impact 5: Water Pollution</td>
<td>Measure 5:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Provide relevant PPE to workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ensure technically sound installation procedures for a Mini Hydro Power Plant and choice of turbine, generator equipment; checking for environmental performance during commissioning of plant.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 6: Destruction of Aquatic Habitat</th>
<th>Measure 6:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Prevent discharge of fuel, lubricants, chemicals, and waste (solid / liquid) into river, stream from which hydro power is extracted</td>
</tr>
<tr>
<td></td>
<td>• Install sediment basins or trap sediments in storm water prior to discharge to surface water</td>
</tr>
<tr>
<td></td>
<td>• Keep noise level (e.g. from equipment) to a minimum level, as certain fauna are very sensitive to loud noise</td>
</tr>
<tr>
<td></td>
<td>• Provide trash capture mesh / screen at intake / entrance gate of penstock before entering turbine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 7: Erosion and Siltation</th>
<th>Measure 7:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Develop landscaping and erosion control work</td>
</tr>
<tr>
<td></td>
<td>• Technically sound engineering design and practice for construction of a mini hydro power plant</td>
</tr>
<tr>
<td></td>
<td>• Provide stone pitching or masonry work at banks of intake structure</td>
</tr>
<tr>
<td></td>
<td>• Provide de-silting basin before forebay at inlet of infrastructure and de-silt regularly</td>
</tr>
<tr>
<td>Operational Stage</td>
<td>Impact 1: Risk of fire hazard and electrocution</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------</td>
</tr>
</tbody>
</table>
|                   | • Regular Patrolling along the power lines to identify immediate maintenance operation.  
• Maintenance work to household electrification such as bulb / lamp replacement, repair of fuse, and other wiring connections to ensure undisturbed electrification  
• Ensure proper placement of dustbins or trash containers that are along power line ROW, household premises.  
• Monitoring and surveillance for safety measure to prevent fire hazard |           |             |
| Impact 2: Occupational Health and Safety | Measure 2: | ESCoP / ESMP |
|                   | • Equip workers with relevant PPE and provide health and safety measures while working on heights or handling wastes  
• Supervision for avoidance for improper waste handling during operation  
• Check for methane pressure, noise and smell  
• Monitor the environmental performance of subproject and equipment including air fan, engine, battery, fuel tank, dynamo, exhaust pipe, and wiring system. |           |             |
| Impact 3: Noise Level | Measure 3: | ESCoP / ESMP |
|                   | • Provide relevant PPE (Personal protection |           |             |
equipment) such as ear plugs, gloves, boots, masks, etc. should be provided to the worker(s) in operation.

- If noise level exceed 80 dB, measures for providing acoustic (sound proof) system should be seriously considered.

<table>
<thead>
<tr>
<th>Impact 4: Soil / water pollution from spills and leaks of oil, toxic chemicals</th>
<th>Measure 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Good housekeeping, proper handling of lubricating oil and fuel</td>
</tr>
<tr>
<td></td>
<td>- Collection, proper treatment and disposal of spills</td>
</tr>
<tr>
<td></td>
<td>- Provide grease / oil traps</td>
</tr>
</tbody>
</table>

**ESCoP / ESMP**

<table>
<thead>
<tr>
<th>Overall subproject characterization:</th>
<th>Category B</th>
</tr>
</thead>
<tbody>
<tr>
<td>--‘Typical (most common) safeguard instrument for total subproject</td>
<td>ESCoP / ESMP (IEE)</td>
</tr>
<tr>
<td>--‘Possible significant impacts that could require full IEE preparation:</td>
<td>“Medium” Impact Significance for BPC / SEC issue of change in land cover, drainage, water, air, noise, resettlement private land, change in habitat, socio economic status such as livelihood, health, and economy.</td>
</tr>
<tr>
<td>--‘Impacts that may trigger Category A classification (and therefore not eligible)</td>
<td>- Subproject in ECA (Environmental Critical Areas),</td>
</tr>
<tr>
<td>Subproject 9 – Wind Energy for Electrification</td>
<td><strong>Construction Stage</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>ESCoP</strong></td>
<td>Route survey and analysis of alternative site for subproject land acquisition and for finalizing alignments of distribution lines to household</td>
</tr>
<tr>
<td></td>
<td>Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Impact 2: Electrocution / Occupational Health of workers</strong></th>
<th><strong>Measure 2:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESCoP / ESMP</strong></td>
<td>Equip workers with relevant PPE and provide health and safety measures while working on heights.</td>
</tr>
<tr>
<td></td>
<td>Provide safety measures while installing the wind baldes and hoisting the system</td>
</tr>
<tr>
<td></td>
<td>Adherence to good engineering practice of hoisting poles and towers, rotor blades, constructing infrastructure for a Wind Energy Plant and preventive measure to prevent accidents and mishaps</td>
</tr>
</tbody>
</table>

- “High” impact significance for each scored BPC/SEC issue for overall four parameters of extent, duration, magnitude and probability (Refer ESMF Table 8.2/8.3).
- Source of risk related to workers operating under hazardous conditions involving blade ejection, overheating of generators, tower collapse, hazardous weather conditions, handling heavy equipment, lightning strikes causing fires should be considered and safeguard measures such as good engineering design / manufacturing, professional site supervision and monitoring during construction and installing of relevant lighting protection and earthing measures to the sub project.

<table>
<thead>
<tr>
<th>Impact 3: Noise Level</th>
<th>Measure 3:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Check for noise level during construction</td>
</tr>
<tr>
<td></td>
<td>• Use noise suppressors and mufflers in heavy construction equipment. Avoid prolonged exposure to noise (produced by equipment) by workers.</td>
</tr>
<tr>
<td></td>
<td>• Limit the use of construction equipment producing excessive noise from 9:00 a.m. to 5:00 p.m.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact 4: Air pollution</th>
<th>Measure 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Check for dust emitted from construction machinery during construction work of sub project: ensure all project vehicles are in good operating condition: spray water on dry surfaces / unpaved roads regularly, maintain adequate moisture content of soil during transportation, compaction</td>
</tr>
</tbody>
</table>

ESCoP /ESMP
and handling.
- Avoid use of equipment such as stone crusher at site, which produce significant amount of particulate matter
- Provide relevant PPE to workers
- Ensure technically sound installation procedures for a Wind Energy Plant and choice of generator equipment; checking for environmental performance during commissioning of plant.

<table>
<thead>
<tr>
<th>Impact 5: Destruction of Avian Population</th>
<th>Measure 5:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Safeguard measures such as prevention system for potential birds / bats or avian population being accidentally trapped by the rotor blades should be seriously considered during the construction of the sub project.</td>
</tr>
<tr>
<td></td>
<td>- Site selection to account for known migration pathways or areas where birds and bats are highly concentrated such as wet lands, should be avoided in siting for a wind farm.</td>
</tr>
<tr>
<td></td>
<td>- Configuring turbine arrays to avoid avian mortality (e.g. group turbines parallel to known bird movement) should be considered during design considerations.</td>
</tr>
</tbody>
</table>

**Operational Stage**

<table>
<thead>
<tr>
<th>Impact 1: Risk of fire hazard and electrocution</th>
<th>Measure 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Regular Patrolling along the power lines to identify</td>
</tr>
</tbody>
</table>
### Impact 2: Occupational Health and Safety

**Measure 2:**
- Equip workers with relevant PPE and provide health and safety measures while working on heights and handling equipment

**ESCoP / ESMP**

### Impact 3: Noise Level

**Measure 3:**
- Provide PPE to workers in operation

**ESCoP / ESMP**

### Impact 4: Soil / water pollution from spills and leaks of oil, toxic chemicals

**Measure 4:**
- Good housekeeping, proper handling of lubricating oil and fuel
- Collection, proper treatment and disposal of spills
- Provide grease / oil traps

**ESCoP / ESMP**

---

**Overall subproject characterization:**

*Category B*

- ’Typical (most common) safeguard instrument for total subproject
  **ESCoP / ESMP (IEE)**
- ’Possible significant impacts that could require full IEE preparation:
  “Medium” Impact
<table>
<thead>
<tr>
<th>Significance for BPC / SEC issue of change in land cover, drainage, water, air, noise, resettlement private land, change in habitat, socio economic status such as livelihood, health, and economy.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impacts that may trigger Category A classification (and therefore not eligible)</strong></td>
</tr>
<tr>
<td>• Subproject in ECA (Environmental Critical Areas),</td>
</tr>
<tr>
<td>• “High” impact</td>
</tr>
<tr>
<td>Significance for each scored BPC/SEC issue for overall four parameters of extent, duration, magnitude and probability (Refer ESMF Table 8.2/8.3).</td>
</tr>
</tbody>
</table>
## Annex 5: Description of Potential Social Impacts

The table below provides a list of potential social impacts to the NEP.

<table>
<thead>
<tr>
<th>Theme of Common Impacts</th>
<th>Potential Impacts, Issues and Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social and Cultural Impacts and Changes</strong></td>
<td></td>
</tr>
<tr>
<td>Population and demographics</td>
<td>In-migration, out-migration, workers’ camps, social inclusion, conflict and tensions between social groups</td>
</tr>
<tr>
<td>Social infrastructure and services</td>
<td>Demands on and investment in housing, skills (shortages, retention), health (i.e. health clinics), education (i.e. schools), and training</td>
</tr>
<tr>
<td>Social order</td>
<td>Change in social norms, pace of change for vulnerable communities</td>
</tr>
<tr>
<td>Culture and customs</td>
<td>Change in traditional family roles, changing production and employment base, change in civil society participation, community cohesion, community leadership, cultural heritage</td>
</tr>
<tr>
<td>Community health and safety</td>
<td>Disease, vehicle accidents, spills, alcohol and substance abuse, pollution, interruption to traditional food supply, awareness and treatment programs</td>
</tr>
<tr>
<td>Labor</td>
<td>Health and safety, working conditions, remuneration, labor force participation for women</td>
</tr>
<tr>
<td>Gender and vulnerable groups</td>
<td>Disproportionate experience of impact and marginalization of vulnerable groups (e.g., women, disabled, aged, ethnic minorities, indigenous, and young), equity in participation and employment</td>
</tr>
<tr>
<td>Security</td>
<td>Conduct of security personnel</td>
</tr>
<tr>
<td><strong>Economic Change</strong></td>
<td></td>
</tr>
<tr>
<td>Distribution of benefits</td>
<td>Employment, training, local business spending, community development and social programs, compensation, managing expectations, equitable distribution across state/regional, local/ethnic/ family groups</td>
</tr>
<tr>
<td>Inflation/deflation</td>
<td>Food, access to social services</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Demands on in roads, rail, ports, sanitation, telecommunications, power and water supplies</td>
</tr>
<tr>
<td><strong>Socio-Environmental Change</strong></td>
<td></td>
</tr>
<tr>
<td>Pollution and amenity</td>
<td>Air (e.g., dust), water (e.g., acid and metalliferous drainage, cyanide, riverine and submarine waste disposal), noise, scenic amenity, vibration, odor, radiation, traffic, government capacity</td>
</tr>
<tr>
<td>Theme of Common Impacts</td>
<td>Potential Impacts, Issues and Mitigation Measures</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>to monitor and regulate</td>
</tr>
<tr>
<td>Resources (access/competition)</td>
<td>Land, water (groundwater, river, ocean), cultural heritage, forest resources, human</td>
</tr>
<tr>
<td>Resettlement</td>
<td>Acquisition of land or loss of assets such as trees and standing crops. Consultation for adequate compensation, ties to land, equity, livelihoods, voluntary land donations</td>
</tr>
<tr>
<td>Disturbance</td>
<td>Disruption to economic and social activities, consultation for land access, frequency and timing, compensation</td>
</tr>
<tr>
<td><strong>The Process of Change</strong></td>
<td></td>
</tr>
<tr>
<td>Community engagement</td>
<td>Consultation, communication, participation, empowerment, access to decision makers, transparency, timing, inclusiveness – particularly for vulnerable and marginalised groups – respect of customs and authority structures, reporting</td>
</tr>
<tr>
<td>Participation</td>
<td>Planning, development of programs, monitoring, selection of alternatives and technologies, operational aspects</td>
</tr>
<tr>
<td>Remedy</td>
<td>Grievance and dispute resolution, acknowledgment of issues, compensation, mitigation</td>
</tr>
<tr>
<td>Agreements</td>
<td>Equity, timely honoring of commitments, issues with delivery, duress, clarity of obligations, capacity and governance (including government capacity to respond to and manage change)</td>
</tr>
<tr>
<td>Community development</td>
<td>Participation, adequacy, appropriateness, capacity to facilitate, consistency, prioritization</td>
</tr>
</tbody>
</table>
Annex 6: Indicative Outline for Reporting Environmental and Social Issues for the Pre-Feasibility Proposals of NEP Mini-Grid Sub-Projects

After completion of the screening forms, mini-grid sub-project developers should include the expected environmental and social issues in their prefeasibility proposals.

1. Description of Communities and Population

- Brief description of the communities directly or indirectly affected by the project, including, number of households, number of people, main economic activities

- Describe the ethnic composition of the communities: which ethnic groups, and approximate percent of each ethnic group in each community

- Identify any other vulnerable groups or individuals (religious minorities, the poor, disabled, elderly, female-headed households), for whom special attention may be needed.

3. Environmental and Social Issues in the Sub-Project

- Provide a list of the environmental and social issues that have been identified in the screening form.

4. Potential Environmental Impacts

- For each of the environmental issues listed above, provide:
  - A description of the expected impact
  - The area affected by that impact
  - People to be affected by that impact
  - How that impact might be avoided, reduced, mitigated, or compensated

5. Potential Social Impacts

- For each of the social issues listed above, provide:
  - A description of the expected impact
  - The area affected by that impact
  - People to be affected by that impact
  - How that impact might be avoided, reduced, mitigated, or compensated

6. Ethnic Minorities

- Identify the ethnic minorities who will benefit from the project, and/or who will be affected by the potential environmental or social impacts

- Briefly describe if any members of the ethnic minorities can communicate only in their language.
- Briefly describe any special arrangements that will be made to discuss the project with the ethnic minorities and to obtain their broad community support for the sub-project

- Identify key leaders or representatives of the ethnic minority groups

7. Consultation and Disclosure

- Present a plan for consulting with the community, including both men and women, during planning and design of the sub-project.

- Describe how other vulnerable people will be included in the consultations.

- Describe plans for free, prior and informed consultations with the ethnic minorities.

- Present a plan for disclosure of information about the sub-project, including where and how that information will be provided.

8. Initial Identification of Land Acquisition

Provide a list of all lands and assets that may need to be acquired for the sub-projects

Provide the Land Acquisition Screening Form for every plot that may be acquired (provided in Annex 9)

Provide the Voluntary Land Donation Form for every plot that may be donated by the landowner or land user (provided in Annex 9)

9. Identification of Non-Participants

Provide the list of villagers who do not participating in the sub-project, using” Form 4: NEP Households Not Participating in the Mini-Grid Programme” below
Form 4: NEP Households Not Participating in the Mini-grid Programme

Village .............................................. Province .............................................. Township .............................................. District .............................................. State/Region ..............................................

Project Name .............................................. Township Engineer [Name and Signature] ..............................................

<table>
<thead>
<tr>
<th>Householder Details</th>
<th>Reason for not signing up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Too Long To Wait</td>
</tr>
<tr>
<td>Signature</td>
<td>Too Expensive</td>
</tr>
<tr>
<td>Address</td>
<td>Prefer Candles or Kerosene</td>
</tr>
<tr>
<td>Phone</td>
<td>Already Have Diesel Generator</td>
</tr>
<tr>
<td>Status¹</td>
<td>Already Have SHS</td>
</tr>
<tr>
<td>Other (describe)</td>
<td>Service Not Good Enough</td>
</tr>
</tbody>
</table>

¹ Household Status: Put in the following codes if the household is

1. Ethnic minority in village (not part of ethnic majority group in the village)
2. Poor household
3. All adults in household are elderly
4. Disabled person in household
5. Religious minority in village

[3 copies: 1 for VEC, 1 for Township Engineer, 1 for DRD-NEP Safeguards Team] 25 June 2018
Annex 7: Guidelines for Physical Cultural Resources

As stated in the World Bank Physical Cultural Resources (PCS) Safeguard Policy Guidebook, the PCR policy applies to projects having any one or more of the following three features: (i) Subprojects involving significant excavations, demolition, movement of earth, flooding or other major environmental changes; (ii) Subprojects located within or in the vicinity of a recognized PCR conservation area or heritage site; and (iii) Subprojects designed to support the management or conservation of PCR

The subprojects under the proposed project will involve some excavation works, movement of earth and could potentially be located in the vicinity of Physical or Cultural Resources. A generic impact assessment of Physical Cultural Resources is outlined below.

Guidance on identification of PCR

In the context of the proposed project, the probable examples of PCR may be the following:

1. Human made: Religious buildings such as Buddhist temples or shrines; exemplary ethnic minorities or vernacular architecture buildings; the remains of buildings of architectural or historic interest, historic or architecturally important townscapes; archaeological sites (unknown or known, excavated or unexcavated); and commemorative monuments
2. Natural: historic trees, natural landscapes of outstanding aesthetic quality
3. Combined man-made or natural: Sites used for religious or social functions such as weddings, funerals, or other traditional community activities (community centres, burial grounds, family graves, cultural landscapes)
4. Movable: registered or unregistered artifacts in temples or mosques, paintings, statues of important historical figures, religious artifacts, cultural artifacts etc.

Assessment of probable impacts due to activities

Below is a list of project activities or features under the context of the proposed project, which may commonly give rise to negative impacts on PCR, divided into two periods: construction phase and operational phase.

Construction phase:

1. Establishment of work camps:
   - Vandalism, theft and illegal export of movable PCR, and of pieces of monumental PCR accessible directly or indirectly to migrant labourer
   - Desecration of sacred sites.

2. Excavation, construction and soil compaction:
   - Direct physical damage to natural, manmade and buried PCR on site
   - Construction traffic,
   - Vibration, soil, air and water pollution causing damage to natural or manmade PCR on site.
   - Noise pollution can interfere with the use and enjoyment of PCR such as tourist destinations, historic buildings, religious establishments and cemeteries.

Mobilization of heavy construction equipment:
- Damage to natural or manmade PCR on site
- Soil compaction, damaging buried PCR (archaeological) onsite, and damaging pipelines and drains serving built PCR in the vicinity.

5. Flooding and Inundation:
- Submergence or destruction of human-made, natural or buried PCR. - Barrier to access of all types of PCR.
- Raised water table can lead to damage to all types of PCR.
- Damage to aesthetics of scenic landscapes.

6. Waste disposal or landfill:
- Burial or damage to natural, buried or underwater PCR.

**Operational phase:**

1. New and upgraded Roads:

   - Increased human traffic enjoying improved access to PCR of public interest leading to increased wear and damage, sacrilege of sacred sites, theft and vandalism of movable and, breakable PCR.

   - New highways cutting off access to living-culture PCR by residents of settlements on other side of the highway.
     - Increased air pollution and vibration from traffic causing damage to man-made PCR, particularly monuments and buildings.

     - Increased noise pollution interfering with enjoyment of people in tourist destinations, historic buildings, religious establishments and cemeteries.

     - In scenic areas, obtrusive highways having a negative visual impact on the landscape.

     - Roads and bridges which themselves constitute PCR being damaged by increased traffic.

     - Positive impacts may also occur, through the discovery of hitherto unknown sites and artifacts and generation of tourism.

2. Induced development:

   - Induced development leading to increased wear and damage, sacrilege of sacred sites, theft and vandalism of movable and breakable PCR, and damage to the aesthetics of scenic landscapes and townscapes.

3. Urban development:

   - Changes in demography or settlement patterns leading to decay of inner cities and abandonment and neglect of older residential areas containing built PCR such as vernacular architecture.

   - Developments which are out-of-character with their surroundings diminishing the aesthetic value of the townscape, decline in property values and ultimately, neglect of built PCR in the area.

   - Damage to the aesthetics of scenic landscapes and townscapes.
Annex 8: Chance Find Procedures

"Chance find" procedures apply when NEP subprojects are identified as potentially impacting Physical or Cultural Resources either during the screening phase or during the actual construction period.

(1) Cultural property includes monuments, structures, works of art, or sites of significant points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.

(2) The list of negative subproject attributes which would make a subproject ineligible for support includes any activity that would adversely impact physical or cultural property.

(3) In the event of finding of properties of cultural value during construction, the following procedures for identification, protection from theft, and treatment of discovered sites or artifacts should be followed and included in standard bidding document.

(a) Stop the construction activities in the area of the chance find;

(b) Delineate the discovered site or area;

(c) Secure the site to prevent any damage or loss of removable objects.

(d) Notify the supervisory Engineer who in turn will notify the responsible local authorities;

(e) Responsible local authorities and the relevant Ministry would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.

(f) Decisions on how to handle the finding shall be taken by the responsible authorities and the relevant Ministry. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance), conservation, restoration and salvage.

(g) Implementation of the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry.

(h) Construction work could resume only after permission is given from the responsible local authorities and the relevant Ministry concerning safeguard of the heritage.

These procedures must be referred to as standard provisions in construction contracts. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered.

Relevant findings will be recorded in World Bank Supervision Reports and Implementation Completion Reports will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

1. Introduction

1.1 Project Objective

The proposed World Bank-financed Myanmar National Electrification Project (NEP) aims to support the Government of the Republic of the Union of Myanmar in increasing access to electricity services and achieving its goal of universal access to electricity by 2030.

1.2 Poverty and Social Impact Analysis (PSIA) Research

To inform the project design, poverty and social impact analysis (PSIA) research was undertaken in 2014 and during January – March 2015. This focused on: i) the institutional context within which the development and implementation of the NEP has taken place; (ii) energy and electricity consumption patterns with a focus on energy poverty; (iii) the perception of affordability of electricity connections and recurrent charges - with a particular focus on the new tariffs introduced in April 2014 and how these have affected different groups of consumers; and (iv) consumers’ perspectives on the quality of services and understanding of pricing. The PSIA used a mixed methods approach and included quantitative research and a qualitative module to collect information on the issues outlined above.

The selection of field sites took into account the importance of understanding the different contexts, conditions of access to electricity and perceptions of consumers in rural and in urban areas.

PSIA research in 2014 (PSIA Phase 1) was undertaken in:

- 13 rural villages across Chin, Mandalay, Ayeyarwady, Magway, Shan and Rakhine, to collect information from areas with different types of access to electricity in different Regions/States and “agro-ecological zones”;
- urban areas in Yangon, Mandalay and the capital of Chin State (Hakha).

Overall a total of 114 focus group discussions (FGDs) and 378 Key Informant Interviews (KIs) were conducted across all research sites. The PSIA Phase 1 report was finalised in December 2014.¹

Phase II of the PSIA analysis, undertaken early in 2015, sought to provide a more complete picture of the issues above by collecting data in additional States and Regions. It also sought to deepen the understanding of the critical issues identified in Phase I. These included: (i) key barriers to accessing electricity, namely the cost of connection to villages and cost of initial connection to the home; (ii) village and ward-level self-organisation approaches, the potential risk of exclusion of poor and marginalised households and of generating inter or intra village tensions/conflict over distribution of resources; (iii) processes followed to determine the location of electricity infrastructure (including land acquisition and donation); (iv) mechanisms in place to lodge and resolve complaints and disputes at local level; (v) quantifying the “affordability gap” and providing households’ perception of the level of subsidies needed to support their connection to Government electricity services; and (vi) areas for priority capacity strengthening of the Department of Electricity Services at township level.

PSIA Phase II research was undertaken in:

- 15 rural villages across Chin, Magway, Kayin, Mon, Ayeyarwady, Rakhine, Shan, Mandalay.

¹ The PSIA Phase 1 Report, as well as the draft Preliminary PSIA for ESMF Report (which included initial Phase 2 research findings), is available at: https://energypedia.info/wiki/File:WB_Myanmar_NEP_PSIA_Phase_I_Final.pdf.
• urban areas in Yangon, Mandalay, the capital of Rakhine State (Sittwe), and in Thaton in Mon State.

1.3 Additional Social Assessment and Consultations

In addition to the PSIA Phase I and II research, during January – March 2015, a social assessment was undertaken including consultations with local communities, civil society, government and some business stakeholders. This focused on obtaining insights into potential social impacts of proposed project activities, per the requirements of the World Bank’s operational policies on environmental assessment (OP 4.01), indigenous peoples (OP 4.10) and involuntary resettlement (OP 4.12).

The social assessment and consultations considered particular issues and risks concerning ethnic minorities, in accordance with the requirements of the World Bank’s operational policy on indigenous peoples (OP 4.10), and also engaged with civil society stakeholders focused on issues associated with land, gender and natural resources governance.

Field visits were made to 10 villages across northern Chin State (Falam, Hakha) and southern Shan State (Taunggyi, Yatsauk); four villages in Chin State and six villages in Shan State. Field research included observation of examples of the type of infrastructure proposed to be funded through the NEP.

Discussions were held with communities that have different experiences of the electrification process; for example, those that: currently receive electricity services through mini-hydro power plants (government-funded, community-funded) and solar home systems (government-funded, privately funded); were recently connected to the grid; and also a village that did not currently have access to government-funded electrification programs (but had privately funded solar home systems and some diesel generators). In Shan State, the ethnic composition across the six villages visited was Bamar, Danu, Pa-O and Nepali. Chin, Shan, Pa-O and Danu speakers joined the field research team, as needed, to assist in facilitating meaningful engagement at village level.

The findings of the PSIA, social assessment and consultations undertaken to date have informed the design of the Project and the present Indigenous Peoples Planning Framework (IPPF), whose aim is to enhance community engagement and address particular issues concerning ethnic minorities. This emphasis on community consultation and engagement will continue during project implementation as outlined in this IPPF and the ESMF.

This IPPF aims to provide the implementing agencies—the Ministry of Electric Power (MoEP) and Ministry of Livestock, Fisheries and Rural Development (MLFRD), through the Department of Rural Development (DRD)—with the operational planning framework to avoid adverse social impacts and provide equitable and culturally appropriate project benefits to local ethnic minority communities and other vulnerable population groups. The IPPF has been developed to address the social safeguards aspects of the World Bank’s operational policy on indigenous peoples (or ethnic minorities in the context of Myanmar).

A key requirement of OP 4.10 is to obtain broad community support from ethnic minorities, as identified under the policy, for project activities affecting them (whether adversely or positively). However, since specific sub-projects have not yet been identified, it is premature to obtain such broad community support. As described in this IPPF, free, prior and informed consultations will be undertaken during project implementation. Similarly, the required site-specific plans to address particular issues pertaining to ethnic minorities will be prepared during the planning of each subproject identified as likely to affect ethnic minorities.
Consultations with ethnic minority organizations during project preparation have not revealed any opposition to the proposed project and improved electricity services are in demand in ethnic States as well as in the seven Regions of Myanmar (see section on consultations).

2. Proposed Project Objectives and Design

2.1 Project Description

The proposed Myanmar National Electrification Project (the Project), funded by the World Bank through a loan of US$ 400 million and implemented by the Ministry of Electric Power (MoEP) and the Ministry of Livestock, Fisheries and Rural Development (MLFRD), will aim to: help increase access to electricity in Myanmar.

The expected results of the Project include new household connections in urban and rural areas across the country. Also, the project will help establish and support a coordinated sector-wide institutional framework for the implementation of national electrification program, and strengthen institutional capacity of implementing agencies, including both public and private sector active in the grid roll-out and off-grid pre-electrification.

The proposed grid roll-out program will not only improve the well-being of the affected population by better lighting, telecommunications and entertainment, but also enable income-generation opportunities and enhanced productivity. Importantly, the program will prioritize connections for health clinics and schools, particularly in poor and vulnerable areas, to maximize developmental impacts.

The project will include an off-grid pre-electrification program to directly benefit the poor and vulnerable households by targeting those who reside outside the realm of power grid and are expected to receive grid-based electricity services more than 10 years after the first phase of NEP.

2.2 Project Components

Component 1: Grid extension [IDA US$ 300 million].

This component will support Myanmar’s utilities to extend distribution networks and connect communities and households closest to the existing national grid, in line with the National Electrification Plan. The component includes: (a) expansion of existing medium voltage (MV) substations and construction of new MV substations; (b) construction of about 12,900 miles of MV and low voltage (LV) lines, and 772 MVA of MV/LV transformers; and (c) provision of 11,600 community connections (health clinics, schools and other public buildings), 750,000 household connections, and 132,000 public lights. This component will provide International Development Assistance (IDA) financing for power distribution goods and materials (transformers, poles, conductors, insulators, switchgear, materials etc.). The utilities will support installation, with private (community level) contributions at a rate set by the Government, and possible private sector participation.

Component 2: Off-grid electrification [IDA US$ 80 million].

This component will target communities located far beyond the existing national grid and, thus, unlikely to receive grid-based access in the next 10 or more years. The Project funding will be directed to the peripheral States/Regions with social and ethnic tension and conflicts where access to electricity services for all is essential for enhancing social/ethnic cohesion and peace building. Off-grid activities are not financed by the Project.
Component 3: Technical assistance and project management [IDA US$ 20 million].

This component will support: (a) strengthening of institutional capacity to implement the National Electrification Plan, including capacity building and training of the National Electrification Executive Committee and its Secretariat, capacity building at the Union, State/Region, district, township and village levels and for the private sector; (b) improving the policy and regulatory framework related to electrification; (c) development of an integrated, geographic information system (GIS)-based framework for electrification planning, results monitoring and impact evaluation of the project, building on the existing GIS platform for geospatial least-cost electrification planning; (d) securing technical advice and consulting services on standards, technology assessment and technical design, economic and financial analysis, environmental and social impact management, procurement and financial management; and (e) project management.

2.2.1 Component 4: Contingent Emergency Response [IDA US$ 0 million].

This “zero component” allows a rapid reallocation of IDA Credit from other components for emergency recovery and reconstruction support in the event of a declared disaster. This component will finance public and private sector expenditure on a positive list of goods and/or specific works, goods, services and emergency operation costs required for emergency recovery. An Operational Manual for this component will detail financial management, procurement, safeguard and any other necessary implementation arrangements, to be submitted to and accepted by the WBG prior to the disbursement of IDA funds.

2.2.2 NEP Project Implementation Arrangements

Following the National Electrification Program recommendations, the government has established a National Electrification Executive Committee (NEEC) under the patronage of the Vice President through a decree issued on August 27, 2014. The NEEC is chaired by the minister of MOEP and co-chaired by the minister of MLFRD. A permanent NEEC Secretariat has been established in MOEP and MLFRD, aimed at overseeing NEP Project Management Offices (PMOs), which are responsible for the technical activities carried out by ESE, YESC, MESC and DRD under the Project. The Union-level PMOs would be responsible for project planning and implementation at the union level, while local level project planning and implementation will be led by the District PMOs. Within the MOEP and MLFRD (DRD), the Executive Committee, consisting of the MOEP and MLFRD Union Ministers and other senior officials, would have overall oversight responsibility of the proposed operation, including the ESMF, and would be informed regularly about overall implementation.
The NEEC Secretariat would be informed and engaged regularly in the implementation of the ESMF as part of general reporting of project implementation. Within the MOEP and MLFRD (DRD), the Executive Committee, consisting of the MOEP and MLFRD Union Ministers and other senior officials, would have overall oversight responsibility of the proposed operation, including the ESMF, and would be informed regularly about overall implementation.

The Union-level PMOs would be responsible for project planning and implementation at the union level, while local level project planning and implementation will be led by the District PMOs (see ESMF Section 4 for more details).

Applicable World Bank Safeguard Policies

The NEP triggers the following World Bank safeguard policies: Environmental Assessment (OP 4.01); Natural Habitats (OP 4.04); Physical Cultural Resources (OP 4.11); Involuntary Resettlement (OP 4.12) and Indigenous Peoples (OP 4.10). OP 4.10 applies to the project because site-specific project activities will be implemented in areas where ethnic minorities that meet the eligibility criteria of OP 4.10 are present and because national level project activities (e.g. policy reforms, institutional strengthening and capacity building) may have implications for ethnic minorities.

The OP 4.10 aims to ensure that ethnic minorities (i) do not suffer adverse effects, and (ii) receive culturally compatible social and economic benefits from Bank-financed activities. The policy requires screening for the presence of ethnic minorities in project areas.

Ethnic minorities that fall under the OP4.10 policy are considered as distinct, vulnerable, social and cultural groups that possess the following characteristics in varying degrees:

a) Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;

b) Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
c) Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and

d) An indigenous language, often different from the official language of the country.

In areas with ethnic minorities, the policy requires that the borrower (i) undertakes a social assessment to assess potential impacts and identify culturally appropriate benefits; (ii) conducts free, prior and informed consultations with affected ethnic minorities leading to their broad community support for the relevant project activities; and (iii) prepares an Indigenous Peoples Plan (or Ethnic Minorities Plan) to address particular issues concerning ethnic minorities, provide culturally appropriate benefits, and ensure the avoidance or mitigation of adverse impacts.

3. Legal and Institutional Framework

3.1 Legal framework concerning ethnic minorities

3.1.1 Constitution of Myanmar

According to Chapter 1, clause 22 of the 2008 Constitution of Myanmar, the Union Government of Myanmar is committed to assisting in developing and improving the education, health, language, literature, arts, and culture of Myanmar’s “national races.”

It is stated that the “Union shall assist:

- to develop language, literature, fine arts and culture of the National races;
- to promote solidarity, mutual amity and respect and mutual assistance among the National races;
- to promote socio-economic development including education, health, economy, transport and communication, [and] so forth, of less developed National races.”

The constitution provides equal rights to the various ethnic groups included in the national races and a number of laws and regulations aim to preserve their cultures and traditions. This includes the establishment of the University for the Development of the National Races of the Union which was promulgated in 1991 to, amongst other things, preserve and understand the culture, customs and traditions of the national races of the Union, and strengthen the Union spirit in the national races of the Union while residing in a friendly atmosphere and pursuing education at the University.  

Key principles within the Constitution that relate to National Races Affairs include:

- Section 15: For National races with suitable population, National races representatives are entitled to participate in legislature of Regions or States and Self-Administered Areas concerned.
- Section 17 (c): For National races of which representatives are so permitted to participate in legislature of Regions, States or Self-Administered Areas in accordance with Section 15, such representatives are to be permitted to participate, mainly, to undertake their National races affairs.
- Section 167 (a): The Region Hluttaw or the State Hluttaw may, if necessary, form Committees and Bodies with the Region or State Hluttaw representatives concerned to study and submit legislation in relation to national races affairs vested by the Constitution.
- Section 262 (e): The Chief Minister of the Region or State shall submit the list of persons who are approved by the Region or State Hluttaw or Chairpersons of the Self-Administered Division

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or Self-Administered Zone and the list of persons who are representatives elected to undertake the affairs of National races to appoint as the Ministers of the Region or State to the President.

- Section 262 (i): The President may, in co-ordination with the Chief Minister, appoint Ministers for the Self-Administered Division or the Self-Administered Zone or Ministers for National races affairs as Ministers concurrently in charge of other Ministries.

The Constitution makes no reference to ethnic minorities or indigenous peoples. It instead uses the term “national races”. This term is not defined by the Constitution however is generally interpreted by applying the 1982 Myanmar Citizenship Law\(^4\), which, in its 1983 Procedures, defines 135 national races.\(^5\)

Under the Citizenship Law, nationals of Myanmar include the “Kachin, Kayah, Karen, Chin, Bamar, Mon, Rakhine or Shan and ethnic groups as have settled in any of the territories included within the State as their permanent home from a period anterior to 1185 B.E., 1823 A.D.”.\(^6\) People of Chinese, Indian or Nepali heritage and many Muslims identifying themselves as Rohingya are mostly not considered full citizens because they do not automatically qualify under “national races”.

\**3.1.2 Endorsement and Ratification of Relevant International Instruments**

In September 2007, Myanmar endorsed the United Nations Declaration on the Rights of Indigenous Peoples. Article 32 discusses indigenous peoples’ right to free and prior informed consent (FPIC). It says: “States shall consult and co-operate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain Free and Prior Informed Consent prior to approval of any project affecting their land or territories”. Article 10 discusses forcible relocation of indigenous people, and the need for FPIC. Article 26 about land rights is also relevant in relation to indigenous peoples.

Myanmar has not ratified International Labour Organisation (ILO) Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries.


A proposal to form a Union-level ethnic affairs ministry responsible for ethnic affairs was previously submitted in the Amyotha Hluttaw, but the proposal was rejected on the grounds that there were already many Union ministries and the ethnic affairs ministers could protect minority rights. In August 2013, the Pyithu Hluttaw instead proposed drafting a law for ethnic affairs. On 24 February 2015, the new law was passed by the *Pyidaungsu Hluttaw*. Its purpose is defined as:

- In order for ethnic minority people to have equal citizen rights.
- In order to live together forever with friendship based on the genuine union spirit.
- In order to preserve and develop ethnic minorities' language, literature, art, culture, tradition, ethnic identity and historical heritage.
- In order to develop unity, mutual respect and mutual help among national races.
- In order to develop education, health, economy and transportation of ethnic minorities in less developed areas.

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\(^4\) Myanmar Centre for Responsible Business, 2014, Myanmar Oil and Gas Sector Wide Impact Assessment (SWIA)


\(^6\) Article 3, Myanmar Citizenship Law.

\(^7\) Union Legislative Assembly: a joint session of upper and lower houses of parliament
In order for national races to fully access constitutional rights. It states that if national races do not break the prescribed laws concerning national security, rule of law, peace and development and code of conduct for the citizens,

- They have the right to freely adopt their language, literature, art, culture, tradition and religion.
- They have the right to teach and learn their own language and literature without affecting the National Education Policy.

### 3.1.4 National Education Law

Also of contextual relevance is the National Education Law, which was approved by parliament in September 2014. The Law is currently undergoing amendment. One request being considered is that ethnic minority languages – ‘mother tongues’ - are able to be used as a medium of instruction.

## 4. Ethnic Minorities and other Vulnerable and Under-Served Population Groups

### 4.1 Ethnic Minorities

The Government recognises 135 separate ethnic groups referred to within the Constitution as “national races”. Major groups include Burman/Bamar, Shan, Karen/Kayin, Kachin, Chin, Rakhine, Mon and Kayah. The largest ethnic group is the Bamar (Burmese) people comprising about two-thirds of the population and who reside predominantly in the central and delta (seven) regions. Other ethnic minorities account for about one third of the population and live mainly within the seven states (although not exclusively). The official population estimates of the main ethnicity groups are roughly: Shan (9 per cent), Kayin/Karen (7 per cent), Rakhine (4.5 per cent), Chin (2 per cent), Mon (2 per cent), Kachin (1.4 per cent), and Kayah (1 per cent).\(^8\) Myanmar’s ethnic minorities make up an estimated 30 – 40 per cent of the population, and ethnic states occupy around 57 per cent of the total land area along most of the country’s international borders.\(^9\)

Political boundaries in Myanmar are to some extent organised according to ethnic demographics. Seven States are named after seven large ethnic minority groups – namely, Kachin, Kayah, Kayin, Chin, Mon, Rakhine, and Shan States. The Bamar are the dominant ethnic group, especially in the seven Regions (Sagaing, Magwe, Tanintharyi, Mandalay, Yangon, Ayeyarwady, and Bago).

Aside from the 14 States and Regions, there are five self-administered zones: Naga (Sagaing Region); Danu (Shan State); Pa-O (Shan State); Pa Laung (Shan State); and Kokang (Shan State). There is also one self-administered division: Wa (Shan State). These six self-administered sub-national units are recognised in the 2008 Constitution (section 56) and are the result of earlier ceasefire agreements. Each self-administered unit is run by a Leading Body, which has at least 10 members and includes State or Region Hluttaw members and other members nominated by the Commander-in-Chief.\(^10\)

Myanmar’s ethnic diversity creates variations in traditional norms and power structures, ranging from a system of small principalities in Shan and Kayah States to the tribal systems of the Kachin. However, in addition to this, Bamar dominance over other ethnic minorities has been the source of considerable ethnic tension and has fuelled intermittent protests and separatist rebellions including armed conflict, which has affected traditional structures. Armed ethnic groups have established systems of

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\(^10\) Adam Smith International in partnership with Myanmar Development Resources Institute (MDRI), 2015, *Institutional and Regulatory Assessment of the Extractive Industries in Myanmar* p. 60
administration separate either to the Government system or to traditional systems. All the main ethnic minority group areas have experienced various levels of conflict since 1962. There has been progress in peace talks between the Government and ethnic armed groups through leadership meetings, starting in late 2013, but a National Ceasefire Accord (NCA) has not yet been realised. Nonetheless, the country is undergoing a process of profound transformation, including but not limited to the peace process, which has significant implications for local governance structures at township and village level.

Although a large majority of the population practices Buddhism, other religions are also present; mainly Christianity, Islam, Hinduism. Some estimates list the proportion of Buddhists at 90 per cent; other sources estimate 80 per cent. Other major religions, as estimated by the Pew Research Center, are: 7.8 per cent Christians, 5.8 per cent folk religions, 4 per cent Muslims, and 1.8 per cent Hindus.

### 4.2 Internally Displaced and post-disaster groups

There are a number of internally displaced populations (IDPs) within Myanmar due to civil and military conflicts. These are found particularly in Kachin, Rakhine and Shan states. There are also many post-disaster groups in the Delta region. Given their displacement it is possible that they may not be identified in population statistics and they often lack access to basic infrastructure, including electricity.

A 2014 survey by The Border Consortium (TBC) estimated that there were at least 110,000 IDPs spread across 23 townships (222 village tracts) in southeast Myanmar. In December 2014, TBC verified 110,094 refugees living in refugee camps. The Muslim minority that self-identify as Rohingya in Rakhine State is not recognised as an ethnic group and many community members are considered illegal migrants. At January 2014, it was estimated that the number of displaced persons in Rakhine State had reached 140,000.

Post-disaster communities are prevalent in the Delta region and along the western coastline of Myanmar, which is particularly vulnerable to natural disasters. For example, Cyclone Nargis in 2008 which affected 2.4 million people and caused over 138,000 deaths.

### 4.3 Women

Table 1 below shows the population of Myanmar by Sex and State/Region, as included in the Provisional Results of the Myanmar Census. The full results of the Myanmar Census are expected to be available in May 2015.

*Note: the numbers in blue provide estimates of people who were not enumerated in the census. The numbers in italics provide figures on the enumerated and estimated population.*

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13. TBC is a non-profit, non-governmental organisation, is an alliance of partners working together with displaced and conflict-affected people of Burma/Myanmar to address humanitarian needs and to support community-driven solutions in pursuit of peace and development.
15. ibid.
5. Potential Issues and Impacts Relating to Ethnic Minorities and Other Vulnerable Groups

5.1 Introduction

The provision of electricity services supported by the project is expected to largely benefit ethnic minorities and other vulnerable groups. However, some impacts and risks are present as with most projects in areas with ethnic minorities or indigenous peoples. These were assessed in the PSIA I and II research, and the consultative meetings and social assessment undertaken during project preparation. This involved an assessment of potential risks and social impacts of proposed project activities as per the Bank's operational policies on environmental assessment (OP 4.01) and involuntary resettlement (OP 4.12), and assessment of particular issues and risks concerning ethnic minorities following the requirements of the Bank's operational policy on indigenous peoples (OP 4.10). The social assessment involved some field research, undertaken in northern Chin State (Falam, Hakha) and southern Shan State (Taunggyi, Yatsauk). The ESMF and IPPF includes provisions for more detailed consultations and social assessment (usually as part of subproject’s Environmental and Social Impact Assessment) for specific sub projects during project implementation. This includes free, prior and informed consultations with ethnic minorities where they are present in a subproject’s area of influence.

The NEP is a national program, to be implemented in all states and regions of Myanmar. In particular, the off-grid program plans to target approximately 492,000 households in the remote, less accessible villages. Geographic areas of focus include the remote areas of Chin, Kachin, Kayin, and Shan States, and may also include Rakhine, Tanintharyi and Sagaing States/Regions.
Effectively undertaking project implementation within such a diverse cultural and linguistic context will require specific consideration in regard to:

- **Language use**, in particular in relation to:
  - Preparing written and visual consultation and engagement materials;
  - Undertaking consultation and engagement activities;
  - Preparing IEC materials including in regard to community safety;
  - Undertaking monitoring and evaluation activities.

- **Ensuring equitability and transparency**, in particular in relation to:
  - Engagement of ethnic minority representatives, including within villages comprised of a mix of ethnicities; and
  - Targeting, sequencing and implementation of the rollout of the grid and off-grid components of the program.

- **Identification and consideration of how to mitigate barriers to access electricity amongst poor and vulnerable households, including female-headed households.**

### 5.2 Constraints to Accessing Electricity Services

A number of constraints or barriers were identified that prevent people from accessing electricity services and prevent a more equitable participation of ethnic minorities and vulnerable groups. These are described in the sub-sections below.

#### 5.2.1 Affordability

Analysis of data collected both during PSIA Phase I and II indicated that access to electricity in rural areas is limited by the current coverage of the grid but also by the fact that villages must cover the costs of the connection from the main “transmission” line to the village, following the Self-Reliant approach to electrification. All eight villages with access to the government electricity grid were located immediately beside the main road, transmission lines, beside a sub-station or, in the case of village 21 in Rakhine, close to a military camp from which access to the electricity grid was extended. However, of the remaining seven villages targeted under PSIA Phase II without access to the Government grid, four were similarly located within close proximity of the transmission lines. While proximity to the grid plays an important role in determining access to electricity, the affordability of the connection to the village (for which villages are required to raise their own funds) plays an equally determining part.

As noted during PSIA Phase I, it is the high cost of the initial connection to the government electricity grid that constitutes the biggest obstacle to access from both villages and for middle-income and poor households within the targeted villages. Of the eight villages targeted in the study, those with access to electricity provided by Government services/private company were: (i) provided with access/village connection free of charge by the government or by the private company supplying electricity; (ii) in the case of Village 6 in Shan were exceptionally well-off and able to raise the necessary funds from households; or (iii) contracted heavy debt to be able to cover the cost of connection (Villages 23 and 24 in Mandalay). Respondents in the remaining villages systematically highlighted the cost to the households of establishing this initial connection as the key obstacle for their lack of access. The

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17Research team observation highlighted the quality of housing construction, infrastructure and related it to the source of income of the village/migration.
perception that government subsidies for these connections were not available (or were granted only in very exceptional circumstances) was reported systematically across research sites.

Similarly, to what was observed during PSIA Phase I, the political connections of the village administration, the linkages between religious leaders and the township and/or private contractors were key in securing additional resources as well as providing guidance and support to navigate the complex SRE process. Villages in the sample that did not have these informal connections [those with access only through private providers] tended to be unsuccessful in their application, reporting lack of response from the township department and, particularly, a lack of funds for the initial investment needed. The initiative of the local administration, traditional and religious leaders and well off households, and their ability to mobilize their informal networks and connections, were key factors in the success of village SRE. Significantly, visits to rural areas by high level government officials (as noted during Phase I) often coincided with the allocation of discretionary funds for electrification. This was noted in three of the eight villages covered by PSIA Phase II. Without these formal sources of support or informal connections (including township-endorsed contractors) respondents reported that their application would not receive the necessary attention and that the response to their request would “take too long”.

In two of the new villages covered by Phase II of the PSIA, the research team noted that SRE had resulted in significant debts for the village. This was due to a combination of factors including an under-estimation of the total cost of the investment required to complete the works. Construction work was stopped in both instances as villages ran out of funds for completion and the Village Administration borrowed for the remaining amount.

5.2.2 Exclusion of Poor and Marginalized Households

The exclusion of poor and marginalised households noted during PSIA Phase I was confirmed by the analysis carried out under Phase II. None of the Village Electrification Committees (VECS) in the targeted villages included participation by poor households given the nature of the Self Reliant Electrification and lack of guidance for targeted support for poor households. All VECs in the study areas made a decision early on in the process about the households who could/could not afford to buy into the scheme. Given the high cost, those who could afford to contribute to the connection were invariably the better off households. Even in those villages with high levels of social cohesion/social capital there was no discussion/system in place to cross-subsidise the participation of poor households.

5.2.3 Role of Women in Electrification Process

Women are commonly excluded from participating in the VECs, with the exception of Village 1 in Chin. In all other instances, women were not considered eligible for participation. Where communities had suggested their inclusion (notably in Village 17 in Mon and Village 15 in Kayin), the Township Electricity Department requested their names be removed from the list as the duties of VEC members were considered to be “too much responsibility for women” and may require them to work in the evenings. The inclusion of a female member in the Chin VEC was attributed by informants to the training received by the Village Administration on gender through an externally funded (INGO supported) intervention on water resource management. The training stressed the importance of women’s involvement/leadership in the planning process of community-based interventions.
5.2.4 **Impact on Ethnic Minorities**

There was no significant variation noted in terms of social inclusion and community participation across regions/ethnic groups in sample villages, although a case was found in which one ethnic group was favored over another. Elite capture of the process and limited communication with the community was the overall trend observed.

The PSIA Phase II villages included two mixed villages (Village 17 in Mon and Village 6 in Shan). In the Mon case, the village was made up of Palong (20 per cent), Bamar (45 per cent) and Kayin (35 per cent) farmers with all groups being represented in the VEC and in the planning of village electrification. Bamar and Kayin tended to dominate local government institutions, which did not affect the distribution of benefits from the electricity scheme. There was no ethnic dimension to the exclusion of poor households in this case. What determined household ability to access electricity was exclusively household income.

A different situation was observed in Village 6 in Shan where electricity was provided by a large private company (hydro). The village is predominantly Shan with a minority (20 per cent) of Palong households. Livelihoods and household welfare tended to be divided along ethnic lines, with Palong households living on the outskirts of the village and being predominantly landless farmers and daily laborers. Palong households were therefore at an economic disadvantage in terms of joining the electricity service. Importantly however, in this case the private company, linked to the village administration (Shan dominated), provided better conditions of access for Shan households – namely initial credit and the ability to pay connection fees in instalments. No such flexibility was provided to Palong households with the result that all those in the village currently excluded from accessing electricity are Palong.

5.3 **Consultation and Engagement with Ethnic Minorities**

To enhance benefits and avoid adverse impacts, consultations and meaningful community engagement is generally recognized as a key element of providing infrastructure and other development investments in communities with ethnic minorities. Stakeholder consultation discussions with ethnic minorities and Indigenous CSOs during preparation of the NEP identified a challenge experienced by the A-sho Chin minority group during the construction of tower stations for the Min-Bu-Sittwe power transmission line. While the NEP’s support is for power distribution lines rather than power transmission lines, the key issues identified relate to limitations in the consultation and engagement activities undertaken. These limitations included lack of provision of information regarding the possible impacts of tower stations, the processes used to map the locations of the tower stations, compensation frameworks and the grievance mechanism. Amongst the construction team, there was limited awareness of the land use and ownership structures within the community, in which land was traditionally used for the purposes of shifting cultivation. There was low awareness of the cultural value of community forests to the A-Sho Chin. Lack of transparency led to land acquisition problems.

While some labourers from within the A-Sho Chin community were employed for manual work, workers from outside the community were also brought in, mainly to work on construction activities in which local people were inexperienced. This created concerns about safety within the community, especially of women going out for shifting cultivation. During the construction period, there were increased incidences of conflicts and quarrels within the community.
5.4 Potential for Social Exclusion

A key potential impact is the social exclusion of vulnerable households, either for reasons of affordability and/or for lack of access to the necessary documentation.

PSIA Phase 1 research found that a significant proportion of households in nearly all villages visited remained without access to electricity (irrespective of the source of the electricity service). Affordability of connection charges for individual households is an important barrier for the extremely poor/vulnerable. For villages with access to government services this is related to the fact that villages have to finance the cost of connection. Not only poorer villages but also poorer households within those villages are at a disadvantage – with vulnerable groups not being able to contribute to the cost of the initial connection and being left out. Interviews with vulnerable households across research sites consistently supported this conclusion. Those who could not afford to buy into village schemes for grid connections, small hydro or community-managed diesel generators usually relied on candles and kerosene as well as small rechargeable batteries for lighting.

The research team noted that poor households were excluded right from the planning stages – as village leaders/elites assumed their inability to pay and did not invite them for discussions. No instances of cross-subsidisation were observed (where the village itself put in place a mechanism to facilitate access to poorer households). In five of the nine villages with a functioning electricity scheme, poor households did not use electricity at all, relying on batteries, candles and kerosene lamps.\(^\text{18}\)

PSIA Phase 1 research also found noteworthy issues of access, particularly by informal settlers in Yangon (namely in the poorer ward visited, YGN-3).\(^\text{19}\) While the costs of the connection were indicated as a barrier to access by a small minority, the most commonly mentioned reason for using these “better than nothing at all” services in Yangon (i.e. informal electricity providers) was the inability to secure the necessary documentation (including household and land registration as well as approval of the application by the ward leader) to apply for a connection.

Households considered vulnerable/marginalised within the poorer wards researched in Yangon and Mandalay reported challenges with making monthly electricity payments (both for grid connection and for small scale distributors). Overall, the main coping strategies noted were delays in payment and borrowing from neighbours. The cost of household connections in poorer wards within Yangon and Mandalay, where the government service does not yet have full coverage, was a significant barrier to access for low-income households.

5.5 Potential for Bypassing of Communities during the Grid Rollout

There is the potential that communities living in remote areas will be bypassed during grid rollout activities. Infrastructure could be expanded and constructed through their areas but they may not be the beneficiaries of the electricity delivered. It will be important to consider how to balance and sequence provision of off-grid electrification services to these communities if they are not able to be directly serviced as part of the grid rollout.

\(^{18}\)Refer to Section 2.1 of the PSIA Phase 1 Report, outlining that for villages with connections to the grid, households with access to the service were usually those better off.

\(^{19}\)Informal settlers in Yangon (YGN 3) are not included in wards records and therefore not officially “counted” in data on access to electricity (please see Table 9)
5.6 Impacts during Construction and Operations activities

Construction and operations activities associated with the NEP may present possible risks in areas with ethnic minorities. Particular triggers may include the use of companies and/or workers sourced from a different ethnic group and from outside the area of project implementation. The practice of government and/or contracted company personnel patrolling power lines to ensure their safety and/or undertake maintenance may also present risks. Local companies should be contracted for construction and operations activities wherever possible, through a transparent contracting and procurement process. Contracts should include good practices for working with local communities.20

5.7 Conflict and post-conflict areas

The WBG’s Country Partnership Framework (CPF) for Myanmar FY15-17 observes that Myanmar’s transition is taking place in a context of continued fragility, conflict and violence, including religious violence, and an ongoing but incomplete peace process to address long-standing grievances of the country’s many ethnic minorities.21 It has also been noted that the lack of access to electricity was a factor for some displaced people to stay in refugee camps or longer-established Ethnic Armed Group (EAG)-run IDP settlements.22

A number of potential conflict risks identified in the CPF are relevant to NEP implementation. These include: avoiding inadvertent marginalisation of effective service delivery structures maintained by ethnic armed groups; and ensuring access to project benefits by marginalised groups.

The perceived level of equity, transparency and accountability associated with implementation of the grid rollout and off-grid activities will be key. Considered targeting and sequencing of NEP grid and off-grid sub-projects, underpinned by a transparent and broadly communicated rationale, will be very important. Further, it will be critical that the NEP is implemented using a conflict-sensitive approach underpinned by thoughtfully designed, inclusive and well-executed consultation and engagement strategies. Regular and transparent monitoring, including third party monitoring with community involvement, can play a valuable role in managing perceptions of transparency and accountability.

There is a strong potential that access by the government or private companies contracted to the government to conflict and post-conflict areas to implement NEP activities may be limited. This may impact the potential for the project to achieve its objective of increasing access to electricity and in turn may exacerbate and/or trigger the potential for conflict within these areas. Some may also perceive the NEP as a mechanism for incursion by the state into areas controlled by EAGs.

At the same time, provision of infrastructure such as electricity and social services may have significant potential to contribute to peacebuilding. In particular, coordination and collaboration efforts between state and service providers supported by EAGs could improve the quality of service provision, while also supporting the war-to-peace transition.23 Involvement of, and consultation with, ethnic State authorities as well as ethnic non-state groups and communities will be important for the

20 The principles designed by the Voluntary Principles on Security and Human Rights may be a useful guide companies in maintaining the safety and security of their operations within an operating framework that encourages respect for human rights: http://www.voluntaryprinciples.org/what-are-the-voluntary-principles/, accessed 27 March 2015.
successful implementation of the NEP. Supporting schools and health clinic services managed by non-
government service providers as well as those managed by government will be important to enhance
the intended benefits of the NEP.

To mitigate the above potential risks, it will be critical for the NEP to integrate conflict-screening
within the ESMF, to embrace broad-based and inclusive community-based planning processes and to
have a sound and nuanced understanding of the specific community context ahead of project
implementation at village level.  

6. Implementation Arrangements for the IPPF

The project’s positive impacts will depend upon the degree to which it is successful in ensuring the
inclusion of vulnerable groups including ethnic minorities and women. This requires a participatory
approach to the electrification process and ways to address barriers of economic and geographical
character as well as language and cultural barriers.

Component 1 of the NEP concerns procurement of equipment, at Union level, to extend power
distribution networks within states and regions, and related construction and operations activities,
while Component 2 of the NEP concerns outreach and provision of off-grid electrification services to
communities unlikely to receive electricity through the national grid. Both have implications for
vulnerable and under-served population groups.

A key principle of the IPPF is to build on, and improve existing mechanisms, including MOEP and
MLFRD (DRD) processes for local planning and engagement with communities and Village
Electrification Committees (VECs).

Using a least-cost approach, the Project has identified initial target areas for both the grid and off-grid
components. Based on the initial lists, the district engineers of MOEP and MLFRD (District PMOs) will
identify priority investments needed in each district. In addition to the least cost principle, the
proposed priorities at the district level will take into account other criteria, such as imminent risk of
power shortage in the district and potential congestion of the upstream substation in supplying more
residential customers, and environmental and social criteria such as the presence of health and
education facilities, affordability and the inclusion of ethnic minorities, vulnerable and poor people
through explicit selection criteria. The priority investments (‘subprojects’) by district will be
aggregated at the Union level after consultations with the district and the state/ regional authorities
to ensure a strong support and ownership of the electrification program at all levels. Off-grid
subprojects will be demand-driven and will only take place where community members wish and
support such subprojects, which will involve some upfront cash contributions, agreement to receive
training and willingness to take responsibility for O&M. Selection criteria will also involve equity
concerns among different types of infrastructure projects with government support (i.e. one village
receiving roads this year may not receive support for electrification or water supply), etc. The ESMF
describes these selection criteria and the Operational Manuals will provide additional details.

Implementation of the IPPF for subprojects funded in areas where ethnic minorities reside involves
the following key steps:

1. Screening for the presence of ethnic minorities:

24Lessons learned and suggested interventions from the Myanmar Peace Support Initiative might be useful in
this regard; see Myanmar Peace Support Initiative, 2014, Lessons Learned from MPSI’s work supporting the
peace process in Myanmar: March 2012–March 2014 p. 32
Screening is undertaken by the PMOs, with support from the TA/consultant teams, to determine the presence of ethnic minorities in the subproject’s area of influence (see ESMF for more details, including the screening form provided in Annex 1 of the ESMF). If their presence is confirmed, OP 4.10 is triggered to the subproject and the following steps will be undertaken (see also OP 4.10). Based on OP 4.10’s definition of indigenous peoples / ethnic minorities, the policy is triggered to the officially recognized ethnic minorities, or ethnic races (except the Bamar). The Bank will provide guidance to the PMOs during the screening process and will review the screening outcomes during its implementation support.

If a subproject’s area of influence is in an area with ethnic minorities OP 4.10 is triggered and the procedures described in this IPPF will be followed. This includes the undertaken of an assessment of potential social issues, impacts and risks, free, prior and informed consultations, and the preparation of an IPP in consultation with the ethnic minorities affected.

2. Social Assessment

Generally, a social assessment (SA) is a process which provides an integrated and participatory framework for prioritizing, gathering, analyzing, and using operationally relevant social information. The scope and elements of the social assessment should be proportional to the type and level of benefits, impacts and risks of the particular subproject. The SA should be integrated into the subproject’s Environmental and Social Impact Assessment (IEE) as described in the ESMF or undertaken as a separate exercise.25

Because the concerns and preferences of ethnic minorities are context-specific, no uniform or standardized approach to social assessment can be recommended. The elements, methodology, substance and depth of the social assessment should be proportional to the nature and scale of the proposed subproject’s design, the circumstances of the ethnic minorities and the existing data and knowledge relevant to the country and sector context. Issues that is commonly included in subproject social assessment are (see also section 8 of the ESMF):

- Identification of key stakeholders and institutional arrangements relevant to the subproject and the communities benefiting or affected.
- Gathering of baseline information on the demographic, social, cultural and political characteristics of the affected ethnic minority communities, and when relevant the land and territories that they have traditionally owned or customarily used or occupied, and the natural resources on which they depend.
- Forms of social infrastructure and services available to ethnic minorities, and analysis of the main factors affecting such access, or lack thereof.
- Assessment, based on free, prior, and informed consultation with the affected ethnic minorities, of the potential adverse and positive effects of the subproject.
- Assessment, based on free, prior, and informed consultation with the affected ethnic minorities, of the potential subproject design features and, if necessary, mitigation measures to ensure that the subproject provides culturally appropriate benefits and avoids or provides appropriate mitigation measures for subproject impacts.
- Identification and assessment of a culturally appropriate process for consultation and participation during preparation and implementation of the subproject financed activity/sub-project, including methodologies, technologies, principles, capacity building, empowerment, technical assistance and other support features necessary for a successful consultation and participation process.

3. Free, Prior and Informed Consultations

The World Bank’s policy on indigenous peoples requires a process of free, prior and informed consultation leading to broad community support from ethnic minorities benefiting from, or affected by, World Bank-financed subprojects.

The objectives are to facilitate the design of development interventions that are: culturally appropriate from the perspective of ethnic minority communities; developed through a transparent and participatory approach; and obtain broad support from affected communities.

Consultations are usually undertaken as part of the SA. The scope of the consultations required depends on the level of subproject impacts and the methodology depends on the type of communities affected by the subproject (e.g. their vulnerability, language and ongoing interactions with the dominant society or neighboring communities).

The consultation process should:

- be free from coercion, intimidation and pressure from the implementing agency or other stakeholders;
- integrate customary norms of decision making in the community;
- provide reasonable and understandable information about the subproject, its potential benefits, adverse impacts and risks, to all community members;
- participatory and facilitate the participation of ethnic minorities in assessing subproject benefits, opportunities, impacts and risks;
- use methods that are inclusive of vulnerable groups in the community, culturally appropriate, and that are adapted to communities’ language and needs;
- allow sufficient time for information to be interpreted and discussed internally within the affected communities and for comments and recommendations to be formulated by the communities;
- provide sufficient time for consultations and thereby allow the implementing agency to understand the views, concerns, interests and priorities of the ethnic minority communities;
- facilitate the communities’ influence on the subproject design and measures based on fair and open discussions and good faith negotiations; and
- document and disclose the consultation process (who, when, where, what); including the process and methodology, issues raised, how they have been addressed and the agreements reached. Documentation of the process is an important factor in demonstrating that broad community support has been obtained.

Arrangements for consultations should be carefully considered and tailored to the subproject context, the anticipated impacts and the context of the local communities. Consultation approaches may include:

- community meetings, both with the community as a whole and with sub-groups;
- focus group discussions and participatory planning exercises;
- distribution of project information in both full format (project documents, assessment reports etc.), simplified formats such as posters and brochures, and audio-visual material using local languages;
- identification of contact persons within the communities (some training may be appropriate to enhance their ability to engage meaningfully in the consultation process);
- involvement of ethnic minority organizations where they exist and have the trust of the local communities; and
- involvement of local NGOs, research institutes, university students (where these are accepted by, and have the trust of, the local communities).
Consultations should be conducted in the relevant ethnic language(s) when needed and sufficient lead time (minimum two weeks) should be given to ensure that all affected ethnic minority communities are able to participate in consultations fully informed of the subproject and preparation of an IPP.

The consultations undertaken under the IPPF in areas with ethnic minorities follow the general community engagement and consultation process embedded in the Project as a strategic part of its Results Framework. As part of the citizen engagement (CE) approach embedded within the Project, the PMOs will consider the number of consultations, the average number of beneficiaries and proportion of vulnerable people participating in each public consultation as an indicator of Project success. This is the case for both the grid and off grid components of the Project.

In the Project’s Results Framework, the “number of villages with at least one public consultation held” is a key indicator. However, for many subprojects, more than one public consultation is expected to be required. The CE approach is designed to enhance project performance as well as help address several important issues, including gender, inclusion, and achievement of maximum connections (for grid and mini-grid, and maximum adoption of SHS for the off-grid).

4. Preparation of an Indigenous Peoples Plan

Based on the findings of the social assessment and free, prior and informed consultation process, the responsible PMO or designated implementing partner will prepare an Indigenous Peoples Plan (IPP) for the specific subproject affecting ethnic minorities. The IPP should be prepared in a flexible and pragmatic manner, and its level of detail will vary depending on the specific subproject and the nature of impacts to be addressed. In cases where the vast majority of subproject beneficiaries are ethnic minorities, the elements of an IPP can be integrated into the subproject proposal itself.

Where required, an IPP should include the following elements, as needed (proportional to the scope, benefits, impacts and risks of the subproject):

a) Project description and summary description of issues relating to ethnic minorities.
b) A summary of the legal and institutional framework applicable to ethnic minorities.
c) A summary of the social assessment including baseline information on the demographic, social, cultural, and political characteristics of the affected ethnic minorities, the land and territories that they have traditionally owned or customarily used or occupied, and the natural resources on which they depend.
d) A summary of the results of the free, prior, and informed consultation with the affected ethnic minorities that led to broad community support for the subproject.
e) A framework to ensure free, prior, and informed consultation with the affected ethnic minorities during the implementation of subproject activities.
f) Measures to ensure that the affected ethnic minorities receive social and economic benefits that are culturally appropriate;
g) Measures to avoid, minimize, mitigate, or compensate for adverse effects.
h) The cost estimates and financing plan for the IPP.
i) Grievance redress mechanisms accessible to the affected ethnic minorities.
j) Monitoring, evaluating and reporting on the implementation of the IPP.

The draft IPP prepared in consultation with the affected ethnic minorities will be publicly disclosed and shared with local communities in a manner and language appropriate and understandable to the community members. The IPP should be prepared in English or Myanmar language, and translated into relevant ethnic minority languages if deemed necessary and constructive in providing subproject and IPP
information to the ethnic minorities.  

If the IPP is prepared in Myanmar language, it should be translated into English for Bank review, unless otherwise agreed with the Bank.

7. Institutional Arrangements

The two implementing agencies—MOEP and MLFRD (DRD), through their respective PMOs—will be responsible for the environmental and social performance of the NEP and its subprojects. The PMOs will be adequately staffed for this purpose with environmental and social safeguards officers (four officers have been onboard since January 2015). Once each subproject has been identified, the responsible PMO (under MOEP or DRD) will clarify tasks and responsibilities regarding implementation of the specific subproject (e.g. operators, ESE/YESB or villages). The PMOs will be responsible for creating a screening report and draft TOR for ESMP or IEE and to prepare an Indigenous Peoples Plan (IPP) as needed. The PMOs will be responsible for disclosing subproject safeguard instruments and for consulting with local communities and other relevant stakeholders.

Safeguard consultants will be hired to assist the two PMOs to implement the ESMF. Consultants will be supporting the both PMOs at Union and local levels. It is expected that this will involve at least two international consultants at Union level for each PMO, covering environmental and social safeguards respectively (a total of 4). The consultant team will include consultants for both areas of expertise to cover each Region/State for both PMOs (DRD PMO will only be present in four States for the first year). In addition, consultants and NGOs/CSOs will be contracted to support the development of safeguard instruments.

In relation to off-grid (Component 2) subprojects, the consultants will coordinate, as appropriate, with the Technical Support Unit (TSU) at the Union level, which includes international and national expertise hired under Component 3 on Technical Assistance and Project Management. Local Technical Advisors will support project implementation at township and village levels and may comprise local CSOs and consultants collaborating with local governments. The consultant team will include expertise in social safeguards, community engagement and ethnic minorities.

The NEEC Secretariat will be informed and engaged regularly in the implementation of the IPPF as part of general reporting of project implementation. Within the MOEP and MLFRD (DRD), the Executive Committee, consisting of the MOEP and MLFRD Union Ministers and other senior officials, would have overall oversight responsibility of the proposed subproject, including the IPPF, and would be informed regularly about overall implementation.

The Union-level PMOs are responsible for project planning and implementation at the Union level while local level project planning and implementation will be led by the District PMOs (see ESMF section 4 of the ESMF for additional details).

The Bank’s implementation support will include the relevant expertise and resources to support the PMOs in implementing the ESMF.

8. Capacity Building of Key Stakeholders

As MOEP and MLFRD (DRD) have limited experience implementing World Bank-financed projects and the Bank’s safeguard policies, the Project provides capacity building and technical assistance and the Bank will provide capacity building and operational support to the implementation of the IPPF (see Section 13 of the ESMF).

Training and capacity building will include areas such as community engagement and consultation, social assessment, cultural awareness of issues related to ethnicity, religion and marginalization.

The safeguard consultants hired to assist the two PMOs will provide on-the-job and formal capacity building and training for the two PMOs. As PMO capacities improve during the first two years of the

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26 It is expected that relevant documents, or summaries, will be translated into the main ethnic minority languages with a written language and a population group able to read in the local language; for instance, Shan, Palaung, Hakha, and Chin languages.
Project they will gradually take over safeguard tasks from the consultants, at first the review tasks, later also where possible tasks of preparing safeguard documents (including IPPs).

The MOEP and MLFRD (DRD), with support from the World Bank, will also provide training for relevant stakeholders on the elements of the IPPF, particularly in regards to the community engagement and social assessment process and preparation and implementation of the subprojects. The MOEP and DRD will ensure that male and female staff of their Ministries, and other stakeholders, will have equal opportunities to receive training and support under Component 3.

9. Monitoring and Evaluation

The Project will incorporate a strong system of monitoring and evaluation (M&E) to:

(i) ensure effective and timely implementation according to plan and apply mid-course corrections where needed;

(ii) measure the achievement of results envisaged in its objectives and learn lessons for future operations; and

(iii) ensure implementation of the ESMF, with IPPF, to meet the requirements of the Bank’s safeguard policies.

The PMOs will be responsible to monitoring the implementation of IPPs for subprojects. Given the large number of subprojects that will be financed in areas with ethnic minorities, efforts will be made to build capacity at local PMO level to undertake such monitoring. The TA/consultant teams will assist the PMOs in subproject monitoring and local NGOs and CSOs will also be used to support the preparation, implementation and monitoring of subprojects. Qualitative monitoring and beneficiary assessments will be included in the M&E, focusing primarily upon societal dynamics and ethnic groups, women, and the most vulnerable, using focus group discussions, key informant interviews and other participatory methods.

To evaluate project effects on development objectives, population level data in the form of household surveys will be collected. Baseline data will be drawn from the 2009 Integrated Household Living Conditions Assessment (IHLCA) data used to inform the PSIA, updated with the data from the 2014 Living Standards Measurement Study (LSMS) and the 2015 Demographic Health (DHS) Survey, with follow-up data collection planned towards the end of the project life.

Depending on the ability of the data collected to measure outcomes on vulnerable and under-served population groups, including ethnic minorities, additional surveys and/or qualitative assessments may be undertaken to assess impacts and outcomes for these population groups.

Monitoring exercises may also include other qualitative and quantitative studies to investigate social and other issues critical to reducing barriers to accessing electricity services; in particular, for vulnerable and under-served population groups. For instance, participatory research could maintain a focus on the themes of the PSIA research, which have included a focus on: barriers to access, including affordability; payment and coping strategies; quality of the service and communication with service providers; and social dimensions concerning ethnic minorities and other vulnerable communities. In line with the PSIA research approach to date, qualitative research could be used to inform preparation of case studies that can showcase the livelihood improvements that access to electricity provided through the NEP has supported, and other local benefits that have flowed from project implementation.
A priority of the Project is enabling connections for health clinics and schools, particularly in poor and vulnerable areas. Quantitative and qualitative research will be undertaken to inform an assessment of positive and any negative environmental and social impacts resulting from this Project focus.

To strengthen accountability and transparency, the monitoring system may involve consumer and civil society participation in monitoring of project and sector performance. Monitoring tools could include community scorecards, social audits, citizen report cards and citizen satisfaction surveys. This would be included in the project’s support to States and Regions to develop appropriate community feedback mechanisms to assess satisfaction with service delivery at the village level. Development of such mechanisms would be supported by the community engagement and social analysis carried out at the township level to inform the design of subprojects.

Social accountability activities can strengthen the capacity of both local community members and civil society organizations to engage in government services and hold authorities accountable for better development results. They can also strengthen the capacity of DRD and ESE, State/Region, District and Township authorities to become more transparent, participatory and accountable, and better respond to the demands and needs of local communities they serve.

**10. Grievance Redress Mechanism**

A grievance redress mechanism (GRM) has been prepared for the Project with the aim of allowing affected communities and individuals to raise complaints to implementing entities in regards to the preparation and implementation of subprojects. It also aims to enable the PMOs to receive and facilitate resolution of the specific concerns of affected communities and project participants regarding environmental and social performance. The GRM will aim to resolve concerns promptly, through an impartial and transparent process tailored to the specific community, and at no cost and without retribution to the complainant/s. The GRM is based on the following six principles: fairness; objectiveness and independence; simplicity and accessibility; responsiveness and efficiency; speed and proportionality; participatory and social inclusion.

The GRM will be communicated to different stakeholders. It is intended that information on the GRM will be disseminated widely in meetings and through pamphlets and brochures in Myanmar language, and ethnic languages as needed/relevant. Specifically, information will be provided about how and where to lodge complaints/grievances. Villagers will be encouraged to seek clarification or remediation through the mechanism if they have any questions or complaints/grievances.

Subproject specific safeguard instruments (ESMP, RAP, IPP) will describe the GRM in detail based on the following procedures for addressing grievances:

**Stage 1**: An initial stage, within the local village or township level, in which any person/s aggrieved by any aspect of the Project can lodge an oral or written complaint/grievance to the local Village Electrification Committee (VEC) or implementing partner/operator. The VEC or implementing partner/operator should keep a written record of complaints/grievances raised by villagers and their resolution; they should inform the District DRD or MOEPPMO of such complaints and resolutions.

If the complaint cannot be resolved within 15 days of receipt between the aggrieved person/s and the VEC or implementing partner/operator, it should be escalated to the second step of the process.

**Stage 2**: If the aggrieved person is not satisfied with the outcome of the initial stage, she/he/they can lodge the complaint to the District DRD or MOEPPMO. During the dialogue process the issues raised will be reviewed, and actions for resolution will be agreed by the parties. The dialogue will seek a resolution to the grievance as long as all the parties involved are amenable to the process. The District
DRD or MOEPPMO should keep a written record of complaints/grievances raised by villagers and inform the State/Region and National PMOs of such complaints.

If the complaint cannot be resolved within 15 days of receipt between the aggrieved person/s and the District DRD or MOEPPMO it should be escalated to the third step of the process.

Stage 3: If the aggrieved person is still dissatisfied following review by the District DRD or MOEPPMO, the case should be referred to the respective State/Region and/or National PMOs. The State/Region and/or National DRD should keep a written record of complaints/grievances raised by villagers and inform the NEEC and World Bank of such complaints.

If the complaint cannot be resolved within 20 days of receipt between the aggrieved person/s and the District DRD or MOEPPMO, the aggrieved person/s may proceed to legal proceedings in accordance with the GoM’s laws and procedures.

The VECs and respective PMOs will keep a record of all complaints received, including a description of issues raised and the outcome of the review process. A grievance database template will be prepared to ensure that all key information is captured. Written feedback will be provided to aggrieved persons or parties to the dispute throughout the GRM process.

Regular monitoring of the effectiveness of the NEP GRM will be included in the monitoring and evaluation (M&E) approach for the NEP Project (see Section 12 of the ESMF).

Note: the NEP recognises that in the case of ethnic minorities and indigenous peoples, the standard GRM for the NEP may need to be modified to align with alternate governance structures. Any such modifications should be documented in the IPP for the relevant subproject.

11. Budget

The implementation of this IPPF is integrated into the overall NEP budget. The costs of supporting the implementation of the IPPF - such as capacity building and preparation of IPPs - are included in the ESMF budget described in Section 10.

12. Consultations regarding this IPPF

During the process of preparing the ESMF the PSIA to inform the ESMF involved stakeholder consultations. More than 20 organizations based in Yangon were consulted; many of which were CSOs with a specific focus on ethnic minorities, land and/or gender. In addition, key resource persons identified as those that could provide insights relevant to ethnic minorities were interviewed. An early consultative meeting was held on January 30, 2015 in Yangon with civil society organizations, including some ethnic minority organizations. Background documentation on the proposed project was prepared in Myanmar and English and provided in advance of this meeting. In addition, meetings and discussions were held with community leaders and CSOs in Chin and Shan States during the PSIA field visits.

The first draft of the IPPF was disclosed with the ESMF and Preliminary PSIA in English and Myanmar on May 5, 2015 prior to public consultations. Public consultations were held in Mandalay on May 14, in Taunggyi (Shan State) on May 16 and Yangon on May 18. See Annex 7 for more details on the consultation process during preparation of the Project and the ESMF.

The final documents will reflect any comments and/or suggestions provided during the public consultations. The IPPF has been revised to reflect the outcome of the consultations, which for instance suggested more emphasis on the cooperation with NGOs and CSOs and the participatory planning methods of the Project. The final IPF will be publicly disclosed in Myanmar and English.
language versions on the MLFRD and MOEP websites, and in English language in the Bank’s InfoShop in compliance with the World Bank’s Public Consultation and Disclosure Policy. For project implementation, the PMOs will prepare project information and briefing material that explains the objectives and requirements of the ESMF and IPPF in a manner understandable to local communities. It will be translated into key ethnic minority languages with a proportional population group that can read in those languages.
Annex 10: Indicative Outline for an Indigenous Peoples Plan for the NEP Project

I. Description of the Project and Project Area

Describe the subproject for which this IPP is required

Describe the area and resources affected by the subproject (including indirect effects), indicating those that are used by the ethnic minority. If more than one ethnic minority is in the subproject area, indicate the project affected lands and resources used by each ethnic minority group separately.

II. Issues relating to the ethnic minorities in the project area

Describe the environmental and social effects of the project - both negative and positive - on the ethnic minority groups in the project area.

Describe how the expected social and environmental issues are expected to affect the ethnic minority groups.

III. Summary of legal and institutional framework applicable to ethnic minorities

Summarise the national laws and regulations concerning ethnic minority rights, the international agreements and other instruments on ethnic minorities to which GOM is a party, and the World Bank Indigenous Peoples Policy OP4.10 in effect at the time the NEP commenced.

IV. Summary of the social assessment of the ethnic minorities in the subproject area

- Background information about each ethnic minority in the project affected area, such as historical patterns of settlement, traditional ways of life, cultural practices that may be relevant to the impact of the subproject on the group.

- Baseline information on ethnic minority groups in the subproject area, including demographic, social, cultural, and political characteristics of these particular groups.

- Land and territories in or near the project affected area that have been traditionally owned or customarily used by each of the ethnic minority groups

- Other natural resources in or near the project affected area on which each of the ethnic minority groups depend for their livelihoods

V. Free, prior, and informed consultations leading to broad community support

Provide a summary of the free, prior, and informed consultations that led to broad community support. This should include all relevant documentation or reference to any other materials such as audio or video recordings of the consultations.

Provide a summary of the results of the consultations and how broad community support was indicated by each of the minority groups.

VI. Framework for continued free, prior, and informed consultations during implementation
Describe how the process of consultations with the ethnic communities will continue through implementation, including progress with the subproject, progress with the IPP and any other relevant environmental or social instruments.

Describe how the ethnic minority groups will be informed of any changes to the subproject, changes to the expected environmental or social impacts, and/or changes to mitigation measures, and how broad community support will be sought for any such changes.

VII. Measures to ensure culturally appropriate social and economic benefits

Describe the measures being taken by the subproject to ensure that the ethnic minorities receive the social and economic benefits from the subproject in ways that are culturally appropriate to them.

For the most part, the benefits of NEP would be provision of electricity. There may be some specific cultural factors to consider, for example, in providing electricity, in locating power points in the houses, in including women in decisions about the system, and in helping the households understand how to gain the most benefits from the system.

VIII. Mitigation measures for expected adverse effects

Describe the expected adverse environmental and social effects, and the measures to avoid, minimize, mitigate, or compensate for each of those effects

IX. Timetable and estimated budget

Provide a timetable to implement the IPP, with scheduling of each of the mitigation measures, and any budget required to implement the plan.

X. Grievance redress mechanism

Describe the grievance redress mechanism and how it is accessible to the ethnic minorities in ways that are culturally appropriate to each of the ethnic minority groups in the subproject.

XI. Monitoring, evaluation, and reporting

Describe the procedures for monitoring and evaluation of the IPP implementation.

Describe the reporting requirements for the IPP implementation, such as progress reports, monitoring reports, financial reports and evaluations as necessary.
Annex 11: Resettlement Policy Framework (RPF)

Background

This Resettlement Policy Framework (RPF) has been prepared for the Myanmar National Electrification Project. Since subprojects are only identified during project implementation specific project impacts cannot be identified until then. The Resettlement Policy Framework (RPF) is prepared to ensure that any acquisition of land and the loss of income or private assets due to the implementation of subprojects funded by the Project would be addressed in line with the World Bank’s policy on involuntary resettlement, OP 4.12. Both permanent land acquisition and temporary occupation of land are addressed. The RPF describes procedures and requirements for assessing potential impacts and preparing required safeguard plans, such as a Resettlement Action Plan (RAP) in line with OP 4.12.

Project Description

The proposed Myanmar National Electrification Project (the Project), funded by the World Bank through a loan of US$ 400 million and implemented by the Ministry of Electric Power (MoEP) and the Ministry of Livestock, Fisheries and Rural Development (MLFRD), will aim to: help increase access to electricity in Myanmar.

The expected results of the Project include new household connections in urban and rural areas across the country. Also, the project will help establish and support a coordinated sector-wide institutional framework for the implementation of national electrification program, and strengthen institutional capacity of implementing agencies, including both public and private sector active in the grid rollout and off-grid pre-electrification.

The proposed grid roll-out program will not only improve the well-being of the affected population by better lighting, telecommunications and entertainment, but also enable income-generation opportunities and enhanced productivity. Importantly, the program will prioritize connections for health clinics and schools, particularly in poor and vulnerable areas, to maximize developmental impacts.

The project will include an off-grid pre-electrification program to directly benefit the poor and vulnerable households by targeting those who reside outside the realm of power grid and are expected to receive grid-based electricity services more than 10 years after the first phase of NEP. The four components of the NEP Project are as follows:

**Component 1: Grid extension rollout [IDA US$ 300 million].**

This component will support Myanmar’s utilities to extend distribution networks and connect communities and households closest to the existing national grid, in line with the National Electrification Plan. The component includes: (a) expansion of existing medium voltage (MV) substations and construction of new MV substations; (b) construction of about 12,900 miles of MV and low voltage (LV) lines, and 772 MVA of MV/LV transformers; and (c) provision of 11,600 community connections (health clinics, schools and other public buildings), 750,000 household connections, and 132,000 public lights. This component will provide International Development Assistance (IDA) financing for power distribution goods and materials (transformers, poles, conductors, insulators, switchgear, materials etc.). The utilities will support installation, with private...
(community level) contributions at a rate set by the Government, and possible private sector participation.

**Component 2: Off-grid pre-electrification [IDA US$ 80 million].**

This component will target communities located far beyond the existing national grid and, thus, unlikely to receive grid-based access in the next 10 or more years. The Project funding will be directed to the peripheral States/Regions with social and ethnic tension and conflicts where access to electricity services for all is essential for enhancing social/ethnic cohesion and peace building. Off-grid electrification will be technology neutral, depending on a technology assessment that will be undertaken for target communities. Technologies include solar photovoltaic (PV), mini-hydropower, wind, diesel, and hybrid (e.g. diesel/solar). The Project will support: development of mini-grids based on renewable energy or a hybrid of diesel and renewable energy technologies; and deployment of household solar PV systems in target communities, including households, public institutions (schools, health clinics and other community buildings) as well as public street lighting with cost sharing from villages, IDA grant and government grant. Disbursement of the IDA grant will be results-based and take place after the installation and required services have been delivered and verified in accordance with the guidelines to be detailed in the operational manual.

**Component 3: Capacity building and technical assistance [IDA US$ 20 million].**

This component will support: (a) strengthening of institutional capacity to implement the National Electrification Plan, including capacity building and training of the National Electrification Executive Committee and its Secretariat, capacity building at the Union, State/Region, district, township and village levels and for the private sector; (b) improving the policy and regulatory framework related to electrification; (c) development of an integrated, geographic information system (GIS)-based framework for electrification planning, results monitoring and impact evaluation of the project, building on the existing GIS platform for geospatial least-cost electrification planning; (d) securing technical advice and consulting services on standards, technology assessment and technical design, economic and financial analysis, environmental and social impact management, procurement and financial management; and (e) project management.

**Component 4: Contingent Emergency Response**

The objective of this “zero component” is to allow a rapid reallocation of IDA credit proceeds from other components to provide emergency recovery and reconstruction support following an adverse natural disaster event. This component would finance public and private sector expenditure on a positive list of goods and/or specific works, goods, services and emergency operation costs required for Myanmar’s emergency recovery. A Contingency Emergency Response Component (CERC) Operational Manual will apply to this component, detailing financial management, procurement, safeguard and any other necessary implementation arrangements.

**Scope of Potential Project Requirements of Land**

Subprojects funded by the Project are expected to be designed to have generally positive social benefits. It is expected that most subprojects will not involve land acquisition or other impacts covered by OP 4.12 given their small scale and limited footprint. However, some subprojects may require land acquisition or impacts assets such as standing crops and tress. It is not possible to estimate the potential number of people affected or the extent of impacts at this point.

For **Component 1: Grid Rollout**, the relevant infrastructure works are; expansion and/or construction of Medium Voltage (33/11 KV) substations; construction of 33 KV and 11 KV Distribution Lines, Low Voltage (LV) Lines and Medium Voltage/LV Transformers; and installation of household connections.
and meters. Most of these activities are not expected to involve land acquisition, although it cannot be ruled out (e.g. for some substations). Some subprojects may impact standing crops or fruit trees during construction. For Component 2: Off-Grid Pre-Electrification Program, the infrastructure works that may require access to and/or acquisition of land will be: dual bio gas power plants; mini grids (solar photo-voltaic); diesel generators; mini hydro power plants (< 1MW); and wind energy plants. Component 2 also provides for the installation of solar home systems (SHS), however it is anticipated that the impact of SHS on land will be very limited and limited to the owners of the SHS and land acquisition will therefore not be required.

This RPF has been prepared as part of the ESMF for the Project to provide guidance regarding situations where land use and/or land acquisition is required for the implementation of subprojects.

**Land Acquisition and Resettlement Policy Framework**

This Resettlement Policy Framework (RPF) has been prepared as part of the ESMF for the NEP to provide guidance regarding situations where land use and/or land acquisition is required for the implementation of sub-projects.

The RPF articulates principles associated with involuntary resettlement, should this be required for a particular subproject. The precise details of sub-project activities, including their locations, will not be known until project implementation. Subsequently site-specific plans to address incidences of voluntary land donation, land compensation and/or land acquisition will not be developed until the implementation phase.

The RPF has therefore been prepared to set out policies and procedures to screen all project-financed activities for land requirements and to assist the Project with the preparation of specific resettlement action plans (RAPs), as needed, to address land acquisition.

In World Bank-assisted projects, borrowers are expected to take all necessary measures to mitigate adverse social impacts, including those associated with land acquisition. Every reasonable effort is to be made in subproject design to avoid or minimise the need for land acquisition. However, if land acquisition cannot be avoided altogether, the principal objective of the RPF is to ensure that all persons displaced economically and/or physically are compensated for all lost assets at full replacement cost and for standing crops at market value. Importantly, where land acquisition affects the sustainability of their livelihoods and income streams, development interventions must be undertaken to sustainably restore, and where poverty prevails, to enhance their standard of living.

Specifically, an RPF aims to meet the objectives of the World Bank’s OP 4.12 on Involuntary Resettlement, as described below:

a) Involuntary resettlement should be avoided where feasible, or minimised, exploring all viable alternative project designs.

b) Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.

c) Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.
The policy covers direct economic and social impacts that both result from Bank-assisted investment projects and are caused by the involuntary taking of land resulting in: (i) relocation or loss of shelter; (ii) loss of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location. It applies to all subproject activities that result in involuntary resettlement, regardless of the source of financing.

**Project Principles for Involuntary Resettlement**

OP 4.12 establishes key principles to be followed in resettlement planning and implementation. Of particular relevance for this RPF are the following. Implementation of civil works that require a temporary restriction of access to farmland or any other sources of income should not occur before mitigation measures are in place.

**General Principles**

a) All efforts will be made to avoid, or minimise if unavoidable, acquisition of land and other assets. Detailed designs will be adjusted to the degree feasible to avoid such impacts. If however land acquisition is unavoidable, a Resettlement Action Plan (RAP) will be developed following measures provided in this RPF. (If the project activity or sub-project affects less than 200 persons, an Abbreviated RAP is to be prepared).

b) Physical relocation of households is not expected as subprojects funded by the Project have relatively small footprints and in many cases alternative sites can be found. However, should a subproject require such relocation prior approval from the World Bank should be sought and a RAP prepared.

c) All persons displaced economically and / or physically are entitled to compensation at market or replacement value (as relevant) for land and lost assets, or to alternative but equivalent forms of assistance in lieu of compensation. Valuations must be undertaken in accordance with international valuation standards.

d) A lack of legal title to land of customary users acquired by the project will not bar displaced persons from entitlement to such compensation or alternative forms of assistance needed to resettle and sustainably restore incomes.

e) Squatters or those living on or using land without title or recognised customary arrangements at the time of the RAP census survey are entitled to compensation for any structures or improvements made and may be provided with assistance to shift elsewhere.

f) Compensation rates as established in a specific RAP refer to amounts to be paid in full to the eligible owner or user of the lost asset, without depreciation or deductions for any purpose.

g) When cultivated land is acquired, the borrower should seek to arrange land-for-land replacement if that is the preference of the displaced person.

h) Compensation for land, standing crops and lost assets must be paid prior to the time of impact.

i) Land to be used temporarily must be acquired in consultation with landowners or land users. Full market compensation will be paid for any standing crops. Tree crops or perennial plantations should be avoided to the extent possible. An allowance should be paid to land users for inconvenience and a negotiated rental fee should be paid to titled landowners. Leasing of land from landowners or the use of unused, unoccupied government land is the preferred method. All land used temporarily will be restored to its previous condition.
j) Displaced persons should be consulted during the process of RAP preparation, so that their preferences regarding land acquisition and compensation arrangements are solicited and considered.

k) The draft and final RAPs are publicly disclosed in a manner accessible and understandable to displaced persons.

l) The previous level of community services and access to resources will be maintained or improved after land acquisition.

m) The borrower is responsible for meeting costs associated with land acquisition and compensation. The RAP includes a budget for all costs associated with land acquisition, including contingency arrangements.

n) Methods by which displaced persons can pursue grievances will be established and information regarding these grievance procedures will be provided to displaced persons. Grievances are cost-free and easily accessible to project-affected people.

**Principles specifically related to Voluntary Land Donation (see protocol below)**

a) Voluntary donations are an act of informed consent and affected people are not forced to donate land or other assets with coercion or under duress, or misled to believe that they are obliged to do so.

b) Voluntary donations are allowed only if a sub-project can technically be implemented in another location than where it is planned – if a sub-project is location-specific by nature, land acquisition associated with such a sub-project cannot be considered as voluntary; rather, it is an act of eminent domain. In such cases, an abbreviated RAP or a full RAP, as applicable, is developed.

c) Voluntary donations by villagers are allowed under the project provided that affected people: (i) are the direct beneficiaries; (ii) know that they have the right to refuse to donate land or assets; (iii) agree to donate land or assets without coercion or under duress; (iv) the total size of productive land owned by the affected household is more than 200m²; (v) the impact is less than five per cent of the total productive assets owned by said household. No physical relocation is allowed on a voluntary basis.

d) The affected people are fully informed that they have the right to refuse to donate land and instead receive compensation at replacement cost, and that a grievance redress mechanism is available to them through which they can express their unwillingness to donate. People are encouraged to use the grievance redress mechanism if they have questions or inquiries, either in writing or verbally. Adequate measures will be in place to protect complainants.

e) There is no community counterpart contribution required in cash or in kind required for any sub-project, although communities are allowed to contribute if they wish to. No one should be forced to contribute any assets against their will, and principles of voluntary donations should apply. Labour services rendered by community members are remunerated based on the going village wage rate for day labour.

f) Once the informed consent of the affected people has been confirmed in writing, the donation will be documented.

g) Implementation of subprojects involving voluntary donation starts only once the respective PMO has approved the signed voluntary donation forms.
Definitions

“Displaced persons” refers to all the people who, on account of project activities, would have their (i) standard of living adversely affected; or (ii) right, title, interest in any house, land (including premises, agricultural and grazing land) or any other fixed or movable asset acquired or possessed temporarily or permanently; (iii) access to productive assets adversely affected, temporarily or permanently; or (iv) business, occupation, work or place of residence or habitat adversely affected. The term incorporates all potential categories of persons affected by land acquisition and associated impacts; all of those adversely affected are considered “displaced” under this definition regardless of whether any relocation is necessary.

"Replacement cost" is defined as follows:

- For agricultural land, it is the pre-project or pre-displacement, whichever is higher, market value of land of equal productive potential or use located in the vicinity of the affected land, plus the cost of preparing the land to levels similar to those of the affected land, plus the cost of any registration and transfer taxes.

- For land in urban areas, it is the pre-displacement market value of land of equal size and use, with similar or improved public infrastructure facilities and services and located in the vicinity of the affected land, plus the cost of any registration and transfer taxes.

- For houses and other structures, it is the market cost of the materials to build a replacement structure with an area and quality similar to or better than those of the affected structure, or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labour and contractors' fees, plus the cost of any registration and transfer taxes.

- In determining the replacement cost, depreciation of the asset and the value of salvage materials are not taken into account, nor is the value of benefits to be derived from the project deducted from the valuation of an affected asset. Where domestic law does not meet the standard of compensation at full replacement cost, compensation under domestic law is supplemented by additional measures so as to meet the replacement cost standard. Such additional assistance is distinct from resettlement measures to be provided under other clauses in OP 4.12, para. 6.

Legal and Regulatory Framework

The legal framework for land in Myanmar is made up of at least 73 active laws, amendments, orders, and regulations passed under different governments that often overlap, conflict with each other, or do not refer to preceding laws. Historically, during the colonial era and after independence, many lands were leased (grant lands) for plantations or agriculture and the landholder’s rights registered in a register of holding though no certificate or title was issued.

Myanmar does not have a unitary land law but has several laws for different categories of land. All land belongs to the state under the current legal system, and land users receive certificates from the Settlement Land Records Department.

28 Grant land is granted or leased out by the government for 10 to 90 years. If the landholder wants a land record and map of land, he or she is given both.
The legal framework concerning land acquisition in Myanmar is evolving. Several key pieces of legislation have been introduced over the last several years, in particular the Farmland Act (2012) and the Vacant, Fallow and Virgin Lands Management Law (2012). However neither of these accommodate practices such as shifting cultivation or collective and traditional forms of ownership and usage.

2008 Constitution

Per the Constitution of the Republic of the Union of Myanmar, 2008, in principle, all land in Myanmar is owned by the nation as articulated below:

“The Union is the ultimate owner of all lands and all natural resources above and below the ground, above and beneath the water and in the atmosphere in the Union” (Section 37, Sub-section (a), Chapter 1 Basic Principle of the Union, State Constitution 2008)

In this context Myanmar individuals and organisations do not have proprietary rights to land but only land use/occupancy rights, which in some situations allow for inheritance and transfer of such rights.

The Land Acquisition Act, 1894

The 1894 Land Acquisition Act remains the legal basis for land acquisition in Myanmar. After the election of the new government in 2011, land acquisition is required to be managed by the Union Government in accordance with the procedures of the Land Acquisition Act, 1894, as well as the Farmland Law and Rules, 2012. In cases of land acquisition, the Land Acquisition Act 1894 still serves as the fundamental law for land acquisition in Myanmar however different regulations apply for different types of land and there are no comprehensive as well as updated law/rules/procedures/guidelines related to land use rights/transfer of rights/land acquisition/resettlement issues.

The relevance of the Land Acquisition Act 1894 is as follows:

The law determines that the government will acquire or occupy lands for public purpose (but also for business reasons for companies at that time). The law sets procedures for land acquisition and compensation. Section 23 determines suitable amounts of compensation to be made for affected persons when the land is acquired by the government. Detailed descriptions and procedures are mentioned in the Land Acquisition Directions.

The Act and associated Rules (Land Acquisition Rules, 1932) further outline relevant procedures including for notice periods, objections of interested persons to acquisition, methods of valuation of land, temporary land occupation, court processes and appeals and acquisition of land for companies.

Land Nationalisation Act, 1954

This law serves as the basis for all land (especially agricultural land) to be nationalised and distributed (also providing conditions for lands/cases to be exempted). The procedure for the transfer of agricultural land to other purposes is described in the law (La Na 39). The Act determines the extent and amount of compensation by types of agricultural land (Schedule II, in Amendment 1954). Amendments have been made to this law in 1954 (Act No. 22), 1955 (Act No. 54) and 1957 (Act No. 49). This Act was repealed by the Farmland Law in 2012, however it still applies in cases where land transfer has been initiated under this law.

Farmland Act, 2012

This law determines land use rights for farmland and granting of land use rights to eligible farmers. It allows the right to sell, mortgage, lease, exchange and gift whole or a part of the right to use the
farmland. The law determines the formation as well as roles/responsibilities of farmland administrative bodies at various levels. The Farmland rules determine procedures such as the application for farmland registration and obtaining land use certificates; application of transfer of farmlands for other purposes; and indemnities and compensation.

**Vacant, Fallow and Virgin Lands Management Law, 2012**

This law determines the conditions and frameworks for usage of vacant, fallow and virgin lands. According to the law, vacant, fallow and virgin lands can be claimed and utilised by willing individuals/organisations including foreigners mainly for production activities such as agriculture, livestock, aquaculture, mining and others permitted by the government. The law determines the formation as well as the roles/responsibilities of the central committee for the management of vacant, fallow and virgin lands.

**Ward or Village Tract Administration Law, 2012**

Of relevance to non-agricultural land in rural areas, this recently introduced law has repealed two previous acts: The Towns Act (Burma Act No. 3/1907) and The Village Act (Burma Act No. 6/1907). These two acts determined denomination, administration and revenue collection from lands within towns and village tracts, respectively. The Ward or Village Tract Administration Law determines the functions/roles of ward or village tract administrators and their selection system as follows:

- Safeguarding fundamental rights of the citizens;
- Trespassing on state owned land, town/village land, agriculture land, alluvial land, forest land pasture, communal lands;
- Administering the land of cultivation;
- Collecting land revenue.

**National Land Use Policy (Draft)**

In October 2014 the GoM released a draft National Land Use Policy (NLUP) and plans for a subsequent National Land Law, for public consultation. GoM has been developing the draft policy since 2012 through a multi-stakeholder consultation process.

The policy emphasises strengthening the land tenure security of smallholder farmers, ethnic communities, women, and other vulnerable groups in Myanmar. The policy also includes important provisions on:

- ensuring the use of effective environmental and social safeguard mechanisms;
- improving public participation in decision-making processes related to land use planning;
- improving public access to accurate information related to land use management; and
- developing independent dispute resolution mechanisms.

The draft policy also includes guidance aimed at strengthening the government’s mechanisms for handling land acquisition, compensation, relocation, and restitution.\(^{29}\)

The current national legislation regarding compensation for loss of land and assets, as described above, include some measures similar to key principles of World Bank OP 4.12 on Involuntary Resettlement. However, OP 4.12 is more detailed and includes a number of requirements not found in

national legislation, such as preparation of a RAP, consultations and public disclosure, compensation based on replacement value at market prices. For the Project, all requirements of OP 4.12 apply and the Government of Myanmar agrees to waive any legal or regulatory provisions in contradiction to the requirements of OP 4.12 as established in the RPF and to take actions necessary to ensure full and effective implementation of RAPs prepared in accordance with the RPF and OP 4.12. Should the draft Land Law be approved during project implementation a more detailed comparison to OP 4.12 should be undertaken and the RPF may be changed in agreement between GoM and the World Bank.

**Eligibility Criteria and Entitlements**

The purpose of resettlement planning is to ensure that displaced persons have sufficient opportunity to replace assets they will lose, and to improve or at least restore their incomes and living standards. To achieve these objectives, it is essential to ensure that all displaced persons are identified, and to ensure that all displaced persons are deemed eligible for appropriate mitigation measures in the RAP. With regard to minor land acquisition, displaced persons are normally eligible for compensation at replacement cost for:

a) All land to be acquired. If agricultural land is acquired, the project should assist displaced persons in obtaining replacement land of equivalent productive value if that is their preference.

b) The market value of any unharvested crops and estimated future value of productive trees (fruit, nut or timber).

c) Any fixed assets or improvements on the land to be acquired.

d) If land is temporarily acquired to facilitate project construction, temporary use compensation is required and the land must be returned to its original condition (or better) after use.

If partial land acquisition would render the remainder of the plot economically unviable, inaccessible, or unsafe for use or habitation, the project should acquire the plot in its entirety at the request of the displaced persons.

For minor land acquisition involving communal or collective land, compensation at replacement cost normally is provided to the community or collective ownership. Displaced persons directly affected by loss of communal or collective land will be compensated for unharvested crops, productive trees and other fixed assets or improvements they have established on the land they use.

Affected persons who have no recognisable legal right or claim to the land they are occupying, e.g. informal users or encroachers on public land, may not be entitled to land compensation, but are compensated at replacement cost for unharvested crops, productive trees, and other assets or improvements they have established on the land they use.

The project design process is intended to identify and mitigate any project-caused obstructions or restrictions on access to lands, water, or other natural resources. Any persons subjected to unmitigated obstructions or restrictions on access are eligible for appropriate project mitigation assistance.

**Entitlements:**

The following generic Entitlement Matrix provides the principles that will be used during implementation. The Entitlement Matrix may be developed in more detail during project implementation in agreement between the World Bank and GoM.
<table>
<thead>
<tr>
<th>Type of Losses</th>
<th>Entitled Persons</th>
<th>Entitlements</th>
<th>Implementation Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of land</td>
<td>Legal owners or occupants identified during census</td>
<td>Cash compensation at replacement cost which is equivalent to the current market value of land within the village, of similar type, category and productive capacity, free from transaction costs (taxes, administration fees)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected persons who have no recognisable legal right or claim to the land they are occupying</td>
<td>Rehabilitation assistance to achieve the policy objective to improve or restore their livelihoods and standards of living in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. Assistance may involve access to electricity, training, opportunities for employment during construction, and technical support to improve livelihoods</td>
<td></td>
</tr>
</tbody>
</table>
Loss of productive trees, structures and other private trees

Owners of affected structures, regardless of tenure status

Cash compensation at replacement cost
Salvage materials will be handed over to affected people

If remaining parts of the structures are not sufficient for use, compensation will be paid for the entire affected buildings
Transportation of salvage materials will be assisted by the project

Temporary land use occupation

Legal owners or occupants identified during census

Cash compensation for loss of income or assets on a net basis
Reinstitute land to the original state after the completion of civil works

Responsible PMOs will monitor implementation

Valuation Methods

Land markets are not fully developed in Myanmar and varies depending on the location in the country, particularly between urban and rural areas to implement this RPF, valuation of land and assets will be done prior to preparing subproject RAPs. Valuation methods may vary depending on the local context and the scope and impact of the subproject, but would normally include:

1. An independent land price survey in the project area based on current land use and market value of land to help the affected households be able to afford a replacement land equivalent in terms of quantity and quality. The market value of an asset is the estimated cost at which the asset is purchased and sold on the market at the time of appraisal between a willing buyer and a willing seller in an independent activity and in a normal exchange condition. The survey will use comparison and construction cost methods:
i. Comparison method: Land prices will be based on the prices of land plots, similar to the affected land, have been successfully purchased/sold in the market in the recent transactions. This method will estimate the actual value of the land to be acquired by the subproject.

ii. Construction cost method: This method is based on the estimated average cost per square meter to build different kinds of houses in recent months in consultation with the Township General Administration Department (GAD).

iii. The experts who conduct the replacement cost survey may use the following tasks:
   • Present the methodology for replacement cost survey;
   • Conduct survey of construction materials and interviews with contractors and builders in the affected districts and communes to determine the current costs of materials and labor;
   • Interview local officials and residents to find the current market price of land in the project area based on the recent transaction documents; or if there is no market, based on actual observations, such as productivity and location attributes, and the availability of replacement land.
   • Conduct in-depth interviews and discussions with the parties involved in setting the unit prices as stipulated by law, compensation for affected land, houses and other structures, all kinds of crops and annual plants to have a better understanding of the methods used in determining the unit prices to be issued.

Project Procedures

Responsibility for implementation of this RPF and for preparation and implementation of RAPs for specific activities and sub-projects (including responsibility for meeting all associated costs) rests with the Government of Myanmar. The agencies with overall responsibility in this project are MoEP, for on-grid sub-projects, and MLFRD (DRD) for off-grid sub-projects. As necessary, MOEP and MLFRD will exercise their authority to coordinate actions with any other agencies involved to ensure timely and effective implementation, particularly the respective General Administration Department at State/Region, District and Township levels.

District level PMOs, which are in charge of reviewing detailed designs and hiring contractors for civil works, will determine if any land acquisition or asset loss is necessary. A Land Acquisition Checklist will be developed and will include the following, at a minimum:

Table – Generic Checklist

<table>
<thead>
<tr>
<th>Screen/Check for</th>
<th>Yes/No</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the implementation of project-financed activities require temporary or permanent land acquisition or result in</td>
<td>If yes, apply OP 4.12 as described in this RPF. Assess type and scope of impacts to determine appropriate preparation</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Process and mitigation measures</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Loss of private assets (e.g. trees, fences, standing crops, etc) that are owned or used by private individuals?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has there been a history of land confiscation by Government (or others) in the area?</td>
<td>If yes, a due diligence assessment should be undertaken to assess, in consultations held with affected communities and households, previous impacts and unresolved claims. The due diligence should recommend measures to address such impacts and unresolved claims and seek the support of affected communities and households for the proposed subproject. The due diligence report is submitted for World Bank review before subproject approval.</td>
<td></td>
</tr>
<tr>
<td>Has it been clearly explained to affected people that they are entitled to compensation at replacement cost?</td>
<td>If no, ensure efforts are made to inform and consult with affected communities; disclose RPF in a manner and language understandable to local communities</td>
<td></td>
</tr>
<tr>
<td>Have alternative technical solutions or design adjustments been explored to avoid or minimise impacts?</td>
<td>If no, assess if alternatives are available to avoid or minimise impacts</td>
<td></td>
</tr>
<tr>
<td>Has land been acquired before Bank</td>
<td>If yes, undertake a due diligence assessment and report to assess if land acquisition has followed national</td>
<td></td>
</tr>
</tbody>
</table>
If land acquisition or asset loss is unavoidable, after efforts have been made for avoidance, the relevant PMO will, in consultation with the Bank, develop a RAP or an abbreviated RAP based on the requirements set out below and in OP 4.12.

Preparation of the RAP begins once it is determined that land acquisition is necessary to complete any of the project activities, and once siting criteria has established the land area to be acquired. The relevant PMO will carry out, or cause to be carried out, a census survey to identify and enumerate displaced persons and to identify and inventory land and other assets to be required. The census survey must cover all of the displaced persons and identify all of their assets affected.

If a RAP is to be prepared, it must be based on the principles, planning procedures and implementation arrangements established in this RPF. The scope and level of detail of the resettlement instruments vary with the magnitude and complexity of resettlement. In preparing the resettlement component, the borrower draws on appropriate social, technical, and legal expertise and on relevant community-based organisations and NGOs. The borrower informs potentially displaced persons at an early stage about the resettlement aspects of the project and takes their views into account in project design.

A RAP normally includes the following contents:

a. Description of the project and identification of affected project areas;

b. Identification of the project components or activities that give rise to resettlement; the zone of impact of such component or activities; the alternatives considered to avoid or minimize resettlement; and the mechanisms established to minimize resettlement, to the extent possible, during project implementation;

c. Objectives of RAP;

d. Socioeconomic studies: baseline information of affected persons (e.g. general characteristics, economic and cultural conditions, existing incomes and use of natural resources, vulnerable groups);

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30 See OP 4.12. See also the Bank’s Involuntary Resettlement Sourcebook for more guidance on the preparation and content of a RAP and abbreviated RAP.
e. Census/survey results: identification and enumeration of all affected persons, identification and inventories of all lost land, structures and other assets (including temporary impacts) through a 100 per cent census and survey;
f. Legal and institutional framework;
g. Eligibility criteria for compensation and all other forms of assistance;
h. Valuation of and compensation for losses, in kind or in cash, at replacement cost;
i. Site selection (including environmental assessment of proposed sites), site preparation, and relocation;
j. Replacement or restoration of public infrastructure and social services, if needed;
k. Detailed arrangements for livelihood improvement (or restoration);
l. Identification of vulnerable households, and full description of planning measures for which they are eligible;
m. Consultation and participation arrangements, including mechanism for grievance redress;
n. A detailed implementation schedule, corresponding as appropriate to the timetable for construction of civil works;
o. Costs and budget, identifying all unit rates for compensation, and including contingencies for price escalation and unanticipated expenses;
p. Arrangements for monitoring and evaluation, including external monitoring if considered necessary by the Bank; and
q. Entitlement Matrix, listing by column all categories of adverse impact including categories of land or other assets lost, eligibility criteria, and entitlements (specified by unit rate, allowance amount, or other measure) for each category.

An abbreviated RAP normally includes the following elements:

a) a census survey of displaced persons and inventory of affected land and assets;
b) description of asset valuation and compensation procedures;
c) eligibility criteria for compensation and any other forms of assistance;
d) compensation rates for all categories of land and other assets;
e) consultation and disclosure arrangements;
f) organisational arrangements for implementation

g) timetable and budget; and

h) arrangements for monitoring and implementation, including grievance procedures.

Implementation Arrangements

MOEP and MLFRD (DRD) Union level PMOs have overall responsibility for safeguard compliance under the Project, but day-to-day implementation will be delegated to District PMOs that will implement this RPF for their components. Each District PMO will be headed by a PMO Director and include designated staff in charge of safeguards, including the implementation of the RPF.
The Union-level PMOs would be responsible for project planning and implementation at the union level, while local level project planning and implementation will be led by the District PMOs (see ESMF Section 4 for more details).

The two PMOs will be responsible for the environmental and social performance of the Project and its subprojects. The PMOs will be adequately staffed for this purpose with environmental and social safeguards officers (four officers have been onboard since January 2015). For each subproject, once it has been identified, the responsible PMO (under MOEP or DRD) will clarify tasks and responsibilities regarding implementation of the specific subproject (e.g. operators, ESE/YESB or villages). The PMOs will be responsible for creating a screening report and draft TOR for ESMP or IEE and requirements to prepare a Resettlement Action Plan (RAP) and/or Indigenous Peoples Plan (IPP), as needed. The PMOs will be responsible for disclosing subproject safeguard instruments and to consult with local communities and other relevant stakeholders.

Safeguard consultants will be hired to assist the two PMOs implement the ESMF. The consultants will coordinate, as appropriate, with the Technical Support Unit (TSU) at the Union level, which includes international and national expertise hired under Component 3 on Capacity Building and Technical Assistance to provide technical backstopping to the local technical advisors (LTAs). LTAs will provide support to project implementation at township and village levels, and may comprise local CSOs and consultants collaborating with local governments. The consultant team will include expertise in social safeguard, community engagement and ethnic minorities.

Two sets of consultant teams will be contracted. One to support the Union level PMOs in the overall management of safeguards and the screening of subprojects. Another consultant team will be contracted to assist local PMOs, and relevant subproject partners, in the preparation of safeguard instruments, including RAPs and Voluntary Land Donation Forms and agreements as needed (see Section 12 of the ESMF for additional details). While the Project will finance a large number of subprojects, it is expected that the vast number of these will not involve land acquisition of other impacts covered by the RPF.

If land acquisition is required for a sub-project, the Union level PMO informs the State/Region Government who will convene a Committee of relevant government departments to liaise with the land owner/s regarding land acquisition and compensation arrangements. This Committee includes the Township Development Committee, Land Records Department, and General Administration Department (GAD). Other departments are included as needed and depending on the context; this may include representatives from the Departments of Agriculture and/or Forestry or Ministry of Construction. The role of the Committee would be to discuss and decide compensation arrangements in consultation with the land owner/s. Once approved at Committee level, the State/Region would send a formal letter to the Union Ministry confirming the agreed payment to be made. The Union PMO informs the State/Region Committee of the agreements with the World Bank to implement its policy on involuntary resettlement as described in this RPF.

The District level PMO prepares the final RAP, with assistance from the consultant team responsible for assisting in the preparation of safeguard instruments. It is submitted to the respective Union PMO who reviews and clears the RAP for World Bank approval; the consultant team responsible for overall assistance to Union PMOs will assist in the review of safeguard instruments. The Union PMO submits the RAP for World Bank review and approval. The World Bank will review and clear all RAPs for the first-year subprojects. Upon assessment of performance and quality of the preparation of RAPs, the Bank may resort to reviewing a sample of RAPs prepared during the second year of implementation.
Funding Arrangement

MOEP and MLFRD (DRD), respectively, bear responsibility for meeting all costs associated with land acquisition, although financing may come from implementing partners. Given the varied character and implementing entities for the different types of subprojects financed by the Project, the source and arrangements of funding cannot be prescribed in this RPF. In most cases, funding will come from the State/Region under the auspices of the State/Region Land Acquisition Committee, which includes the State/Region General Administration Department (GAD), MOEP/DRD, District and Township level GADs and other relevant entities. Funding will flow from the State/Region – or other entity determined to provide the source of land acquisition financing – to the District GAD. The District GAD will be responsible for compensation payment to affected people. The subproject RAP will describe these arrangements in detail.

Any RAP prepared in accordance with this RPF requires a budget with estimated costs for all aspects of RAP implementation. All persons adversely affected by land acquisition are entitled to compensation or other appropriate mitigation measures, regardless of whether these persons have been identified at the time of resettlement planning, and regardless of whether sufficient mitigation funds have been allocated. For this reason, and to meet any other unanticipated costs that may arise, the RAP budget includes contingency funds, typically 10 per cent of estimated total costs.

Compensation rates included in the RAP provide the basis for calculating compensation amounts due to displaced persons. Compensation must be paid in full to the displaced person or persons losing land or other assets. No deductions from compensation will occur for any reason. The RAP should describe the procedures by which compensation funds will flow from MOEP or MLFRD (DRD), or implementing partner, to the displaced persons.

Consultations and Disclosure Arrangements

Affected people will be consulted during the preparation of the RAP. Affected people should be consulted about the contents of the draft RAP and their inputs should be incorporated in the final RAP. The final RAP should be prepared in Bamar and the relevant local language/s if affected people are ethnic minorities. Consultations should be conducted in a local language and sufficient lead time (minimum 2 weeks) should be given to ensure all affected people are able to participate in consultations and be fully informed of the RAP.

The RAP must describe measures taken to consult with displaced persons regarding proposed land acquisition and other arrangements, and summarise the results of those consultations. The MOEP and MLFRD (DRD), in relation to their respective Project component, also ensures public disclosure of the RAP, in draft and final stages, to the displaced persons and the general public in the project area, in a language and location accessible and understandable to them. Disclosure of the draft RAP should occur at least one month prior to Bank review and approval. Disclosure of the final RAP occurs following Bank approval.

Monitoring and Grievance Procedures

MOEP and MLFRD (DRD) will monitor the implementation of the RPF and report this monitoring to the Bank on a regular basis. Each required RAP will include detailed monitoring arrangements for the project financed activity / subproject and its RAP measures.

To ensure that displaced persons have avenues for raising complaints relating to land acquisition, compensation payment, construction-related damages, or other aspects of project implementation, a
A multi-step grievance procedure will be established in the RAP, aligned with the requirements of the NEP Project level Grievance Redress Procedure. Each required RAP will detail the procedures for that particular project activity or subproject.

A grievance redress mechanism (GRM) has been prepared for the Project with the aim to allow affected communities and individuals to raise complaints to implementing entities in regards to the preparation and implementation of subprojects. It also aims to enable the PMOs to receive and facilitate resolution of the specific concerns of affected communities and project participants regarding environmental and social performance. The GRM will aim to resolve concerns promptly, in an impartial and transparent process tailored to the specific community, and at no cost and without retribution to the complainant/s. The GRM is based on the following six principles: fairness; objectiveness and independence; simplicity and accessibility; responsiveness and efficiency; speed and proportionality; participatory and social inclusion.

The GRM will be communicated to different stakeholders. It is intended that information on the GRM will be disseminated widely in meetings and through pamphlets and brochures in Myanmar language, and ethnic languages as needed/relevant. Specifically, information will be provided about how and where to lodge complaints/grievances. Villagers will be encouraged to seek clarification or remediation through the mechanism if they have any questions or complaints/ grievances.

Subproject specific safeguard instruments (ESMP, RAP, IPP) will describe the GRM in detail based on the following procedures for addressing grievances:

Stage 1: An initial stage, within the local village or township level, in which any person/s aggrieved by any aspect of the Project can lodge an oral or written complaint/grievance to the local Village Electrification Committee (VEC) or implementing partner/operator. The VEC or implementing partner/operator should keep a written record of complaints/grievances raised by villagers and their resolution; they should inform the District DRD or MOEPPMO of such complaints and resolutions.

If the complaint cannot be resolved within 15 days of receipt between the aggrieved person/s and the VEC or implementing partner/operator, it should be escalated to the second step of the process.

Stage 2: If the aggrieved person is not satisfied with the outcome of the initial stage, she/he/they can lodge the complaint to the District DRD or MOEPPMO. During the dialogue process the issues raised will be reviewed, and actions for resolution will be agreed by the parties. The dialogue will seek a resolution to the grievance as long as all the parties involved are amenable to the process. The District DRD or MOEPPMO should keep a written record of complaints/grievances raised by villagers and inform the State/Region and National PMOs of such complaints.

If the complaint cannot be resolved within 15 days of receipt between the aggrieved person/s and the District DRD or MOEPPMO it should be escalated to the third step of the process.

Stage 3: If the aggrieved person is still dissatisfied following review by the District DRD or MOEPPMO, the case should be referred to the respective State/Region and/or National PMOs. The State/Region and/or National DRD should keep a written record of complaints/grievances raised by villagers and inform the NEEC and World Bank of such complaints.

If the complaint cannot be resolved within 20 days of receipt between the aggrieved person/s and the District DRD or MOEPPMO, the aggrieved person/s may proceed to legal proceedings in accordance with the GoM’s laws and procedures.

The VECs and respective PMOs will keep a record of all complaints received, including a description of issues raised and the outcome of the review process. A grievance database template will be prepared.
to ensure that all key information is captured. Written feedback will be provided to aggrieved persons or parties to the dispute throughout the GRM process.

Regular monitoring of the effectiveness of the GRM will be included in the monitoring and evaluation (M&E) approach for the Project (see Section 12 of the ESMF).

Protocol for Voluntary Land Donation:

Voluntary land donation will be allowed. Community members who benefit from a sub-project may donate land to the sub-project voluntarily and without compensation. Voluntary donation is an act of informed consent and affected people must not be forced to donate land through coercion or under duress, or be misled to believe they are obliged to do so.

District PMOs will oversee and ensure that the voluntary land donations (VLD) process is followed and appropriately implemented. Union PMOs will be responsible for monitoring the processes used by District PMOs.

The process of VLD will include the following protocols:

**Step 1: Determining and Documenting the Appropriateness of VLD for the Subproject**

In considering the relevance of VLD for the specific subproject, the District PMO will document:

- How much land the subproject would require on both a permanent and temporary basis;
- What the land would be used for;
- What alternatives to donation exist (e.g., right of use, right of way);
- The proposed terms of any donation of land;
- Any other details that are relevant to why donation of land may be appropriate.

**Step 2: Official Notification to Landowners regarding the Option for VLD**

If it is determined that VLD could be relevant for a subproject, the District PMO will provide:

- In urban areas: the Township General Administration Department (GAD), Ward Administrator and landowners with official written notification of the proposed construction of electricity infrastructure within their area and the associated opportunity for voluntary donation of land.
- In rural areas: the Township GAD, Village Tract Administrator, Village Head, and landowners with official written notification of the proposed construction of electricity infrastructure within their area and the associated opportunity for voluntary donation of land.

**Step 3: Briefing to Interested Landowners of the Process of VLD**

In urban areas, if a landowner indicates to the Ward Administrator that he or she is interested in VLD, the District PMO should brief the landowner/villager in the presence of the Ward Administrator about the process of VLD and explain the VLD form that would be required to be completed and signed by the landowner/villager and his/her spouse, as relevant.

Similarly, in rural areas, if the landowner indicates to the Village Head or Village Tract Administrator that he or she is interested in VLD, the District PMO should brief the landowner/village in the presence of the Village Tract Administrator and Village Head about the process of VLD and explain the VLD form that would be required to be completed and signed by the landowner/villager and his/her spouse, as relevant.
Prior to briefing the interested landowner, the Ward Administrator and/or Village Head or Village Tract Administrator should confirm to the District PMO; that:

- The interested landholder/villager would not lose more than five per cent of his/her total productive assets.
- The total land holding of the affected person is 200m² or more.
- No physical relocation of the interested landowner/villager and/or his/her family would be necessary.

**Step 4: Due Diligence Verification Process to Confirm Land Ownership and Use**

If the Interested Landowner and his/her spouse confirm that they would like to proceed with VLD, the next step is to verify the ownership and use of the land proposed to be donated.

This verification process would include consultation with the local Settlement and Land Records Department (SLRD) and General Administration Department (GAD). The verification process should review available information and documentation regarding:

- The owner or owners of the land;
- The users of the land, or any parties that occupy the land (either physically or through ownership of an asset or conduct of livelihood or business activities on the land);
- Any competing claims of ownership or use;
- Structures and assets on the land;
- Trees or crops on the land;
- Any encumbrances on the land.

It is important to: (i) identify the right that is being transferred (an ownership right, a use right, a right of way, etc.); and (ii) check whether the transferee actually has the right s/he claims to have. In many circumstances where careful due diligence has not been carried out, significant conflict has arisen at a later stage when another party claims that they have the same or a competing right. In some circumstances – but not all – the transferee will have documentary evidence of such right. Where no such evidence exists, the due diligence can establish rights by speaking with local community officials and neighbours.

**Step 5: Public Consultations and Disclosure**

The decision to voluntarily donate land must be taken on the basis of a full understanding of the specific subproject and the consequences of agreeing to donate land. Accordingly, the parties that will be affected by the donation (the owners and users of the land, and the neighbours to the land as appropriate) must be provided with accurate and accessible information regarding what the land will be used for, for how long, and the impact the donation may have on them and their families. Prior written notification indicating the location and amount of land that is sought must be provided and its intended use must be disclosed.

Where the intention is to deprive the parties affected by the donation of the land permanently, or for a significant length of time, this must be made clear. It should be noted that in many communities the concept of alienation of land is uncommon and difficult to understand, and care needs to be taken to ensure that the implications of this are fully understood. It is also important to decide who else, within direct and extended families, should be consulted about the proposed donation of land in advance of it taking place; for example, older children.

Further to this, there should be a clear agreement as to which party/ies will pay the costs associated with the donated land. This could include measurement costs, documentation and notarial fees,
transfer taxes, registration fees. It should also include the costs of re-measuring/re-titling the transferee’s remaining land and any new documentation relating to it.

**Step 6: Establishing Informed Consent**

District PMOs in coordination with the village administration would verify the informed consent or power of choice by landholders who had selected to donate land. In particular, the following would be verified and documented in the voluntary land donation form:

- What the land is going to be used for, by whom and for how long;
- That the landowner donating the land would be deprived of the ownership or right to use the land, and what this really means;
- That the landowner has a right to refuse to donate the land;
- Whether there are alternatives to using the land;
- The process that would need to be followed to donate the land (e.g., execute documents, get spousal consents, pay taxes);
- The effect of the donation on the land donor’s family, and what they can do if they (or their family or heirs) decide they want the land back.

The right to refuse must be a legitimate right, unconditional, and the potential transferee must be capable of exercising it in the local community and political context. For this reason, it is important to be sure that the decision to donate is undertaken without coercion, manipulation, or any form of pressure on the part of public or traditional authorities. For collective or communal land, donation must be based upon the informed consent of all individuals using or occupying the land.

**Step 7: Preparation of Clear and Appropriate Documentation**

While it is important to have evidence of an intention and agreement to donate land, it is equally important to ensure, where required and appropriate, that the land is legally transferred. While the process relating to the legal transfer of the land is frequently complicated and time consuming, it must be addressed. [In specific circumstances, for example where the land is being transferred to the community, it may not be necessary to legally transfer the land. However, experience indicates that lack of formal transfer can create significant uncertainty in the future, which impacts on the sustainability of the infrastructure and services, and can have a negative effect on community relations.] (See form 1 VLD, for reference)

The District PMO should:

- Identify the appropriate documentation, including the agreement to make the land transfer and any legal documentation that may be required;
- Ensure that the agreement:
  - Refers to the consultation has taken place;
  - Sets out the terms of the transfer;
  - Confirms that the decision to transfer was freely made, and was not subject to coercion, manipulation, or any form of pressure;
  - Attaches an accurate map of the land being transferred (boundaries, coordinates);
  - Sets out who will bear the costs of the transfer (e.g., notarial fees, taxes, title issues) and documents the residual land rights;
- Ensure that all necessary parties sign the documents, including obtaining consent from spouses and children of legal age;
- Ensure that the transfer and title is registered or recorded; and
• Ensure that the land remaining after the donated land is excised is properly titled, registered or recorded.

It is also important to maintain a record of the process that has been followed. Such documents could include the following:

• The notification indicating the location and amount of land that was sought and its intended use for the project, with a record of when and where this was made public;
• Records of the consultations that were held and what was discussed;
• A copy of the due diligence that was conducted;
• Copies of each of the formal statements of donation, establishing informed consent as described above, and signed by each owner or user involved;
• Copies of all documents, registrations or records evidencing the legal transfer of the land;
• A map, showing each parcel of land.

Both the District and Union PMOs should maintain a record with documentation for each parcel of land donated. Such documentation must be available for World Bank review, and for review in relation to any grievances that may arise.

**Step 8: Grievance redress arrangements**

The project specifies the means by which donors (and, potentially, persons whose use or occupancy was not recognized in the transfer of land) may raise grievances, and measures to ensure consideration of, and timely response to, grievances raised. The grievance process includes participation of reviewers not directly affiliated with the District PMOs. The grievance process imposes no cost upon those raising grievances, and participation in the grievance process does not preclude pursuit of legal remedies under the laws of the country.

**FORM for Voluntary Land Donation (replaced by forms in Annex 12)**

<table>
<thead>
<tr>
<th>Region/State:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>District:</td>
<td></td>
</tr>
<tr>
<td>Township:</td>
<td></td>
</tr>
<tr>
<td>Village tract:</td>
<td></td>
</tr>
<tr>
<td>Village:</td>
<td></td>
</tr>
<tr>
<td>Sub-project ID:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of land owner:</th>
<th>NRC Number:</th>
<th>Beneficiary of the sub-project:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Y/N</td>
</tr>
<tr>
<td>Sex:</td>
<td>Age:</td>
<td>Occupation:</td>
</tr>
<tr>
<td>Address:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of land that will be taken by the sub-project:</th>
<th>Area affected:</th>
<th>Total landholding area:</th>
<th>Ratio of land affected to total land held:</th>
<th>Map code, if available:</th>
</tr>
</thead>
</table>
Description of annual crops currently growing on the land to be donated.

*This information is required in order to understand the project impact on trees and standing crops that is required to be compensated. No physical relocation is allowed on a voluntary basis.*

<table>
<thead>
<tr>
<th>Details</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees that will be destroyed</td>
<td></td>
</tr>
<tr>
<td>Fruit trees</td>
<td></td>
</tr>
<tr>
<td>Trees used for other economic or household purposes</td>
<td></td>
</tr>
<tr>
<td>Mature forest trees</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

Describe any other assets that will be lost or must be moved to implement the project:

Value of donated assets:

By signing or providing a thumb-print on this form, the land user or owner agrees to contribute assets to the project. The contribution is voluntary. If the land user or owner does not want to contribute his/her assets to the project, he or she should refuse to sign or provide thumb print, and ask for compensation instead.

Date: ..................................  Date: ..................................

District PMO Representative’s signature  Affected persons’ signature
(both husband and wife)
Annex 12: Forms for Initial Identification of Land Acquisition and Voluntary Land Donations

The NEP allows for voluntary land donations. However, these are done under strict conditions presented in Annex 8 “Resettlement Planning Framework”.

Two forms have been prepared for initial screening of land acquisition, to determine if the lands are eligible for voluntary donation or not. These are presented in this Annex.
Form 2: NEP Land Acquisition Protocol

**Complete the Basic Screening Form (Form 1) before starting this form**

**Follow this protocol for each plot of land that is affected by the project**

**Affected lands or property are those that are:**
- Privately owned
- Privately rented or used, even if on public land

This can include non-agricultural uses and private structures, even if on public land

**Examples:**
- If a farmer has crops planted on the right of way of a road, this land is considered “affected”, as it is privately used by the farmer and will affect the family’s livelihood.
- If a person has a tea shop on public land, this tea shop will still be considered “affected” property.

**This is to be used for both:**
1. permanent land acquisition (land where project infrastructure will be built)
2. temporary land use (land used during construction for storage, worker housing, etc.)

<table>
<thead>
<tr>
<th>Region / State</th>
<th>Township</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village</td>
<td>Pcode</td>
</tr>
<tr>
<td>Township Engineer Name</td>
<td>Signature and Date:</td>
</tr>
<tr>
<td>Name of Land Owner / User</td>
<td></td>
</tr>
</tbody>
</table>

Is there an alternative site that could be used instead of this one? (not including any site that has been rejected when completing Form 2 with another land owner / user)
- Yes
- No

If the answer is “No”, inform the NEP Safeguards Team and World Bank that “Land Acquisition is Needed”

If the answer is “Yes”, continue to the next question

Is the land owner or land user donating the land voluntarily?
- Yes
- No

If the answer is “No”, use an alternative site for the infrastructure or temporary use, and fill out another copy of this Form 2 for the land owner / user of the alternative site.

If the answer is “Yes”, fill out

**Form 3: NEP Voluntary Donation Form**
when completing the Feasibility Study
### Form 3: NEP - Voluntary Donation Form

<table>
<thead>
<tr>
<th>Region / State</th>
<th>Township</th>
<th>Village</th>
<th>Pcode (Can be entered later)</th>
<th>Project Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Township Name</td>
<td>Township Engineer Name</td>
<td>Date</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 1. Information about Land Owner:

<table>
<thead>
<tr>
<th>Name of Land Owner:</th>
<th>Address:</th>
<th>NRC Number:</th>
<th>Sex:</th>
<th>Male</th>
<th>Female</th>
<th>Beneficiary of the sub-project?</th>
<th>Yes</th>
<th>No</th>
<th>Age:</th>
<th>Occupation:</th>
</tr>
</thead>
</table>

#### 2. Information about Land Donated

<table>
<thead>
<tr>
<th>Description of Land that will be donated to the project:</th>
<th>Area being donated (sq. ft.):</th>
<th>Length (ft):</th>
<th>Width (ft):</th>
<th>Total landholding area of donor (sq ft):</th>
<th>% of Total land being donated:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Were any other sites considered for this infrastructure?</th>
<th>Where are those other sites?</th>
<th>Why was this site selected?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>Types of trees and number of each type:</td>
</tr>
</tbody>
</table>

5. Will any fruit trees be cut down? Yes | No | Types of trees and number of each type: |

6. Will other economic trees be cut down? Yes | No | Types of trees and number of each type: |

8. Is any of the land used to grow rice? Yes | No | Area used to grow rice (sq ft): |

9. Were other field crops grown on the land? Yes | No | Type of crops and area used (sq ft): |
<table>
<thead>
<tr>
<th>10. Is the land used for any other purposes? ☐ Yes ☐ No</th>
<th>What purposes, and what area (sq ft):</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Are there any buildings, other structures or assets that will be destroyed or moved? ☐ Yes ☐ No</td>
<td>List the buildings and structures, and if they will be destroyed or moved:</td>
</tr>
<tr>
<td>12. Will the person donating the land need to be physically relocated (moved to another site)? ☐ Yes ☐ No</td>
<td></td>
</tr>
<tr>
<td>13. Is this land owned by more than one person (such as other family members)? ☐ Yes ☐ No</td>
<td>If “Yes”, list their names:</td>
</tr>
<tr>
<td>14. Do any other people have claims to own or use the land? (including renting, cattle grazing, etc.) ☐ Yes ☐ No</td>
<td>If “Yes”, list their names and their claims:</td>
</tr>
</tbody>
</table>

### 3. Valuation

1. Value of land

2. Value of fruit trees (by each type of tree)

3. Value of other economic trees (by each type of tree)

4. Value of crops grown (average price or yield per year) By type of crop.

5. Value of buildings, structures, or other assets that will be destroyed or need to be moved (by each item)

By signing or providing a thumbprint on this form, the land owner or user agrees to donate the assets described above to the project. The donation is voluntary. If the land owner or user is not certain or does not want to donate his or her land or assets to the project, he or she should not sign or provide his or her thumbprint. In that case, the electricity infrastructure will NOT be placed on his or her land. It will be moved to another location. If there is more than one owner or user of the land, in 3.13 and 3.14 above, their signature or thumbprint should also be provided. If others use the land, in 3.1. above, agreement for compensation for any loss of livelihood should be determined before the land is donated.

Village Electrification Committee representative Name: Signature and Date:
<table>
<thead>
<tr>
<th>Land Owner or User</th>
<th>Name:</th>
<th>Signature (or thumbprint) and Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spouse (Wife or Husband of Land Owner or User)</td>
<td>Name:</td>
<td>Signature (or thumbprint) and Date:</td>
</tr>
<tr>
<td>Other land owner or user (identified in 3.13 or 3.14 above) [Use back of sheet if necessary]</td>
<td>Name:</td>
<td>Signature (or thumbprint) and Date:</td>
</tr>
</tbody>
</table>

I. Description of the Project Area

Description of the area affected by the project

Description of the locations of infrastructure, temporary land uses, and other project components where land or personal assets may be affected

Description of other project activities that may interfere with livelihoods (such as permanent or temporary loss of access to land, waters or other resources; restrictions to use of lands or other resources; interruptions to businesses; etc.)

II. Census Survey of Affected Persons, Inventory of Lands, Other Assets, and/or Losses of Livelihood

List of all households, including all members of the households, who will lose land and/or assets and/or a portion of their livelihoods

Each household is assigned a identification number for use in all documents relating to compensation and/or provision of other entitlements

A picture should be taken of the household head and spouse, if married, at the land or with the assets that will be acquired by the project. The household head should hold a sign with the household identification number clearly visible. If the household is losing land or assets at more than one site, pictures should be taken of the household head with the identification number at all the sites.

The losses of land and/or assets of each household is listed in sufficient detail to determine value of the lands or assets.

Any loss of income or livelihood that cannot be shown visually (such as loss of access to fishing, restriction on types of crops to be grown, or a business interruption) should be described in sufficient detail to determine value of the losses.

III. Description of Asset Valuation and Compensation Procedures

Describe the process by which the lands, assets, and losses of livelihoods are valued.
• Lands and assets are to be valued at replacement cost, that is, what a similar size and quality land would cost to buy, or what a similar building or other asset would cost to replace or build.

• In areas with limited and undeveloped land markets, valuation methods will vary depending upon the local context. If there have been purchases of land plots in or near the project area, those market transactions can be used to calculate land values, taking into account location, fertility, and other factors. The Township General Administration Department may also have information on land values.

• Replacement costs of buildings and other assets can take into account costs of similar building materials and labour costs in nearby markets.

Describe other entitlements that may be provided. The project may agree with the affected household to provide land of equal size and quality, or replacements for lost assets, or job training and support for a new business, in lieu of cash compensation.

Describe the step-by-step procedures for determining, negotiating, settling upon, formalising agreements on, and providing compensation and / or other entitlements. If the household head is married, payments should be made to the husband and wife together, with signatures or markings of both required.

IV. Eligibility Criteria for Compensation and Other Entitlements

Describe what criteria are used to determine who receives what types of compensation and / or other entitlements.

• For example, a cut-off date is agreed upon with the community and announced together with the area covered by the project. Any claims by people starting to use lands in that area after the cut off date, or people moving into the community after the cut off date are either not considered or given lower compensation.

• Entitlements such as job training, provision of materials and equipment to start a new business, and other support, may be offered to people within a certain age range or to people with a particular social or economic status.

V. Compensation Rates for All Categories of Land and Assets and for Losses of Livelihood

Provide a list of the compensation rates (or other entitlements) for every category of land, for all the types of buildings, structures, and other assets, and for every type of loss of livelihood compensated by the project.

- Different types of land uses will have different compensation rates: for example, in agricultural areas paddy land is usually considered more valuable than land for field crops or grazing areas. The value of lands in villages or towns can vary by location, such as access to roads, proximity to the market, etc.

- The value of buildings and structures can vary by materials used, size, and function.
- Values of other assets will vary by criteria particular to those assets. For example, the value of trees will vary by type and age of the tree: a mango tree at full maturity will be more valuable than a young tree that does not yet bear much fruit (and so can be more easily replaced) or than an old tree that has few productive years left.

VI. Consultation and Disclosure Arrangements

Provide a summary of the consultations and disclosures relating to the compensations.

Provide copies of the agreements with those being compensated.

VII. Organisational Arrangements for Implementation

Describe which persons or organizations (or units within organizations) are responsible for carrying out the different tasks in the process. Who, for example, is responsible for

- calculating the compensation rates and entitlements,
- conducting the census of affected households,
- negotiating with affected people,
- reviewing and approving the compensation packages,
- preparing the final agreement with the affected people, and signing that agreement,
- making the compensation payments and how are the payments made,
- providing various entitlements,
- monitoring the process, and
- handling grievances.

VIII. Timetable and Budget

Provide a timetable for the compensation procedure, as it has occurred and as it will continue.

Provide the budget for all aspects of the resettlement action plan, including the compensation packages, costs of any entitlements, and staff salaries and other expenses relating to implementing the plan

IX. Arrangements for Monitoring and Evaluation

Describe how the compensation process will be monitored and evaluated, including any external monitoring if considered necessary by the World Bank.

X. Grievance Procedures

Describe the grievance redress mechanism for affected people. It can either be the same process as for the project in general, or it may require a more stringent and regulated process.
ANNEX 14: Public Consultations

The World Bank procedures require that an ESMF be prepared and publicly disclosed prior to project appraisal. This allows the public and other stakeholders to comment on the possible environmental and social impacts of the project, and the appraisal team to strengthen the document as necessary, particularly measures and plans to prevent or mitigate any adverse environmental and social impacts.

During the process of preparing the ESMF, the PSIA to inform the ESMF involved stakeholder consultations. More than 20 organizations based in Yangon were consulted; many of which were CSOs with a specific focus on ethnic minorities, land and/or gender. In addition, key resource persons identified as those that could provide insights relevant to ethnic minorities were interviewed. An early consultative meeting was held on January 30, 2015 in Yangon with civil society organizations, including some ethnic minority organizations. Background documentation on the proposed project was prepared in Myanmar and English and provided in advance of this meeting. In addition, meetings and discussions were held with community leaders and CSOs in Chin and Shan States during the PSIA field visits.

Public consultations on the draft ESMF and Preliminary PSIA were held in Mandalay on May 14 in Taunggyi, Shan State, on May 16 in Mandalay and on May 18 in Yangon. The two documents were disclosed in Myanmar and English languages on May 5, 2015 on MFLRD’s website and on May 7 on MOEP’s website. The documentation are also available at the joint MOEP and World Bank wiki site: https://energypedia.info/wiki/Achieving_Universal_Access_to_Electricity_in_Myanmar

A total of 129 stakeholders participated in the three public consultations from government agencies, civil society (21) and non-governmental (15) organizations. In addition PMO and World Bank staff and consultants attended the consultations.

The consultations were led by Mr. U Aung Myint, National Electrification Project Manager, MOEP in Mandalay and Taunggyi. The consultation in Yangon was opened by Mr. U Yan Linn, CEO of YESC and led by Dr. Soe Soe Ohn, Director at DRD. On behalf of MOEP and DRD they encouraged participants to provide feedback and input to the ESMF, also after the public consultations. They welcomed CSOs and NGOs to support the implementation of the Project and help inform and educate the public of the Project and the ESMF.

The key issues and comments raised at the public consultations are described in below table. These have been addressed in the ESMF, including providing more description of the community engagement and consultation process to be undertaken during preparation and implementation of subprojects.

<table>
<thead>
<tr>
<th>ISSUES/COMMENTS</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Project Specific**

<table>
<thead>
<tr>
<th>How can the project speed up the roll-out of electrification? Should solicit support from private sector and other donors.</th>
<th>Reaching universal coverage by 2030 is an ambitious goal. The Project has set realistic goals in a context of increasing demand for electricity. Moreover, environmental and social impacts should be considered which implies that short-cuts that can have environmental and social impacts should not be used. The Project will involve private sector financing for off-grid subprojects.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The off-grid component should receive the same amount of funding as the grid component.</td>
<td>Grid extension is a long term solution which is more efficient and therefore prioritized. Only remote areas will be covered by the off-grid component; e.g. in Chin, Kachin, Shan and Kayin States.</td>
</tr>
<tr>
<td>Cooperation with other ministries on rural electrification is needed for successful off-grid development. There should also be a clear role of the public.</td>
<td>The DRD PMO will cooperate with other government entities at Township level. National Electrification Executive Committee (NEEC) will oversee cooperation with other government entities and other stakeholders at Union level.</td>
</tr>
<tr>
<td>Transparency is key in the selection and implementation of subprojects, including for safeguard issues and particular for land acquisition and land use impacts and their compensation measures.</td>
<td>The project includes a consultation and community engagement strategy. The ESMF includes procedures for public disclosure and consultation regarding subprojects, including for the preparation of subproject safeguard</td>
</tr>
</tbody>
</table>
Inclusive project implementation is important, including for ethnic minorities.

The project is nation-wide and includes off-grid electrification subprojects for remote areas that will not be reached by the grid roll-out for 10 or more years. ESMF includes an IPPF which includes measures to enhance benefits to ethnic minorities.

**Safeguards / ESMF**

Asides from the IEE, a Health Impact Assessment should be conducted for subprojects.

Health impact is mainly linked to power generation, while the Project supports power distribution and small-scale off-grid subprojects. An assessment of potential health impacts, however, is included in the provisions for IEE for subprojects.

PMOs should solicit the support from CSOs/NGOs for implementation. CSOs/NGOs can support preparation of safeguard instruments.

The PMOs welcome support from CSOs/NGOs. The potential involvement of CSOs will be further stressed in the ESMF.

Need to identify and avoid impacts on physical cultural resources such as tombs.

Provisions to identify physical cultural resources, and avoiding adverse impacts on these, are included in the ESMF.

GoM has limited experience with public consultation and safeguards. How can the Project includes financing for technical assistance and training for general project
<table>
<thead>
<tr>
<th>PMOs meet international standards?</th>
<th>implementation, and specifically for safeguards. Consultants, and possible CSOs will be hired to support implementation of the ESMF. The World Bank will prepare a country-wide technical capacity program for safeguards in Myanmar with other donors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land issues for hydro, coal and turbine should be carefully considered.</td>
<td>The Project will not finance coal and turbine power generation. The Project may finance mini-hydro schemes up to 1MW. Land issues for subprojects financed by the Project will be assessed for all subprojects and the RPF of the ESMF describes procedures and requirements for addressing land acquisition and related impacts.</td>
</tr>
</tbody>
</table>
Annex 15: Environmental and Social Codes of Practice for the Grid Extension Component of NEP

Environmental and Social Codes of Practice (ESCoP) have been prepared for the Grid Extension Component of the NEP and for the various types of sub-projects under the Off-Grid Electrification Component.

This Annex presents the ESCoP for the Grid Extension Activities carried out by MOEE and its utilities.
Environmental and Social Code of Practice (ESCoP) for MV Substations and MV lines and Transformers

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice provides guidelines to follow for the preparation, construction, and operation of small-scale hydropower mini-grid sub-projects under the National Electrification Project (NEP) of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The developer shall comply with all relevant national laws and regulations on environmental conservation and management and with all applicable World Bank environmental and social safeguards throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.3. Consultation and Disclosure

The developer shall consult with and provide adequate and timely information to the communities and other people affected by the project throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.4. Language

Communication with affected people should be in a language they understand clearly and easily. If the contractor and / or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

2. Planning and Design Phases

2.1. Evidence of Compliance with Environmental Laws and World Bank Safeguards Policies

2.1.1. The project documents shall include all applicable clearances pertaining to environmental protection and management under the laws and regulations of the Government of Myanmar and shall contain the necessary plans and procedures for compliance of the same.

2.1.2. The project documents shall include the appropriate environmental and social safeguards screening form(s) and shall contain the necessary plans and procedures for compliance to any safeguards triggered by the sub-project.

2.1.3. Approval of the projects will be subject to review and approval by the MOEE PMO of the NEP of the above-mentioned plans and procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.

2.2. Consultation with Communities and Other Affected People
2.2.1. Consultation on site selection / route selection and other project plans

2.2.1.1. The communities (and any isolated households) potentially affected by the project are to be identified, and consultations will be held, including both men and women, on the proposed plans.

2.2.1.2. If the project sites, routes, or other project infrastructure are to be located in or near the communities, or in or near any lands used by members of the communities, those location of those sites, lines, or other infrastructure will be determined in consultation with VEC members and/or other village representatives.

2.2.1.3. The proposal documents must show evidence of these consultations, including any concerns and recommendations that have been raised, and show evidence of agreement by the communities and other affected people to the project plans.

2.2.1.4. If there are ethnic minorities in the communities, consultations must follow the procedures in the Indigenous Peoples Planning Framework (IPPF) and any Indigenous Peoples Plan prepared for the activities affecting them or their lands or resources.

2.2.2. Consultation on compliance with safeguards and environmental laws and regulations

2.2.2.1. Consultations must also be held with communities and other affected people, both men and women, on the procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.

2.2.2.2. The project documents must show evidence of agreement by the communities and other affected people to the selection of the site for the dam and the extent of impact of the reservoir.

2.2.3. Informing about the implementation schedule

2.2.3.1. The communities will be informed through the village leaders and/or VEC members of the implementation schedule sufficiently in advance to prepare for any disruptions caused by those activities.

2.2.3.2. The communities will be informed of any changes in schedule sufficiently in advance to alter their plans or preparations.

2.3. Waste Management

2.3.1. Activities during construction that have the potential to generate waste shall be identified, and measures prepared to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

2.3.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

2.3.3. The waste management measures adopted by the developer will be reviewed by the PMO.

2.4. Plans for Workers’ Housing, Storage Spaces, and Other Temporary Facilities
2.4.1. Project plans will include assessment of the needs for workers’ housing, to
determine if there is sufficient existing housing available or if temporary housing
or workers’ camps are needed.
2.4.2. Project documents will include plans for that housing (even if in existing
structures), including water supply, sanitation, health care, provision of meals,
security, solid and liquid waste management, and the impact on the local
communities.
2.4.3. Project documents will include plans for storage facilities of construction
materials, the protection of these sites, borrow areas, access roads, and/or any
other temporary structures or facilities required during construction.
2.4.4. The workers’ housing and related facilities, the storage facilities, and other
temporary facilities should be located on sites free of risk from erosion or runoff
into any waterways.
2.4.5. The land used for these sites shall be acquired according to Section 2.5

2.5. Land Acquisition and Compensation

2.5.1. All permanent and temporary land acquisition required by the project must be
completed prior to construction in accordance with the Resettlement Policy
Framework.
2.5.2. Any permanent or temporary loss of livelihood aside from loss of land caused by
the project must be compensated prior to construction in accordance with the
Resettlement Policy Framework.
2.5.3. Adequate documentation must be provided for review by the PMO for all land
acquisition and compensation under the Resettlement Policy Framework
2.5.4. All land acquisition and compensation must be completed before construction
can start.

2.6. Water Bodies / Drainage

2.6.1. If water bodies will be affected during construction, the potential impact on the
use of those water bodies by local residents will be determined.
2.6.2. Construction works should be scheduled based on the nature of water flow and
the times of peak water use by local residents
2.6.3. If there should be any restrictions on use of those waters during construction,
such as risks of pollution or diversion of waters, the communities should be
informed during the consultation process in Section 2.2.3. above
2.6.4. If access to the water bodies is interrupted, the project will provide alternatives
to the communities.
2.6.5. If the water bodies are sources of drinking water or water for domestic uses, the
project will provide alternative sources of drinking water and water for domestic
use.

2.7. Water Quality

2.7.1. If water bodies are to be affected by the project, baseline measurements of
water quality should be taken
2.7.2. The water should be tested for temperature, acidity (pH), colour, dissolved
oxygen (DO), and turbidity.
2.7.3. Measures should be planned to assure sufficient water flow even during the dry
season.
2.8. Vegetative Management

2.8.1. For all vegetative clearing under the project, only ground cover trees and shrubs that impinge directly on the permanent works shall be removed.
2.8.2. Minimal loss of existing tree cover should be considered when planning the alignment of MV and LV lines and construction of other infrastructure.
2.8.3. Tree felling, if necessary, should be done only after compensatory planting of at least 2 saplings for every tree felled.
2.8.4. Species to be planted should be identified in consultation with the local communities, if the trees are in or near community lands, and with officials of the forest department. Either the same species as those felled or other appropriate species to the local ecology should be planted.
2.8.5. If trees are replaced for the communities, fruit trees or other trees that can be used by the residents for food or fodder should be considered.
2.8.6. The trees should be planted only in areas where water is available during the dry season and the plants can be protected during early growth stages.

2.9. Natural Habitats

2.9.1. Design of MV lines, substations or other infrastructure should avoid natural habitats.
2.9.2. No works are allowed that will affect wetlands (swamps, marshes, etc.), as these are habitats with high concentrations of birds and other wildlife.
2.9.3. Construction in natural habitats or MV lines crossing those habitats should only be considered if there are no viable alternatives.
2.9.4. If construction cannot be avoided in or near natural habitats, the impacts on those habitats should be assessed and an IEE or ESIA prepared for works in those areas.
2.9.5. An ecological or biological consultant expert on safeguards procedures should be engaged to study and assess the risks of those impacts, and to recommend the mitigation measures in the IEE or ESIA.
2.9.6. If the natural habitat to be affected is considered to be of high value and if there are no viable alternatives, those civil works may need to be cancelled.
2.9.7. Compensation for any impacts on those habitats may include support for one or more protected areas that are ecologically similar to, and no smaller than the natural habitats affected by the project.
2.9.8. Project works allowed in or near the natural habitat will
   2.9.8.1. Consult with local experts or other concerned authorities to prepare a construction schedule within the habitat, taking into consideration any migration or crossing patterns, breeding habits, and other crucial seasonal activities of the local fauna and flora.
   2.9.8.2. No construction camps, storage facilities, stockyards, concrete batching, or hot mix plants will be located within the natural habitat or within 500 metres from its boundary.

2.10. Physical Cultural Resources

2.10.1. The Department of Archaeology, National Museum and Library will be consulted to determine if there is any site of cultural significance in or near the project area that should be avoided.
2.10.2. VEC members and other village leaders should be consulted to determine if there are any sites in the project area that are of cultural or religious significance to members of the community, including any ethnic or religious minorities in the community, and project design should be altered to avoid any such sites.

2.11. **Visual Impacts**

2.11.1. To mitigate the visual impact of the power projects, local communities and other concerned stakeholders will be consulted to avoid areas with aesthetic landscape views and other important environmental or community features.

2.11.2. If such areas cannot be avoided, plans will include measures to minimise the visual impacts.

2.12. **Aircraft Navigation Safety**

2.12.1. To avoid possible interference with aircraft, air traffic authorities should be consulted to determine if any of the planned civil works are located near airports or known flight paths.

2.12.2. If possible, distribution lines and towers should not be placed close to airports or within known flight path envelopes, and alternative routes be planned for the distribution lines.

2.12.3. If flight-sensitive areas cannot be avoided, buried lines should be used.

2.13. **Preparation of an Environmental and Social Management Plan, Resettlement Action Plan, and/or Indigenous Peoples Plan**

2.13.1. If the screening forms and assessments indicate any environmental and/or social issues that need to be mitigated or avoided, the PMO may request the developer prepare an Environmental and Social Management Plan (ESMP), a Resettlement Action Plan (RAP), and/or an Indigenous Peoples Plan as needed.

2.13.2. The ESMP will indicate how the developer will manage those environmental and/or social issues during construction and operation of the sub-project and be included in the project plans (proposal or feasibility study).

2.13.3. The RAP will indicate how the developer will handle any compensation required for land acquisitions, loss of assets, or loss of livelihoods, and provide evidence of that compensation.

2.13.4. The IPP will detail the procedures in conducting free, prior and informed consultations with ethnic minorities in order to obtain their broad community support.

2.13.5. If no ESMP, RAP, or IPP is required, this ESCoP will serve as the framework for managing environmental and/or social issues during construction and operation of the sub-project.

2.14. **Scheduling of Works**

2.14.1. If not already included in an ESMP, the schedule and methods for the various operations will be submitted to the responsible PMO for approval.

2.14.2. All regulatory clearances shall be obtained before actual start of work.

2.14.3. Significant changes in schedule will be reported to the responsible PMO.

2.14.4. As noted in 2.2.3 above, communities will be informed of scheduling of activities that affect them and of any changes in schedule sufficiently in advance.
2.14.5. Communities both downstream and upstream of waterways will be informed of works affecting those waters at least one month in advance of the start of construction.

2.14.6. Construction work will be scheduled so as not to interfere with:
   2.14.6.1. Sowing of crops
   2.14.6.2. Harvesting of crops
   2.14.6.3. Festivals or other cultural activities
   2.14.6.4. Availability of labour, if using local labour

3. Construction

3.1. Workers’ Housing and Facilities

3.1.1. If temporary housing is built or provided, it should be built with adequate and safe materials, and with adequate ventilation, natural and artificial lighting, and protection from rain and storms.

3.1.2. The housing should be on sites free from flooding and other natural hazards.

3.1.3. The housing should be kept free from rubbish and other refuse.

3.1.4. The site should have an adequate supply of clean water for consumption, personal hygiene and other domestic uses.

3.1.5. The site should have adequate drainage to avoid stagnant water.

3.1.6. Facilities must be available for adequate removal or disposal of waste water, sewage, and solid waste. Containers should be available for rubbish collection.

3.1.7. Toilets, showers, and other sanitary facilities should be clean, safe, and adequate number for the work force. Separate facilities should be available for females in the workforce.

3.1.8. A canteen where food is prepared for the workers and/or cooking facilities where the workers prepare their own food should be provided, with the facilities adequately furnished and designed for good hygiene.

3.1.9. Clean, safe, and adequate facilities for workers to wash and dry clothes should be provided.

3.1.10. Areas should be provided for workers’ rest and recreation.

3.1.11. First aid kits and facilities should be provided, with separate space available for any sick or injured workers. A sufficient number of workers should be provided training in administering first aid.

3.1.12. Adequate security should be provided at the workers’ housing.

3.2. Workers’ Code of Conduct

3.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.

3.2.2. The code of conduct should be provided in writing and on posters in the workers’ housing and at construction sites.

3.2.3. The code should include, but not be limited to:
   3.2.3.1. instructions on waste disposal and hygiene
   3.2.3.2. prohibition on use of illegal drugs
   3.2.3.3. prohibition on theft of personal or community property
   3.2.3.4. prohibition on hunting, fishing, or other activities causing harm to the natural environment
   3.2.3.5. restrictions on drinking or gambling with members of the community
3.2.3.6. prohibition on making any unwanted verbal or sexual advances to those in the community
3.2.3.7. prohibition on vandalism, theft, desecration, or otherwise damage to items or sites considered physical cultural resources in 2.10 above.
3.2.3.8. awareness of religious practices or social customs of the community if different from that of the workers.

3.3. General Occupational Health and Safety

3.3.1. Only trained and certified workers should be allowed to install, maintain, or repair electrical equipment
3.3.2. Personal Protective Equipment
   3.3.2.1. Workers must use personal protective equipment (PPE) and protective clothing
   3.3.2.2. The PPE should be checked and tested regularly
   3.3.2.3. Detailed safety measures and PPE for high-risk tasks, such as working with live lines or energized equipment, working at heights, or working near electro-magnetic fields, are presented in the following sections.
3.3.3. Any project staff not involved with any particular activity should stay safely away from the worksites of that activity.

3.4. Live Power Lines

3.4.1. Before work is performed on or in close proximity to live power lines, those lines must be deactivated and properly grounded
3.4.2. All live-wire work is to be conducted by trained workers in strict adherence to safety and insulation standards. These workers must be able to:
   - Distinguish live parts from other parts of the electrical system
   - Determine the voltage of live parts
   - Understand minimum approach distances for specific live line voltages
   - Ensure proper use of special safety equipment and procedures when working near or on energized parts of the system
3.4.3. Workers should not approach an exposed energized or conductive part, even if trained, unless:
   - The worker is properly insulated from the energized part with gloves or other approved insulation, or
   - The energized part is properly insulated from the worker and any other conductive objects, or
   - The worker is properly isolated and insulated from any other conductive object (during live-line work).
3.4.4. Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan
3.4.5. Workers not directly associated with power transmission and distribution activities who are operating around power lines or substations should adhere to safety standards and guidelines of MOEE and its utilities relating to minimum approach distances for excavations, tools, vehicles, pruning, and other activities.

3.5. Working at height
Prevention and control measures for working at height include:

3.5.1. Testing structures for integrity prior to undertaking work

3.5.2. Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures, inspection, maintenance, and replacement of fall protection equipment, and rescue of fall-arrested workers, among others

3.5.3. Establishment of criteria for use of 100% fall protection (typically when working over 2 meters above the working surface, but sometimes extended to 7 meters, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point

3.5.4. Installation of fixtures on tower components to facilitate the use of fall protection systems

3.5.5. Provision of an adequate work-positioning device system for workers. Connectors on positioning systems should be compatible with the tower components to which they are attached

3.5.6. Hoisting equipment should be properly rated and maintained and hoist operators properly trained

3.5.7. Safety belts should be of not less than 16 millimeters (mm) (5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident

3.5.8. When operating power tools at height, worker should use a second (backup) safety strap

3.5.9. Signs and other obstructions should be removed from poles or structures prior to undertaking work

3.5.10. An approved tool bag should be used for raising or lowering tools or materials to workers on structures.

3.6. Electro-magnetic Fields (EMF)

Exposure to EMF should be prevented or minimised by:

3.6.1. Identification of potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities.

3.6.2. Personal exposure monitoring equipment should be set to warn of exposure levels that are below occupational exposure reference levels (e.g. 50%).

3.6.3. Training of workers in the identification of occupational EMF levels and hazards

3.6.4. Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers

3.6.5. In areas where risk of exposure to EMF cannot be avoided, measures should be taken to protect the workers by limiting exposure time through work rotation, increasing the distance between the EMF source and workers when feasible, or using shielding materials.

3.7. Community Health, Public Health and Safety

3.7.1. The community should be informed of the potential risks to health and safety during construction. These include risks of:

- electrocution
- road accidents
• communicable diseases from the workers, including HIV/AIDS and other sexually transmitted diseases
• other undesirable contact from the workers, as noted in 3.2.3 above.

3.7.2. The community should be informed of potential environmental impacts caused by the project, such as
• dust, pollution, and noise during construction
• risks of and emergency procedures for fuel spills
• risks of and emergency procedures for accidents

3.7.3. Proper safety and warning signs will be installed to inform the public of potential hazards during construction

3.7.4. Construction activities should not interfere with important community activities, such as sowing of crops, harvesting, festivals, etc. Although scheduling around these should be taken account of in the work plan, if any such community activity is found to occur during construction, those construction works should be postponed until after the community activity has ended

3.8. Tower and Pole Erection

3.8.1. To minimize the adverse impact on flora and vegetation, only ground cover shrubs that impinge directly on the permanent works shall be removed

3.8.2. In locations where erosion or sedimentation is likely to be a problem, clearing and grubbing operations should be so scheduled and performed that grading operations and permanent erosion and sedimentation control features can follow immediately, if the project condition permit

3.8.3. For river / stream crossings of towers, all regulatory clearance shall be obtained before actual start of work

3.8.4. When working on the banks of rivers/streams or other water bodies, proper protective measures are required to prevent bank collapse.
• Sheet-piling or shore protection measures should be ensured while laying the foundation of the tower near a river / stream bank or bed.
• Pre-cast piles should be driven in with extreme care so as to expose the workers to the least possible danger.
• Foundations should be checked for damages or uneven settlement following construction.
• The work plan should be submitted by the contractor / engineer prior to commencement of the erection work; providing detail steps of foundation works in the river / stream.
• Proper protective measures should be adopted to prevent or minimize river water pollution.
• Use of vibratory hammer for pile work is preferable to reduce impact on aquatic habitat and installation of underwater enclosures minimize sound.

3.9. Installation of Transformers on H-Pole

3.9.1. To minimize the adverse impact on flora and vegetation, only ground cover shrubs that impinge directly on the permanent works shall be removed

3.9.2. All regulatory clearances shall be obtained before start of work

3.10. Topsoil Salvage, Storage and Replacement
3.10.1. The stockpiles for storing the topsoil shall be designed such that the slope does not exceed 1:2 (vertical to horizontal), and the height of the pile is restricted to 2 m.

3.10.2. In cases where the topsoil has to be preserved for more than a month, the stockpile is to be stabilized within 7 days. The stabilization shall be carried out through temporary seeding. It consists of planting rapid-growing annual grass or small grains, to provide initial, temporary cover for erosion control.

3.10.3. During construction, if erosion occurs from stockpiles due to their location in small drainage paths, the sediment-laden runoff should be prevented from entering nearby watercourses.

3.10.4. The contractor shall preserve the stockpile material for later use on slopes or shoulders.

3.11. **Borrow Areas**

3.11.1. Borrow pits situated less than 0.5km (if unavoidable) from villages and settlements should not be dug for more than 30 cm after removing 15 cm of topsoil and should be drained.

3.11.2. Erosion and drainage control shall be maintained in the vicinity of all borrow pits and make sure that surface drains do not affect the adjacent land or future reclamation.

3.11.3. In case the borrow pit is on agricultural land, the depth of borrow pits shall not exceed 45 cm and may be dug out to a depth of not more than 30 cm after stripping the 15 cm top soil aside.

3.11.4. In case a borrow pit is near a water body, the borrow pit should be located not less than 15 m from the toe of the bank, with the distance depending on the magnitude and duration of any flood that may need to be withstood.

3.12. **Slope Stability and Erosion Control**

3.12.1. Measures should be taken to minimise adverse environmental impacts on slope stability and soil erosion due to construction on slopes or embankments.

3.12.2. Interceptor ditches should be constructed in hill areas to protect the road bench and hillside slope from erosion due to heavy rainfall and runoff.

3.12.3. The vegetative cover should be planted in the region where the soil has the capacity to support the plants and where there is sufficient moisture year-round to favour vegetative growth.

3.12.4. On side slopes in hills, immediately after cutting is completed and debris is removed, vegetative growth has to be initiated by planting fast growing and preferably deep-rooted species of grass, such vetiver.

3.12.5. In regions of intensive rainfall, on steep slopes, in areas where the potential of soil erosion is high, and in regions with short growing seasons, erosion control matting should be provided.

3.12.6. Adequate drainage for erosion control should be provided.

3.13. **Waste Management**
3.13.1. The workforce shall be educated on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.

3.13.2. During construction, the developer will handle and dispose of waste according to the Waste Management Plan approved by the MOEE, including arrangements for recyclable materials and toxic waste, so that debris and waste do not accumulate.

3.13.3. Discarded conductors should be recycled under the guidance of MOEE or its utilities.

3.13.4. Discarded transformers should be properly disposed as per the guideline of MOEE so as to minimize environmental pollution.

3.13.5. As the old transformers may contain hazardous chemicals such as PCB (Polychlorinated biphenyl), these should be handled according to national / international hazardous waste management guidelines.

3.13.6. The project should assure that PCB is discarded following available and internationally accepted technologies such as super critical oxidation, electro-chemical oxidation, solvated electron technology, chemical reduction method, dehalogenation process, and thermal desorption using pyrolysis, catalized dehalogination and vitrification.

3.13.7. The waste generated from the discarded switchgears, bus-bars, etc. following rehabilitation process should be handled as per the relevant guidelines from MOEE or its utilities.

3.14. Water Bodies

3.14.1. The contractor should ensure that the runoff from the construction site entering the water body is generally free from sediment.

3.14.2. Silt / sediment should be collected and stockpiled for possible reuse as surfacing of slopes where they have to be re-vegetated.

3.14.3. Cutting of embankments can weaken and reduce water retention capacity. Any such weakening decrease in water retention should not lead to flooding of the construction site and surroundings and subsequent interruption to construction activities.

3.14.4. Any perceived risks of embankment failure and consequent loss / damage to the property shall be assessed and necessary precautions taken, such as provision of toe protection, erosion protection, sealing of cracks in embankments.

3.14.5. Failure to do so and the consequences of embankment failure shall be the responsibility of the contractor or of the agency carrying out the work.

3.14.6. Alternate drain inlets and outlets shall be provided in the event of closure of existing drainage channels of the water body.

3.14.7. Movement of workforce shall be restricted around the water body, and no waste from construction sites shall be disposed into it.

3.15. Water Quality

3.15.1. Measures will be taken to prevent improper disposal of solid and liquid waste including excreta generated from sites that can pollute waters.
3.15.2. Proper attention should be given to wastewater and toxic chemical disposal, proper installation and maintenance of latrines and other sanitation facilities, and of cooking facilities, to prevent pollution of ground, ground water, and nearby waters.

3.15.3. Water bodies should be protected from sediment loads by silt screen or bubble curtains or other barriers.

3.15.4. Water quality should be monitored weekly during construction, to assure there are no harmful impacts from construction or the workers’ housing.

3.15.5. The water should be tested for temperature, acidity (pH), colour, dissolved oxygen (DO), and turbidity.

3.15.6. If water quality is found to decrease during construction, the problem should be corrected as soon as possible and water quality should be monitored once every two days until it returns to normal.

3.16. Drainage

3.16.1. Temporary drainage should be providing at the construction site at the earliest to ensure proper compaction.

3.16.2. If slopes are cut to form a roadbed for an access road in hill areas, sub-surface drains should be provided as necessary.

3.16.3. Safety devises and flood warning signs should be provided while working over waterways and other water bodies.

3.17. Natural Habitats and Forests

3.17.1. Infrastructure projects near the natural habitat will be declared a silence zone.

3.17.2. If any construction is done in or near a natural habitat or forest, collection of any kind of materials for construction is strictly prohibited.

3.17.3. Temporary fencing or flagged off areas will be set up to restrict travel to construction zones, rights of way, and workspaces.

3.17.4. When removing vegetation from right of ways, workspace, etc., feather edge the cut to ensure that line of site and cover (both security and thermal protection) issues are addressed.

3.17.5. Disposal of construction waste in the natural habitat is strictly prohibited. All construction waste must be removed on a daily basis from the construction sites in the natural habitat.

3.17.6. No water resources within the natural habitat shall be disturbed.

3.17.7. Fishing and hunting are strictly prohibited.

3.17.8. Removal of any plant or animal life or of any physical objects is strictly prohibited.

3.17.9. If any concentration of wildlife is found in or near the proposed construction area, any construction or maintenance activities should be postponed until most or all of wildlife in those concentrations have left of their own accord. Forced removal of the wildlife is strictly prohibited.

4. Post-Construction

4.1. Topsoil Salvage, Storage and Replacement
4.1.1. Topsoil should be re-laid on the area after taking the borrow earth to maintain fertility of agricultural lands. It should be finished to the required levels and satisfaction of the land owner/user.

4.1.2. All temporary arrangements for stockpile preservation and erosion control are to be removed after the stockpile material is used.

4.1.3. The area of the stockpile should be returned to its original condition.

4.2. Slope Stability and Erosion Control

4.2.1. All exposed slopes should be covered with vegetation using grass, bushes, etc. Locally available species should be used that have good growth, dense ground cover, and deep roots for stabilisation.

4.2.2. If local species with those characteristics are not available, use of vetiver grass (*Chrysopogon zizanioides*) should be considered.

4.3. Vegetative Management

4.3.1. Local MOEE or utilities staff should trim trees along the power line route regularly, to prevent accidents caused by overgrowth into the power lines.

4.3.2. The trimming should cause with minimal damage to existing vegetation.

4.4. Waste Management

4.4.1. After each construction site is decommissioned, all debris and waste will be cleared. If a contractor has carried out the work, the site can be handed over to the MOEE or its utilities only after such clearance.

4.4.2. If waste was disposed temporarily on private land, a certificate of completion of reclamation should be given by the land owner to show that the land has been restored to the owner’s satisfaction.

4.5. Water Bodies

4.5.1. The areas around and near the water bodies affected by the construction should be left clean and tidy after construction.

4.5.2. MOEE township engineers will check if drainage channels of adequate capacity have been provided for the water body.

4.6. Water Quality

4.6.1. The water bodies affected by the construction will be monitored to assure water quality.

4.6.2. The water should be tested for temperature, acidity (pH), colour, dissolved oxygen (DO), and turbidity.

4.7. Drainage

4.7.1. Drains will be inspected and cleaned regularly to remove debris or vegetative growth that can interrupt flow.

4.7.2. All temporary structures will be removed after construction to ensure free flow through the channels.
4.8. Electromagnetic Fields

4.8.1. EMF should be monitored around substations and under the distribution lines on a regular basis.
4.8.2. Residential buildings should only be allowed to be built at a safe distance from potential EMF.

4.9. Public Health and Safety

4.9.1. Adequate signage along with barriers (fences with gates, locks on gates and substation doors, steel posts surrounding towers) will help prevent contact with potentially dangerous equipment
4.9.2. Public education and outreach activities will be used to teach local residents about safety and help prevent contact with potentially dangerous equipment

4.10. Natural Habitats

4.10.1. Trees and shrubs that reach heights of 4-5 metres should be allowed to grow within the ROW, to control trespassing and vandalism in the natural habitat
4.10.2. The MOEE or its utilities must ensure maintenance of drainage structures to avoid harm to the habitat
4.10.3. The MOEE or its utilities should make regular inspections of the lines through the natural habitats, to assure minimal impact on the area
Annex 16: Environmental and Social Codes of Practice for the Off-Grid SHS Sub-Projects

Environmental and Social Codes of Practice (ESCoP) have been prepared for the Grid Extension Component of the NEP and for the various types of sub-projects under the Off-Grid Electrification Component.

The ESCoPs for Off-Grid SHS Sub-Projects are presented in this annex.

The ESCoP for the DRD SHS Programme is to be a part of every contract for the SHS program.

The ESCoP for the RBF Solar Programme is to be included as part of the agreement with private companies or social enterprises selected to participate in the programme.
Environmental and Social Code of Practice for Solar Home Systems

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice provides guidelines to follow when preparing and installing Solar Home Systems (SHS) under the National Electrification Project of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The bid document shall include all applicable clearances pertaining to environmental management and shall contain the necessary procedures for compliance of the same.

1.3. Consultation and Disclosure

1.3.1. The contractor and/or responsible authority (such as the DRD township engineer) should consult with and provide adequate and timely information to people affected by the project, including men and women.
1.3.2. Affected people include people benefiting from the project as well as people adversely affected by any project activities.

1.4. Language

1.4.1. Communication with affected people should be in a language they understand clearly and easily.
1.4.2. If the contractor and/or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

1.5. Working in / Visiting the Communities

The communities will be visited several times during preparation, installation, monitoring and maintenance. To avoid possible social conflicts or difficulties for the residents, the following should be practiced:

1.5.1. Informing Community of Work Schedule

1.5.1.1. The VEC members or other village leaders should be informed of the expected number of visits under the project, and for what purposes, to allow them to be adequately prepared for those visits.
1.5.1.2. For each visit or work activity, the VEC focal persons or other village focal person should be informed sufficiently in advance, to allow them to inform other members of the community.
1.5.1.3. If there is any change in the schedule of a visit or work activity, the VEC focal persons or other village focal person should be informed sufficiently in advance.
1.5.2. Payments to Communities for Food and Other Goods

1.5.2.1. With several teams visiting the communities for work, providing meals on these numerous occasions can cause undue financial stress to the communities. To avoid this, food should be brought in by those visiting the community or if the community provides the food or meals, these should be paid for at replacement cost.

1.5.2.2. Other goods provided by the communities at the request of the teams surveying, installing, or conducting follow-up for the NEP project should be paid for at market cost.

2. Preparation and Planning

2.1. Site Selection for Public Lighting

2.1.1. VEC members and other village representatives, including men and women, should be consulted on the selection of sites for the public street lights.

2.1.2. The contractor should assure that the street lights are distributed equitably through the community, including any neighbourhoods of ethnic or religious minorities or of poor households.

2.1.3. Public lighting should be provided for all religious buildings in a community (temples, churches and mosques)

2.1.4. Public lighting should be provided for all educational and health centres.

2.2. Storage Site for Equipment and Materials

2.2.1. Materials and equipment brought to the community before installation should be stored at a site selected in consultation with the VEC members and village leaders.

2.2.2. Preferably, the site should be on public or community land. If on private land, the contractor should obtain written permission from the land owner / land user for its use as a voluntary temporary donation (using the attached form for voluntary land donations) or if not granted voluntarily, provide the land owner / land user compensation for the temporary use of the land.

2.2.3. The storage site(s) should be free of risk from erosion or runoff into any waterways.

2.2.4. Upon completing installation in the community, the storage site should be cleared and restored to its original condition, and all waste removed as in Section 7 Waste Management below).

3. Installation in Households

3.1. Removal of Trees

3.1.1. If any tree needs to be removed for the installation of the SHS, member(s) of the household should be consulted to assure the tree is not of value to the household.

3.1.2. If the tree is of value to the household and they do not want it removed, alternative sites for the solar panel should be suggested for the household member(s) to select.
3.1.3. If an alternative site for the solar panel is not possible, the contractor should explain why the tree needs to be cut down and obtain permission from the household member(s).

3.1.4. If the contractor cannot communicate directly with the household member(s), a translator should be engaged by the contractor.

3.2. Wiring

3.2.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.

3.2.2. All wiring of the SHS must be done by the contractor only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.

3.2.3. If the household already has wiring, the contractor should replace it with the wiring and materials provided under the SHS.

3.3. Location of Battery and Other Equipment

3.3.1. The battery should be placed within a locked box and in a safe location out of reach and inaccessible to young children.

3.3.2. If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.

3.3.3. Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.

3.3.4. Other equipment of the SHS should be placed in safe locations out of reach and inaccessible to young children.

3.4. Training Household Members in Use of SHS

3.4.1. After installing the SHS, the contractor must provide training to household members on the proper use and care of the system, and on safety measures.

3.4.2. The training must include adequate warnings of the risks of tampering with the SHS, including electric shock, fire, and explosion.

3.4.3. At least one adult male and one adult female in the household should be trained.

3.4.4. This should be done as group training on the operation and maintenance of SHS after work in a village or group of villages is completed. VEC members and the Township DRD representative should be present.

3.5. Instructions Booklet and Safety Poster

3.5.1. The contractor must place a safety poster close to the battery for each SHS.

3.5.2. The contractor must provide an instructions booklet in the local language for each SHS.

3.5.3. Extra copies of the instruction booklet and safety poster should be provided to the VEC, as replacements for any lost or damaged booklets or posters.

4. Installation of Public Systems
4.1. Removal of Trees

4.1.1. If any tree needs to be removed for the installation of the public solar system, staff of the public institution, VEC members or other village leaders should be consulted to assure no valuable trees are removed.

4.1.2. If the tree is of value to the community and they do not want it removed, alternative sites for the solar panel should be suggested for the community to select.

4.2. Wiring

4.2.1. The decision for position of the battery box and rooms to wire lies with the public facility authorities, but the contractor has to evaluate the suggested position according to the safety of the equipment, the safety of people, and the location of the solar PV array, which should normally be installed facing south and not be shaded.

4.2.2. All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.

4.2.3. If the site already has wiring, the contractor should replace it with the wiring and materials provided under the SHS program.

4.3. Location of Battery

4.3.1. The battery should be placed in a safe location that is out of reach and inaccessible to young children.

4.3.2. If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.

4.3.3. Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.

4.3.4. Other equipment of the public system should be placed in safe locations out of reach and inaccessible to young children.

4.4. Training Community Members in Use of the Public Systems

4.4.1. After installing the public system, the contractor must provide training to staff at the public institution, VEC members or other village leaders on the proper use and care of the system.

4.4.2. The training must include adequate warnings of the risks of tampering with the SHS, including electric shock, fire, and explosion.

4.4.3. There should be an advance level technical training to the operation and maintenance staff of public facilities and VEC for the future technical support.

4.5. Instructions Booklet and Safety Poster

4.5.1. The contractor must place a safety poster close to the battery for each of the public systems.

4.5.2. The contractor must provide an operation manual and maintenance manual in the local language for each of the public systems.
5. **Occupational Health and Safety**

5.1. **Personal Protective Equipment**

5.1.1. Workers must use personal protective equipment (PPE) and protective clothing.

5.1.2. People not involved with installation, including members of the households, should be kept safely away from the worksites.

5.2. **Working at height**

5.2.1. If working at heights, sufficient protection against falls must be in place.

5.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

6. **Public Health and Safety**

6.1. Workers will endeavour to keep dust and other potential hazards to a minimum.

6.2. **Workers’ Code of Conduct**

6.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.

6.2.2. The code of conduct should be provided in writing to all workers.

6.2.3. The code should include, but not be limited to:

- instructions on waste disposal and hygiene
- not using illegal drugs
- prohibition on theft of personal or community property
- not causing damage to personal or community property
- prohibition on hunting, fishing, or other activities causing harm to the natural environment
- restrictions on drinking or gambling with members of the community
- not making any unwanted verbal or sexual advances to those in the community
- not exploiting local residents in any other way (such as demanding free transport)
- awareness of religious practices or social customs of the community if different from that of the workers.

7. **Waste Management**

7.1. The contractor shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

7.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

7.3. The waste management measures adopted by the contractor will be reviewed by the PMO of the DRD.
7.4. The contractor shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.

7.5. After installation of SHS in the communities, the contractor shall clear all storage and construction sites of debris and waste

8. Post-Installation

8.1. Repairs and Maintenance

8.1.1. The contractor shall follow all relevant environmental measures above when carrying out any maintenance or repair work for the SHS during the guarantee period.

8.1.2. The contractor shall dispose of any defective or used batteries according to the measures for battery disposal and recycling set by the DRD

8.1.3. The contractor shall dispose of any defective solar panels or other equipment according to measures set by the DRD.
Environmental and Social Code of Practice for RBF Off-Grid Solar

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice provides guidelines to follow when preparing and installing Solar Home Systems (SHS) under the National Electrification Project of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The bid document shall include all applicable clearances pertaining to environmental management and shall contain the necessary procedures for compliance of the same.

1.3. Consultation and Disclosure

1.3.1. The company or enterprise consult with and provide adequate and timely information to people affected by the project, including men and women.
1.3.2. Affected people include people benefiting from the project as well as people adversely affected by any project activities.

1.4. Language

1.4.1. Communication with affected people should be in a language they understand clearly and easily.
1.4.2. If the company or its agents cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

1.5. Working in / Visiting the Communities

The communities will be visited several times during preparation, installation, monitoring and maintenance. To avoid possible social conflicts or difficulties for the residents, the following should be practiced:

1.5.1. Informing Community of Work Schedule

1.5.1.1. The VEC members or other village leaders should be informed of the expected number of visits under the project, and for what purposes, to allow them to be adequately prepared for those visits.
1.5.1.2. For each visit or work activity, the VEC focal persons or other village focal person should be informed sufficiently in advance, to allow them to inform other members of the community.

1.5.1.3. If there is any change in the schedule of a visit or work activity, the VEC focal persons or other village focal person should be informed sufficiently in advance.

1.5.2. Payments to Communities for Food and Other Goods

1.5.2.1. With several teams visiting the communities for work, providing meals on these numerous occasions can cause undue financial stress to the communities. To avoid this, food should be brought in by those visiting the community or if the community provides the food or meals, these should be paid for at replacement cost.

1.5.2.2. Other goods provided by the communities at the request of the teams surveying, installing, or conducting follow-up for the NEP project should be paid for at market cost.

2. Preparation and Planning

2.1. Storage Site for Equipment and Materials

2.1.1. If the workers installing the systems need to bring any materials and equipment to the community before installation, those materials and equipment should be stored at a site selected in consultation with the VEC members and village leaders.

2.1.2. Preferably, the site should be on public or community land. If on private land, the company or its agents should obtain written permission from the landowner / land user for its use as a voluntary temporary donation (using the attached form for voluntary land donations) or if not granted voluntarily, provide the land owner / land user compensation for the temporary use of the land.

2.1.3. The storage site(s) should be free of risk from erosion or runoff into any waterways.

2.1.4. Upon completing installation in the community, the storage site should be cleared and restored to its original condition, and all waste removed as in Section 6 “Waste Management” below.

3. Installation in Households

3.1. Removal of Trees

3.1.1. If any tree needs to be removed for the installation of the SHS, member(s) of the household should be consulted to assure the tree is not of value to the household.

3.1.2. If the tree is of value to the household and they do not want it removed, alternative sites for the solar panel should be suggested for the household member(s) to select.

3.1.3. If an alternative site for the solar panel is not possible, the workers installing the system should explain why the tree needs to be cut down and obtain permission from the household member(s)
3.1.4. If the workers installing the system cannot communicate directly with the household member(s), the company should engage a translator.

3.2. Wiring

3.2.1. The position of the light points (bulbs) should be decided only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.

3.2.2. Only the workers installing the SHS should do the household wiring, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.

3.2.3. If the household already has wiring, the workers installing the system should replace it with the wiring and materials provided under the SHS.

3.3. Location of Battery and Other Equipment

3.3.1. The battery should be placed within a locked box and in a safe location out of reach and inaccessible to young children.

3.3.2. If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.

3.3.3. Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.

3.3.4. Other equipment of the SHS should be placed in safe locations out of reach and inaccessible to young children.

3.4. Training Household Members in Use of SHS

3.4.1. After installing the SHS, the company must provide training to household members on the proper use and care of the system, and on safety measures.

3.4.2. The training must include adequate warnings of the risks of tampering with the SHS, including electric shock, fire, and explosion.

3.4.3. At least one adult male and one adult female in the household should be trained.

3.4.4. This can be done as group training on the operation and maintenance of SHS, after work in a village or group of villages is completed. VEC members and the Township DRD representative should be present.

3.5. Instructions Booklet and Safety Poster

3.5.1. The company must place a safety poster close to the battery for each SHS

3.5.2. The company must provide an instructions booklet in the local language for each SHS

3.5.3. Extra copies of the instruction booklet and safety poster should be provided to the VEC, as replacements for any lost or damaged booklets or posters

4. Occupational Health and Safety

4.1. Personal Protective Equipment
4.1.1. Workers must use personal protective equipment (PPE) and protective clothing.
4.1.2. People not involved with installation, including members of the households, should be kept safely away from the worksites.

4.2. Working at height

4.2.1. If working at heights, sufficient protection against falls must be in place.
4.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

5. Public Health and Safety

5.1. Workers will endeavour to keep dust and other potential hazards to a minimum.

5.2. Workers’ Code of Conduct

5.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.
5.2.2. The code of conduct should be provided in writing to all workers.
5.2.3. The code should include, but not be limited to:
- instructions on waste disposal and hygiene
- not using illegal drugs
- prohibition on theft of personal or community property
- not causing damage to personal or community property
- prohibition on hunting, fishing, or other activities causing harm to the natural environment
- restrictions on drinking or gambling with members of the community
- not making any unwanted verbal or sexual advances to those in the community
- not exploiting local residents in any other way (such as demanding free transport
- awareness of religious practices or social customs of the community if different from that of the workers.

6. Waste Management

6.1. The company shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.
6.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.
6.3. The company shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.
6.4. After installation of SHS in the communities, the workers installing the systems shall clear all storage and construction sites of debris and waste.

7. Post-Installation

7.1. Repairs and Maintenance
7.1.1. The company shall follow all relevant environmental measures above when carrying out any maintenance or repair work for the SHS during the guarantee period.

7.1.2. The company shall dispose of any defective or used batteries according to the measures for battery disposal and recycling set by the DRD.

7.1.3. The company shall dispose of any defective solar panels or other equipment according to measures set by the DRD.
Annex 17: Environmental and Social Codes of Practice for Off-Grid Mini-Grid Subprojects

Environmental and Social Codes of Practice (ESCoP) have been prepared for the Grid Extension Component of the NEP and for the various types of sub-projects under the Off-Grid Electrification Component.

These ESCoPs presented in this annex are for the various off-grid mini-grid technologies being used or expected in the program.

- Solar Mini-Grids
- Biomass Power Mini-Grids
- Mini-Hydro Mini-Grids
- Solar-Diesel Hybrid Mini-Grids
- Biomass-Diesel Hybrid Mini-Grids
- Wind-Diesel Hybrid Mini-Grids

As with the screening forms for the mini-grids, each of the ESCoP has been tailored for the expected environmental and social impacts of the particular technologies being used.
Environmental and Social Code of Practice for Solar (only) Mini-grid Systems

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice (ECoP) provides guidelines to follow for the preparation, construction, and operation of small-scale solar (only) mini-grid sub-projects under the National Electrification Project (NEP) of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The developer shall comply with all relevant national laws and regulations on environmental conservation and management and with all applicable World Bank environmental and social safeguards throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.3. Consultation and Disclosure

The developer shall consult with and provide adequate and timely information to the communities and other people affected by the project throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.4. Language

Communication with affected people should be in a language they understand clearly and easily. If the contractor and / or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

2. Project Planning and Preparation

2.1. Evidence of Compliance with Environmental Laws and World Bank Safeguards Policies

2.1.1. The project proposal documents shall include all applicable clearances pertaining to environmental protection and management under the laws and regulations of the Government of Myanmar and shall contain the necessary plans and procedures for compliance of the same

2.1.2. The project proposal documents shall include the environmental and social safeguards screening form and shall contain the necessary plans and procedures for compliance to any safeguards triggered by the sub-project

2.1.3. Approval of the projects will be subject to review and approval by the DRD Safeguards Team for the NEP of the above-mentioned plans and procedures to

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31 Another ESCoP is applied to small-scale solar-diesel mini-grid sub-projects.
comply with national environmental laws and regulations and with World Bank environmental and social safeguards.

2.2. Consultation with Communities and Other Affected People

2.2.1. Consultation on project plans
   2.2.1.1. The developer shall consult with the communities, both men and women, to be served by the mini-grid on the proposed plans for the project.
   2.2.1.2. The sub-project proposal documents must show evidence of these consultations, including any concerns and recommendations that have been raised, and show evidence of agreement by the communities and other affected people to the project plans.

2.2.2. Consultation on compliance with safeguards and environmental laws and regulations
   2.2.2.1. The developer shall also consult with the communities and other affected people, both men and women, on the procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
   2.2.2.2. The project proposal documents must show evidence of agreement by the communities and other affected people to the selection of the site for the array of solar panels and storage batteries, and of any other infrastructure of the project.

2.3. Site Selection for Infrastructure and Grid Route

2.3.1. VEC members and other village representatives, both men and women, shall be consulted on selection of the sites for solar panels and power station and any related infrastructure; the proposed route of the grid; and lighting for public buildings and street lights.
   2.3.2. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.
   2.3.3. The land used for the infrastructure shall be acquired according to Section 2.6

2.4. Workers’ Housing, Storage Spaces, and Other Temporary Facilities

2.4.1. If workers need to be in the community for more than 4 or 5 days, the developer will assess the need for workers’ housing, to determine if there is sufficient existing housing available or if temporary housing or workers’ camp is needed.
   2.4.2. If workers are in the community for only a few days,
   2.4.3. If workers’ housing is required, the project proposal will include plans for that housing (even if in existing structures), including water supply, sanitation, health care, provision of meals, security, solid and liquid waste management, and the impact on the local communities.
   2.4.4. The project proposal will include plans for storage facilities of construction materials, the protection of these sites, borrow areas, access roads, and/or any other temporary structures or facilities required during construction.
   2.4.5. VEC members and other village representatives shall be consulted on the selection of the sites for workers’ housing and facilities, storage spaces, and other temporary facilities.
2.4.6. The workers’ housing and related facilities, the storage facilities, and other temporary facilities should be located on sites free of risk from erosion or runoff into any waterways.

2.4.7. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.4.8. The land used for these sites shall be acquired according to Section 2.6

2.5. Waste Management

2.5.1. The developer shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

2.5.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

2.5.3. The waste management measures adopted by the developer will be reviewed by the PMO of the DRD.

2.6. Land Acquisition and Compensation

2.6.1. All permanent and temporary land acquisition required by the project must be completed prior to construction in accordance with the Resettlement Policy Framework.

2.6.2. Any permanent or temporary loss of livelihood aside from loss of land caused by the project must be compensated prior to construction in accordance with the Resettlement Policy Framework.

2.6.3. Adequate documentation must be provided for review by the DRD-NEP Safeguards Team for all land acquisition and compensation under the Resettlement Policy Framework.

2.7. Physical Cultural Resources

2.7.1. The developer shall consult with the Department of Archaeology, National Museum and Library to determine if there is any site of cultural significance in or near the project area that should be avoided.

2.7.2. The developer shall consult with VEC members and other village leaders to determine if there are any sites in the project area that are of cultural or religious significance to members of the community, including any ethnic or religious minorities in the community, and project design should be altered to avoid any such sites.

2.8. Preparation of an Environmental and Social Management Plan, Resettlement Action Plan, and/or Indigenous Peoples Plan

2.8.1. If the screening forms and assessments indicate any environmental and/or social issues that need to be mitigated or avoided, the DRD safeguards team may request the developer prepare an Environmental Management Plan (ESMP), a Resettlement Action Plan (RAP), and/or and Indigenous Peoples Plan as needed.
2.8.2. The ESMP will indicate how the developer will manage those environmental and/or social issues during construction and operation of the sub-project and be included in the project plans (proposal or feasibility study).

2.8.3. The RAP will indicate how the developer will handle and compensation required for land acquisitions, loss of assets, or loss of livelihoods, and provide evidence of that compensation.

2.8.4. The IPP will detail the procedures in conducting free, prior and informed consultations with ethnic minorities in order to obtain their broad community support.

2.8.5. If no ESMP, RAP, or IPP is required, this ESCoP will serve as the framework for managing environmental and/or social issues during construction and operation of the sub-project.

2.9. Requirements for Initial Environmental Evaluation

2.9.1. If the sub-project is 5 Mw or greater, an Initial Environmental Evaluation (IEE) is required and must be approved by the Environmental Conservation Department.

2.9.2. An IEE may be requested by the DRD Safeguards Team if the sub-project is expected to have any significant environmental or social impacts.

3. Construction

3.1. Workers’ Housing and Facilities

3.1.1. If temporary housing is built or provided, it should be built with adequate and safe materials, and with adequate ventilation, natural and artificial lighting, and protection from rain and storms.

3.1.2. The housing should be on sites free from flooding and other natural hazards.

3.1.3. The housing should be kept free from rubbish and other refuse.

3.1.4. The site should have an adequate supply of clean water for consumption, personal hygiene and other domestic uses.

3.1.5. The site should have adequate drainage to avoid stagnant water.

3.1.6. Facilities must be available for adequate removal or disposal of waste water, sewage, and solid waste. Containers should be available for rubbish collection.

3.1.7. Toilets, showers, and other sanitary facilities should be clean, safe, and adequate number for the work force. Separate facilities should be available for females in the workforce.

3.1.8. A canteen where food is prepared for the workers and/or cooking facilities where the workers prepare their own food should be provided, with the facilities adequately furnished and designed for good hygiene.

3.1.9. Clean, safe, and adequate facilities for workers to wash and dry clothes should be provided.

3.1.10. First aid kits and facilities should be provided, with separate space available for any sick or injured workers. A sufficient number of workers should be provided training in administering first aid.

3.1.11. Adequate security should be provided at the workers’ housing.

3.2. Workers’ Code of Conduct
3.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.

3.2.2. The code of conduct should be provided in writing and on posters in the workers’ housing and at construction sites.

3.2.3. The code should include, but not be limited to:
   
   3.2.3.1. instructions on waste disposal and hygiene
   3.2.3.2. prohibition on use of illegal drugs
   3.2.3.3. prohibition on theft of personal or community property
   3.2.3.4. prohibition on hunting, fishing, or other activities causing harm to the natural environment
   3.2.3.5. restrictions on drinking or gambling with members of the community
   3.2.3.6. prohibition on making any unwanted verbal or sexual advances to those in the community
   3.2.3.7. prohibition on vandalism, theft, desecration, or otherwise damage to items or sites considered physical cultural resources in 2.7 above.
   3.2.3.8. awareness of religious practices or social customs of the community if different from that of the workers.

3.3. Occupational Health and Safety

3.3.1. Personal Protective Equipment
   
   3.3.1.1. Workers must use personal protective equipment (PPE) and protective clothing
   3.3.1.2. People not involved with installation should be kept safely away from the worksites.

3.3.2. Working at height
   
   3.3.2.1. If working at heights, sufficient protection against falls must be in place.
   3.3.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

3.4. Community Health and Safety

3.4.1. The community should be informed of the potential risks to health and safety during construction. These include risks of:
   
   3.4.1.1. road accidents
   3.4.1.2. communicable diseases from the workers, including HIV/AIDS and other sexually transmitted diseases
   3.4.1.3. other undesirable contact from the workers, as noted in 3.2.3 above.

3.4.2. The community should be informed of potential environmental impacts caused by the project, such as
   
   3.4.2.1. dust, pollution, and noise during construction
   3.4.2.2. risks of and emergency procedures for accidents

3.4.3. The developer will install proper safety and warning signs to inform the public of potential hazards during construction

3.5. Construction Near Waters

3.5.1. Runoff from construction entering any water body should be free of pollutants and generally free of sediments
3.5.2. No wastewater, sewage or other drainage from construction or from the workers’ housing should flow into the water bodies.

3.5.3. Dirt, silt, or sediment should be collected and stockpiles for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.

3.5.4. Cutting of embankments of water bodies should be avoided or if necessary kept to a minimum to avoid flooding of surrounding areas.

3.5.5. Alternative drain inlets and outlets should be provided in the event existing drainage channels of the water body are closed.

3.5.6. No waste from the construction sites or from the workers’ housing should be disposed in the water bodies.

3.6. Solar Panels, Power Station and Related Infrastructure

3.6.1. If removal of any large trees is unavoidable at the sites for the solar panels, the power station, and any related infrastructure, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.6.2. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.

3.6.3. The solar panels, power station, and any related infrastructure should be adequately protected from theft or other interference during construction.

3.6.4. If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.

3.6.5. Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.

3.7. Plant Clearance Along Mini-Grid

3.7.1. Final alignment of the mini-grid should try to minimise the loss of existing tree cover.

3.7.2. If removal of any large trees is unavoidable, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.8. Physical Cultural Resources

3.8.1. If at any time during construction the developer or its workers comes across a “chance find,” that is, finds an item or site that appears to be archaeologically, historically, or culturally important, either nationally or locally, work on that site
should be stopped immediately, the site protected, and the Chance Find Procedures in the ESMF be followed.

3.8.2. Project design should then be immediately altered to avoid the site.

3.9. Installation in Households

3.9.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.

3.9.2. All connections and wiring in households must be done by the developer only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.

3.9.3. If the household already has wiring, the developer should replace it with the wiring and materials provided under the sub-project.

3.9.4. The connections, meters and fuses should be placed out of reach and inaccessible to young children.

3.10. Installation of Public Lighting

3.10.1. The decision for location of light points (bulbs) should be decided by the contractor only after detailed discussion with the public facility authorities, but the contractor has to evaluate the safety of the suggested positions.

3.10.2. All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.

3.10.3. If the site already has wiring, the contractor should replace it with the wiring and materials provided under the sub-project.

3.11. Waste Management

3.11.1. The developer shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.

3.11.2. During construction, the developer will handle and dispose of waste according to the Waste Management Plan approved by the DRD, including arrangements for recyclable materials and toxic waste, so that debris and waste do not accumulate.

3.11.3. After construction, the developer shall clear all construction and storage sites and the workers' housing site of all debris and waste.

3.11.4. The developer shall restore those sites to as near the original condition as possible.

3.12. Reporting

3.12.1. The developer shall include sections in its monthly reports on compliance with environmental and social safeguards, including the EMP, Waste Management Plan, and other issues covered in this ECoP.

4. Operations

4.1. Protection and Safety of Infrastructure and Equipment During Operation
4.1.1. Proper protection of vulnerable points in the system will be put in place (such as fencing, cages, locks, etc.), regularly inspected by the developer and the VEC, and maintained.

4.1.2. If replacement batteries are stored on site, they should be in a site free from erosion, runoff, or potential threats, to avoid damage to the batteries and risk of toxic pollution.

4.2. Repairs and Maintenance

4.2.1. The developer shall follow all relevant environmental measures above when carrying out any maintenance or repair work.

4.2.2. The practices detailed in Section 3 on Construction should be complied with for all repair and maintenance work.

4.3. Disposal of Used/Damaged Equipment and Waste Management

4.3.1. The developer shall dispose of any defective or used batteries according to the measures for battery disposal and recycling set by the DRD.

4.3.2. The developer shall dispose of any defective solar panels or other equipment according to measures set by the DRD.

4.3.3. Recyclable or toxic materials should be disposed according to the arrangements set in the Waste Management Plan for construction, or according to measures set by the DRD, whichever is stricter.

4.3.4. All other waste should be disposed according to the arrangements set in the Waste Management Plan for construction.

4.4. Community Health and Safety

4.4.1. The community will be informed through posters, brochures, and other means, of the risks and dangers of tampering with any part of the system.

4.4.2. The developer will install proper safety and warning signs to inform the public of potential hazards.
Environmental and Social Code of Practice for Biomass Mini-grid Systems

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice (ESCoP) provides guidelines to follow for the preparation, construction, and operation of small-scale biomass mini-grid sub-projects under the National Electrification Project (NEP) of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The developer shall comply with all relevant national laws and regulations on environmental conservation and management and with all applicable World Bank environmental and social safeguards throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.3. Consultation and Disclosure

The developer shall consult with and provide adequate and timely information to the communities and other people affected by the project throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.4. Language

Communication with affected people should be in a language they understand clearly and easily. If the contractor and / or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

2. Project Planning and Preparation

2.1. Evidence of Compliance with Environmental Laws and World Bank Safeguards Policies

2.1.1. The project proposal documents shall include all applicable clearances pertaining to environmental protection and management under the laws and regulations of the Government of Myanmar and shall contain the necessary plans and procedures for compliance of the same

2.1.2. The project proposal documents shall include the environmental and social safeguards screening form and shall contain the necessary plans and procedures for compliance to any safeguards triggered by the sub-project

2.1.3. Approval of the projects will be subject to review and approval by the DRD Safeguards Team for the NEP of the above-mentioned plans and procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.

2.2. Consultation with Communities and Other Affected People
2.2.1. Consultation on project plans
   2.2.1.1. The developer shall consult with the communities, both men and women, to be served by the mini-grid on the proposed plans for the project.
   2.2.1.2. The sub-project proposal documents must show evidence of these consultations, including any concerns and recommendations that have been raised, and show evidence of agreement by the communities and other affected people to the project plans.

2.2.2. Consultation on compliance with safeguards and environmental laws and regulations
   2.2.2.1. The developer shall also consult with the communities and other affected people, both men and women, on the procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
   2.2.2.2. The project proposal documents must show evidence of agreement by the communities and other affected people to the selection of the site for the biomass generator, biomass storage facilities, and of any other infrastructure of the project.

2.3. Site Selection for Infrastructure and Grid Route

2.3.1. VEC members and other village representatives, both men and women, shall be consulted on selection of the sites for biomass generator, biomass storage facilities, and any related infrastructure; the proposed route of the grid; and lighting for public buildings and street lights.
2.3.2. The sites selected for the biomass generator, biomass storage facilities must be free from risk of erosion or other damage that may cause runoff into waterways, agricultural areas, residential areas or other sites used by the community.
2.3.3. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.
2.3.4. The land used for the infrastructure shall be acquired according to Section 2.6

2.4. Workers’ Housing, Storage Spaces, and Other Temporary Facilities

2.4.1. If workers need to be in the community for more than 2 to 3 days, the developer will assess the need for workers’ housing, to determine if there is sufficient existing housing available or if temporary housing or workers’ camp is needed. If in the community for only 2 to 3 days, arrangements can be made for the workers to stay at the local temple or school or other public building.
2.4.2. If workers’ housing is required, the project proposal will include plans for that housing (even if in existing structures), including water supply, sanitation, health care, provision of meals, security, solid and liquid waste management, and the impact on the local communities.
2.4.3. The project proposal will include plans for storage facilities of construction materials, the protection of these sites, borrow areas, access roads, and/or any other temporary structures or facilities required during construction.
2.4.4. VEC members and other village representatives shall be consulted on the selection of the sites for workers’ housing and facilities, storage spaces, and other temporary facilities.
2.4.5. The workers’ housing and related facilities, the storage facilities, and other temporary facilities should be located on sites free of risk from erosion or runoff into any waterways.
2.4.6. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.4.7. The land used for these sites shall be acquired according to Section 2.6 above.

2.5. Waste Management

2.5.1. The developer shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

2.5.2. The developer will prepare plans for management and disposal of any ash created from biomass combustion and gasification during operation.

2.5.3. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

2.5.4. The waste management measures adopted by the developer will be reviewed by the PMO of the DRD.

2.6. Land Acquisition and Compensation

2.6.1. All permanent and temporary land acquisition required by the project must be completed prior to construction in accordance with the Resettlement Policy Framework.

2.6.2. Any permanent or temporary loss of livelihood aside from loss of land caused by the project must be compensated prior to construction in accordance with the Resettlement Policy Framework.

2.6.3. Adequate documentation must be provided for review by the DRD-NEP Safeguards Team for all land acquisition and compensation under the Resettlement Policy Framework.

2.6.4. All land acquisition and compensation must be completed before construction can start.

2.7. Physical Cultural Resources

2.7.1. The developer shall consult with the Department of Archaeology, National Museum and Library to determine if there is any site of cultural significance in or near the project area that should be avoided.

2.7.2. The developer shall consult with VEC members and other village leaders to determine if there are any sites in the project area that are of cultural or religious significance to members of the community, including any ethnic or religious minorities in the community, and project design should be altered to avoid any such sites.

2.8. Preparation of an Environmental and Social Management Plan, Resettlement Action Plan, and/or Indigenous Peoples Plan

2.8.1. If the screening forms and assessments indicate any environmental and/or social issues that need to be mitigated or avoided, the PMO may request the developer prepare an Environmental and Social Management Plan (ESMP), a Resettlement Action Plan (RAP), and/or an Indigenous Peoples Plan as needed.
2.8.2. The ESMP will indicate how the developer will manage those environmental and/or social issues during construction and operation of the sub-project and be included in the project plans (proposal or feasibility study).

2.8.3. The RAP will indicate how the developer will handle any compensation required for land acquisitions, loss of assets, or loss of livelihoods, and provide evidence of that compensation.

2.8.4. The IPP will detail the procedures in conducting free, prior and informed consultations with ethnic minorities in order to obtain their broad community support.

2.8.5. If no ESMP, RAP, or IPP is required, this ESCoP will serve as the framework for managing environmental and/or social issues during construction and operation of the sub-project.

2.9. Requirements for Initial Environmental Evaluation

2.9.1. If the sub-project is 5 Mw or greater, an Initial Environmental Evaluation (IEE) is required and must be approved by the Environmental Conservation Department.

2.9.2. An IEE may be requested by the DRD Safeguards Team if the sub-project is expected to have any significant environmental or social impacts.

3. Construction

3.1. Workers’ Housing and Facilities

3.1.1. If temporary housing is built or provided, it should be built with adequate and safe materials, and with adequate ventilation, natural and artificial lighting, and protection from rain and storms.

3.1.2. The housing should be on sites free from flooding and other natural hazards.

3.1.3. The housing should be kept free from rubbish and other refuse.

3.1.4. The site should have an adequate supply of clean water for consumption, personal hygiene and other domestic uses.

3.1.5. The site should have adequate drainage to avoid stagnant water.

3.1.6. Facilities must be available for adequate removal or disposal of waste water, sewage, and solid waste. Containers should be available for rubbish collection.

3.1.7. Toilets, showers, and other sanitary facilities should be clean, safe, and adequate number for the work force. Separate facilities should be available for females in the workforce.

3.1.8. A canteen where food is prepared for the workers and/or cooking facilities where the workers prepare their own food should be provided, with the facilities adequately furnished and designed for good hygiene.

3.1.9. Clean, safe, and adequate facilities for workers to wash and dry clothes should be provided.

3.1.10. First aid kits and facilities should be provided, with separate space available for any sick or injured workers. A sufficient number of workers should be provided training in administering first aid.

3.1.11. Adequate security should be provided at the workers’ housing.

3.2. Workers’ Code of Conduct
3.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.

3.2.2. The code of conduct should be provided in writing and on posters in the workers’ housing and at construction sites.

3.2.3. The code should include, but not be limited to:
   3.2.3.1. instructions on waste disposal and hygiene
   3.2.3.2. prohibition on use of illegal drugs
   3.2.3.3. prohibition on theft of personal or community property
   3.2.3.4. prohibition on hunting, fishing, or other activities causing harm to the natural environment
   3.2.3.5. restrictions on drinking or gambling with members of the community
   3.2.3.6. prohibition on making any unwanted verbal or sexual advances to those in the community
   3.2.3.7. prohibition on vandalism, theft, desecration, or otherwise damage to items or sites considered physical cultural resources in 2.7 above.
   3.2.3.8. awareness of religious practices or social customs of the community if different from that of the workers.

3.3. Occupational Health and Safety

3.3.1. Personal Protective Equipment
   3.3.1.1. Workers must use personal protective equipment (PPE) and protective clothing
   3.3.1.2. People not involved with installation should be kept safely away from the worksites.

3.3.2. Working at height
   3.3.2.1. If working at heights, sufficient protection against falls must be in place.
   3.3.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

3.4. Community Health and Safety

3.4.1. The community should be informed of the potential risks to health and safety during construction. These include risks of:
   3.4.1.1. road accidents
   3.4.1.2. communicable diseases from the workers, including HIV/AIDS and other sexually transmitted diseases
   3.4.1.3. other undesirable contact from the workers, as noted in 3.2.3 above.

3.4.2. The community should be informed of potential environmental impacts caused by the project, such as
   3.4.2.1. dust, pollution, and noise during construction
   3.4.2.2. pollution and noise during operation
   3.4.2.3. risks of and emergency procedures for accidents

3.4.3. The developer will install proper safety and warning signs to inform the public of potential hazards during construction.

3.5. Construction Near Waters

3.5.1. Runoff from construction entering any water body should be free of pollutants and generally free of sediments.
3.5.2. No wastewater, sewage or other drainage from construction or from the workers’ housing should flow into the water bodies.
3.5.3. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.5.4. Cutting of embankments of water bodies should be avoided or if necessary kept to a minimum to avoid flooding of surrounding areas.
3.5.5. Alternative drain inlets and outlets should be provided in the event existing drainage channels of the water body are closed.
3.5.6. No waste from the construction sites or from the workers’ housing should be disposed in the water bodies.

3.6. Biomass Generator, Biomass Storage Facilities, and Related Infrastructure

3.6.1. If removal of any large trees is unavoidable at the sites for the biomass generator and biomass storage facilities, and any related infrastructure, the wood from those trees removed by the developer will be given to the community or, if built on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.
3.6.2. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.6.3. The biomass generator, biomass storage facilities, and any related infrastructure should be adequately protected from theft or other interference during construction.

3.7. Plant Clearance Along Mini-Grid

3.7.1. Final alignment of the mini-grid should try to minimise the loss of existing tree cover.
3.7.2. If removal of any large trees is unavoidable, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.8. Physical Cultural Resources

3.8.1. If at any time during construction the developer or its workers come across a “chance find,” that is, finds an item or site that appears to be archaeologically, historically, or culturally important, either nationally or locally, work on that site should be stopped immediately, the site protected, and the Chance Find Procedures in this ESMF be followed.
3.8.2. Project design should then be immediately altered to avoid the site.

3.9. Installation in Households

3.9.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house
wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.

3.9.2. All connections and wiring in households must be done by the developer only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.

3.9.3. If the household already has wiring, the developer should replace it with the wiring and materials provided under the sub-project.

3.9.4. The connections, meters and fuses should be placed out of reach and inaccessible to young children.

3.10. **Installation of Public Lighting**

3.10.1. The decision for location of light points (bulbs) should be decided by the contractor only after detailed discussion with the public facility authorities, but the contractor has to evaluate the safety of the suggested positions.

3.10.2. All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.

3.10.3. If the site already has wiring, the contractor should replace it with the wiring and materials provided under the sub-project.

3.11. **Waste Management**

3.11.1. The developer shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.

3.11.2. During construction, the developer will handle and dispose of waste according to the Waste Management Plan approved by the DRD, including arrangements for recyclable materials and toxic waste, so that debris and waste do not accumulate.

3.11.3. After construction, the developer shall clear all construction and storage sites and the workers’ housing site of all debris and waste.

3.11.4. The developer shall restore those sites to as near the original condition as possible.

3.12. **Reporting**

3.12.1. The developer shall include sections in its monthly reports on compliance with environmental and social safeguards, including the ESMP, Waste Management Plan, and other issues covered in this ESCoP.

4. **Operations**

4.1. **Protection and Safety During Operation**

4.1.1. Proper protection of vulnerable points in the system will be put in place (such as fencing, cages, locks, etc.), regularly inspected by the developer and the VEC, and maintained.

4.1.2. Safeguard measures such as pressure gauges (manometers), water traps, and sulphur cleaners and outlet pipes, as necessary, should be installed and maintained.
4.1.3. Operators should adhere to conventional safe handling practices, including use of safety equipment or personal protection equipment (PPE), such as gloves, boots, masks, etc.

4.1.4. The biomass should be stored in a site free from erosion, runoff, or potential threats, to avoid damage and risk of polluting nearby areas. The storage facilities should also minimise degradation of the biomass and the production and release of harmful gases and unpleasant odours.

4.1.5. The operator shall assure that the water required for cooling the biomass plants does not deplete the availability of water for domestic use, agriculture, or other uses.

4.2. Repairs and Maintenance

4.2.1. The developer shall follow all relevant environmental measures above when carrying out any maintenance or repair work.

4.2.2. The practices detailed in Section 3 on Construction should be complied with for all repair and maintenance work.

4.3. Disposal of Used/Damaged Equipment and Waste Management

4.3.1. The developer shall dispose of any defective or used equipment according the arrangements set in the Waste Management Plan for construction.

4.3.2. Recyclable or toxic materials should be disposed according to the arrangements set in the Waste Management Plan for construction, or according to measures set by the DRD, whichever is stricter.

4.3.3. All other waste should be disposed according to the arrangements set in the Waste Management Plan for construction.

4.4. Disposal of Ash from Biomass Combustion and Gasification

4.4.1. Ash from the biomass generator should be disposed of in a safe and sustainable manner.

4.4.2. If the ash can be used in fertiliser, it should be given to the community, and the community shown how best to mix the ash with other compost.

4.4.3. If the ash cannot be used in fertiliser, it should be disposed in a safe manner, to avoid pollution, according to the plans developed under 2.5.2 above.

4.5. Community Health and Safety

4.5.1. The community will be informed through posters, brochures, and other means, of the risks and dangers of tampering with any part of the system.

4.5.2. The developer will install proper safety and warning signs to inform the public of potential hazards.

Environmental and Social Code of Practice for Hydropower Mini-grid Systems

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice provides guidelines to follow for the preparation, construction, and operation of small-scale hydropower mini-grid sub-projects.
under the National Electrification Project (NEP) of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The developer shall comply with all relevant national laws and regulations on environmental conservation and management and with all applicable World Bank environmental and social safeguards throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.3. Consultation and Disclosure

The developer shall consult with and provide adequate and timely information to the communities and other people affected by the project throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.4. Language

Communication with affected people should be in a language they understand clearly and easily. If the contractor and / or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

2. Project Planning and Preparation

2.1. Evidence of Compliance with Environmental Laws and World Bank Safeguards Policies

2.1.1. The project proposal documents shall include all applicable clearances pertaining to environmental protection and management under the laws and regulations of the Government of Myanmar and shall contain the necessary plans and procedures for compliance of the same

2.1.2. The project proposal documents shall include the environmental and social safeguards screening form and shall contain the necessary plans and procedures for compliance to any safeguards triggered by the sub-project

2.1.3. Approval of the projects will be subject to review and approval by the DRD Safeguards Team for the NEP of the above mentioned plans and procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.

2.2. Consultation with Communities and Other Affected People

2.2.1. Consultation on project plans

2.2.1.1. The developer shall consult with the communities, both men and women, to be served by the mini-grid on the proposed plans for the project.

2.2.1.2. The sub-project proposal documents must show evidence of these consultations, including any concerns and recommendations that have been raised, and show evidence of agreement by the communities and other affected people to the project plans.
2.2.2. Consultation on compliance with safeguards and environmental laws and regulations

2.2.2.1. The developer shall also consult with the communities and other affected people, both men and women, on the procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.

2.2.2.2. The project proposal documents must show evidence of agreement by the communities and other affected people to the selection of the site for the dam and the extent of impact of the reservoir.

2.3. Environmental Assessment of Water Uses and Quality

2.3.1. The developer should assess any competing water uses (irrigation, domestic use, industrial use, etc.) and the potential impact of the project on those uses.

2.3.2. The developer should measure the water quality as a baseline for later monitoring. Measurements should be taken during high flow and low flow and should include temperature, acidity (pH), colour, dissolved oxygen (DO), and turbidity.

2.4. Environmental Assessment of Dam or Weir

2.4.1. If a dam is to be built, the Minimum Environmental Flow is to be measured, incorporated in project design, and reported in the project proposal.

2.4.2. The expected impact of the dam or weir on aquatic life is to be assessed, incorporated in project design, and reported in the project proposal.

2.4.3. The vegetative cover of the area to be flooded by the reservoir is to be described in the project proposal, with plans and measures for clearance of the area before flooding.

2.5. Site Selection for Infrastructure and Grid Route

2.5.1. VEC members and other village representatives, both men and women, shall be consulted on the selection of the sites for the weir or dam and informed of the maximum area to be flooded by a reservoir; the route of the power canal and penstock; the site of the powerhouse and any related infrastructure; the proposed route of the grid; and lighting for public buildings and street lights.

2.5.2. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.5.3. The land used for the infrastructure shall be acquired according to Section 2.8.

2.6. Workers’ Housing, Storage Spaces, and Other Temporary Facilities

2.6.1. If workers need to be in the community for more than 2 to 3 days, the developer will assess the need for workers’ housing, to determine if there is sufficient existing housing available or if temporary housing or workers’ camp is needed. If in the community for only 2 to 3 days, arrangements can be made for the workers to stay at the local temple or school or other public building.

2.6.2. If workers’ housing is required, the project proposal will include plans for that housing (even if in existing structures), including water supply, sanitation, health care, provision of meals, security, solid and liquid waste management, and the impact on the local communities.
2.6.3. The project proposal will include plans for storage facilities of construction materials, the protection of these sites, borrow areas, access roads, and/or any other temporary structures or facilities required during construction.

2.6.4. VEC members and other village representatives shall be consulted on the selection of the sites for workers’ housing and facilities, storage spaces, and other temporary facilities.

2.6.5. The workers’ housing and related facilities, the storage facilities, and other temporary facilities should be located on sites free of risk from erosion or runoff into any waterways.

2.6.6. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.6.7. The land used for these sites shall be acquired according to Section 2.8

2.7. Waste Management

2.7.1. The developer shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

2.7.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

2.7.3. The waste management measures adopted by the developer will be reviewed by the PMO of the DRD.

2.8. Land Acquisition and Compensation

2.8.1. All permanent and temporary land acquisition required by the project must be completed prior to construction in accordance with the Resettlement Policy Framework.

2.8.2. Any permanent or temporary loss of livelihood aside from loss of land caused by the project must be compensated prior to construction in accordance with the Resettlement Policy Framework.

2.8.3. Adequate documentation must be provided for review by the DRD-NEP Safeguards Team for all land acquisition and compensation under the Resettlement Policy Framework.

2.8.4. All land acquisition and compensation must be completed before construction can start.

2.9. Physical Cultural Resources

2.9.1. The developer shall consult with the Department of Archaeology, National Museum and Library to determine if there is any site of cultural significance in or near the project area that should be avoided.

2.9.2. The developer shall consult with VEC members and other village leaders to determine if there are any sites in the project area that are of cultural or religious significance to members of the community, including any ethnic or religious minorities in the community, and project design should be altered to avoid any such sites.
2.10. **Preparation of an Environmental and Social Management Plan, Resettlement Action Plan, and/or Indigenous Peoples Plan**

2.10.1. If the screening forms and assessments indicate any environmental and/or social issues that need to be mitigated or avoided, the PMO may request the developer prepare an Environmental and Social Management Plan (ESMP), a Resettlement Action Plan (RAP), and/or an Indigenous Peoples Plan as needed.

2.10.2. The ESMP will indicate how the developer will manage those environmental and/or social issues during construction and operation of the sub-project and be included in the project plans (proposal or feasibility study).

2.10.3. The RAP will indicate how the developer will handle any compensation required for land acquisitions, loss of assets, or loss of livelihoods, and provide evidence of that compensation.

2.10.4. The IPP will detail the procedures in conducting free, prior and informed consultations with ethnic minorities in order to obtain their broad community support.

2.10.5. If no ESMP, RAP, or IPP is required, this ESCoP will serve as the framework for managing environmental and/or social issues during construction and operation of the sub-project.

2.11. **Requirements for Initial Environmental Evaluation**

2.11.1. If the sub-project is 1 Mw or greater, an Initial Environmental Evaluation (IEE) is required under the Environmental Impact Assessment Procedure of the Myanmar government.

2.11.2. An IEE may also be requested by the DRD Safeguards Team if the sub-project is expected to have any other significant environmental or social impacts.

2.11.3. The IEE must be approved by the Environmental Conservation Department before construction can begin.

3. **Construction**

3.1. **Workers’ Housing and Facilities**

3.1.1. If temporary housing is built or provided, it should be built with adequate and safe materials, and with adequate ventilation, natural and artificial lighting, and protection from rain and storms.

3.1.2. The housing should be on sites free from flooding and other natural hazards.

3.1.3. The housing should be kept free from rubbish and other refuse.

3.1.4. The site should have an adequate supply of clean water for consumption, personal hygiene and other domestic uses.

3.1.5. The site should have adequate drainage to avoid stagnant water.

3.1.6. Facilities must be available for adequate removal or disposal of waste water, sewage, and solid waste. Containers should be available for rubbish collection.

3.1.7. Toilets, showers, and other sanitary facilities should be clean, safe, and adequate number for the work force. Separate facilities should be available for females in the workforce.

3.1.8. A canteen where food is prepared for the workers and/or cooking facilities where the workers prepare their own food should be provided, with the facilities adequately furnished and designed for good hygiene.
3.1.9. Clean, safe, and adequate facilities for workers to wash and dry clothes should be provided.

3.1.10. First aid kits and facilities should be provided, with separate space available for any sick or injured workers. A sufficient number of workers should be provided training in administering first aid.

3.1.11. Adequate security should be provided at the workers’ housing.

3.2. Workers’ Code of Conduct

3.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.

3.2.2. The code of conduct should be provided in writing and on posters in the workers’ housing and at construction sites.

3.2.3. The code should include, but not be limited to:
   3.2.3.1. instructions on waste disposal and hygiene
   3.2.3.2. prohibition on use of illegal drugs
   3.2.3.3. prohibition on theft of personal or community property
   3.2.3.4. prohibition on hunting, fishing, or other activities causing harm to the natural environment
   3.2.3.5. restrictions on drinking or gambling with members of the community
   3.2.3.6. prohibition on making any unwanted verbal or sexual advances to those in the community
   3.2.3.7. prohibition on vandalism, theft, desecration, or otherwise damage to items or sites considered physical cultural resources in 2.9 above.
   3.2.3.8. awareness of religious practices or social customs of the community if different from that of the workers.

3.3. Occupational Health and Safety

3.3.1. Personal Protective Equipment
   3.3.1.1. Workers must use personal protective equipment (PPE) and protective clothing
   3.3.1.2. People not involved with installation should be kept safely away from the worksites.

3.3.2. Working at height
   3.3.2.1. If working at heights, sufficient protection against falls must be in place.
   3.3.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

3.4. Community Health and Safety

3.4.1. The community should be informed of the potential risks to health and safety during construction. These include risks of:
   3.4.1.1. road accidents
   3.4.1.2. communicable diseases from the workers, including HIV/AIDS and other sexually transmitted diseases
   3.4.1.3. other undesirable contact from the workers, as noted in 3.2.3 above.

3.4.2. The community should be informed of potential environmental impacts caused by the project, including:
   3.4.2.1. impact on water flow and water quality during and after construction
3.4.2.2. Impact on aquatic life, in particular any fish or other aquatic animals used for food by the community, during and after construction
3.4.2.3. Dust, pollution, and noise
3.4.3. The developer will install proper safety and warning signs to inform the public of potential hazards during construction

3.5. Construction Near Waters

3.5.1. Runoff from construction entering the water body should be free of pollutants and generally free of sediments
3.5.2. No wastewater, sewage or other drainage from construction or from the workers’ housing should flow into the water bodies.
3.5.3. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.5.4. Cutting of embankments of water bodies should be avoided or if necessary kept to a minimum to avoid flooding of surrounding areas.
3.5.5. Alternative drain inlets and outlets should be provided in the event existing drainage channels of the water body are closed.
3.5.6. No waste from the construction sites or from the workers’ housing should be disposed in the water bodies.

3.6. Water Flow

3.6.1. Water flow should be monitored weekly during construction of the powerhouse and any other structures near the waterway.
3.6.2. Any serious disruption to water flow below Minimum Environmental Flow should be corrected as soon as possible.
3.6.3. If the project has a reservoir, water flow should be maintained at Minimum Environmental Flow while the reservoir is being filled.

3.7. Water Quality

3.7.1. Water quality should be monitored weekly during construction, to assure there are no harmful impacts from construction or the workers’ housing.
3.7.2. The water should be tested for temperature, acidity (pH), colour, dissolved oxygen (DO), and turbidity.
3.7.3. If water quality is found to decrease during construction, the problem should be corrected as soon as possible and water quality should be monitored once every two days until it returns to normal.
3.7.4. If the project has a reservoir, the water quality of the reservoir, in particular the DO, should be measured before operations begin, to assess and minimise impacts downstream during the initial release.

3.8. Weir and Power Canal / Penstock or Dam

3.8.1. If removal of any large trees is unavoidable when constructing the power canal and penstock, the weir or dam, and any related infrastructure, wood from trees removed by the developer will be given to the community, or if on private land to the land owner. For every tree felled, the developer will do compensatory
planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.8.2. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.

3.8.3. Trash racks should be installed to prevent fish and other aquatic life from entering the canal.

3.9. Power House and Related Infrastructure

3.9.1. If removal of any large trees is unavoidable at the sites for power house and any related infrastructure, the wood from those trees removed by the developer will be given to the community, or if on private land to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.9.2. The construction site for the power house and any related infrastructure should be adequately protected from theft or other interference during construction.

3.10. Clearance of Area to be Inundated

3.10.1. To minimise potential deoxygenation of the water caused by anaerobic biodegradation of the remaining organic matter after impoundment, the developer will clear some of the biomass.

3.10.2. Large trees will be felled and removed by the developer, and the wood from those trees given to the community, or if the tree is on private land to the land owner.

3.10.3. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value to the community (such as fruit trees).

3.10.4. Small trees, bushes, and other biomass that could be used for fuelwood, charcoal, compost, etc., can be removed and the material either used by the community, or if on private land the land owner, or finally the developer if neither the owner nor community want the material.

3.10.5. Other biomass does not need to be removed, as the impacts from impoundment will be minimal.

3.11. Plant Clearance Along Mini-Grid

3.11.1. Final alignment of the mini-grid should try to minimise the loss of existing tree cover.

3.11.2. If removal of any large trees is unavoidable, the wood from those trees removed by the developer will be given to the community, or if on private land to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.12. Physical Cultural Resources
3.12.1. If at any time during construction the developer or its workers come across a “chance find,” that is, finds an item or site that appears to be archaeologically, historically, or culturally important, either nationally or locally, work on that site should be stopped immediately, the site protected, and the Chance Find Procedures in this ESMF be followed.

3.12.2. Project design should then be immediately altered to avoid the site.

3.13. **Installation in Households**

3.13.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.

3.13.2. All connections and wiring in households must be done by the developer only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.

3.13.3. If the household already has wiring, the developer should replace it with the wiring and materials provided under the sub-project.

3.13.4. The connections, meters and fuses should be placed out of reach and inaccessible to young children.

3.14. **Installation of Public Lighting**

3.14.1. The decision for location of light points (bulbs) should be decided by the contractor only after detailed discussion with the public facility authorities, but the contractor has to evaluate the safety of the suggested positions.

3.14.2. All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.

3.14.3. If the site already has wiring, the contractor should replace it with the wiring and materials provided under the sub-project.

3.15. **Waste Management**

3.15.1. The developer shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.

3.15.2. During construction, the developer will handle and dispose of waste according to the Waste Management Plan approved by the DRD, including arrangements for recyclable materials and toxic waste, so that debris and waste do not accumulate.

3.15.3. After construction, the developer shall clear all construction and storage sites and the workers’ housing site of all debris and waste.

3.15.4. The developer shall restore those sites to as near the original condition as possible.

3.16. **Reporting**

3.16.1. The developer shall include sections in its monthly reports on compliance with environmental and social safeguards, including the ESMP, Waste Management Plan, and other issues covered in this ESCoP.

4. **Operations**
4.1. Protection and Safety of Infrastructure and Equipment During Operation

4.1.1. Proper protection of vulnerable points in the system will be put in place (such as fencing, cages, locks, etc.), regularly inspected by the developer and the VEC, and maintained.

4.2. Water Flow and Quality

4.2.1. During operations no less than Minimum Environmental Flow should be maintained
4.2.2. Excess flow should be regulated to avoid flooding to downstream areas
4.2.3. Water quality should be measured periodically

4.3. Repairs and Maintenance

4.3.1. The contractor shall follow all relevant environmental measures above when carrying out any maintenance or repair work.
4.3.2. The practices detailed in Section 3 on Construction should be complied with for all repair and maintenance work.

4.4. Waste Management

4.4.1. Any equipment or materials that need to be replaced should be disposed according to measures set by the DRD.
4.4.2. Recyclable or toxic materials should be disposed according to the arrangements set in the Waste Management Plan for construction, or according to measures set by the DRD, whichever is stricter.
4.4.3. Debris from the trash racks should be separated into organic and inorganic matter, with the organic matter used for compost and the inorganic matter disposed according to arrangements set in the Waste Management Plan.

4.5. Community Health and Safety

4.5.1. The community will be informed through posters, brochures, and other means, of the risks and dangers of tampering with any part of the system
4.5.2. The developer will install proper safety and warning signs to inform the public of potential hazards
Environmental and Social Code of Practice for Solar-Diesel Mini-grid Systems

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice (ESCoP) provides guidelines to follow for the preparation, construction, and operation of small-scale solar-diesel mini-grid sub-projects under the National Electrification Project (NEP) of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The developer shall comply with all relevant national laws and regulations on environmental conservation and management and with all applicable World Bank environmental and social safeguards throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.3. Consultation and Disclosure

The developer shall consult with and provide adequate and timely information to the communities and other people affected by the project throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.4. Language

Communication with affected people should be in a language they understand clearly and easily. If the contractor and / or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

2. Project Planning and Preparation

2.1. Evidence of Compliance with Environmental Laws and World Bank Safeguards Policies

2.1.1. The project proposal documents shall include all applicable clearances pertaining to environmental protection and management under the laws and regulations of the Government of Myanmar and shall contain the necessary plans and procedures for compliance of the same

2.1.2. The project proposal documents shall include the environmental and social safeguards screening form and shall contain the necessary plans and procedures for compliance to any safeguards triggered by the sub-project

2.1.3. Approval of the projects will be subject to review and approval by the DRD Safeguards Team for the NEP of the above-mentioned plans and procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
2.2. Consultation with Communities and Other Affected People

2.2.1. Consultation on project plans
   2.2.1.1. The developer shall consult with the communities, both men and women, to be served by the mini-grid on the proposed plans for the project.
   2.2.1.2. The sub-project proposal documents must show evidence of these consultations, including any concerns and recommendations that have been raised, and show evidence of agreement by the communities and other affected people to the project plans.

2.2.2. Consultation on compliance with safeguards and environmental laws and regulations
   2.2.2.1. The developer shall also consult with the communities and other affected people, both men and women, on the procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
   2.2.2.2. The project proposal documents must show evidence of agreement by the communities and other affected people to the selection of the site for the array of solar panels and storage batteries, the diesel generator, fuel storage facilities, and any other infrastructure of the project.

2.3. Site Selection for Infrastructure and Grid Route

2.3.1. VEC members and other village representatives, both men and women, shall be consulted on selection of the sites for solar panels and power station, the diesel generator, fuel storage facilities, and any related infrastructure; the proposed route of the grid; and lighting for public buildings and street lights.
   2.3.2. The sites selected for the diesel generator and fuel storage facilities must be free from risk of erosion or other damage that may cause runoff into waterways, agricultural areas, residential areas or other sites used by the community. The project proposal should include plans to limit any spill and for cleaning up and rehabilitation of areas affected by a spill.
   2.3.3. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.
   2.3.4. The land used for the infrastructure shall be acquired according to Section 2.6.

2.4. Workers’ Housing, Storage Spaces, and Other Temporary Facilities

2.4.1. If workers need to be in the community for more than 2 to 3 days, the developer will assess the need for workers’ housing, to determine if there is sufficient existing housing available or if temporary housing or workers’ camp is needed. If in the community for only 2 to 3 days, arrangements can be made for the workers to stay at the local temple or school or other public building.
   2.4.2. If workers’ housing is required, the project proposal will include plans for that housing (even if in existing structures), including water supply, sanitation, health care, provision of meals, security, solid and liquid waste management, and the impact on the local communities.
   2.4.3. The project proposal will include plans for storage facilities of construction materials, the protection of these sites, borrow areas, access roads, and/or any other temporary structures or facilities required during construction.
2.4.4. VEC members and other village representatives shall be consulted on the selection of the sites for workers’ housing and facilities, storage spaces, and other temporary facilities.

2.4.5. The workers’ housing and related facilities, the storage facilities, and other temporary facilities should be located on sites free of risk from erosion or runoff into any waterways.

2.4.6. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.4.7. The land used for these sites shall be acquired according to Section 2.6 above.

2.5. Waste Management

2.5.1. The developer shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

2.5.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

2.5.3. The waste management measures adopted by the developer will be reviewed by the PMO of the DRD.

2.6. Land Acquisition and Compensation

2.6.1. All permanent and temporary land acquisition required by the project must be completed prior to construction in accordance with the Resettlement Policy Framework.

2.6.2. Any permanent or temporary loss of livelihood aside from loss of land caused by the project must be compensated prior to construction in accordance with the Resettlement Policy Framework.

2.6.3. Adequate documentation must be provided for review by the DRD-NEP Safeguards Team for all land acquisition and compensation under the Resettlement Policy Framework.

2.6.4. All land acquisition and compensation must be completed before construction can start.

2.7. Physical Cultural Resources

2.7.1. The developer shall consult with the Department of Archaeology, National Museum and Library to determine if there is any site of cultural significance in or near the project area that should be avoided.

2.7.2. The developer shall consult with VEC members and other village leaders to determine if there are any sites in the project area that are of cultural or religious significance to members of the community, including any ethnic or religious minorities in the community, and project design should be altered to avoid any such sites.

2.8. Preparation of an Environmental and Social Management Plan, Resettlement Action Plan, and/or Indigenous Peoples Plan
2.8.1. If the screening forms and assessments indicate any environmental and/or social issues that need to be mitigated or avoided, the PMO may request the developer prepare an Environmental and Social Management Plan (ESMP), a Resettlement Action Plan (RAP), and/or an Indigenous Peoples Plan as needed.

2.8.2. The ESMP will indicate how the developer will manage those environmental and/or social issues during construction and operation of the sub-project and be included in the project plans (proposal or feasibility study).

2.8.3. The RAP will indicate how the developer will handle any compensation required for land acquisitions, loss of assets, or loss of livelihoods, and provide evidence of that compensation.

2.8.4. The IPP will detail the procedures in conducting free, prior and informed consultations with ethnic minorities in order to obtain their broad community support.

2.8.5. If no ESMP, RAP, or IPP is required, this ESCoP will serve as the framework for managing environmental and/or social issues during construction and operation of the sub-project.

2.9. Requirements for Initial Environmental Evaluation

2.9.1. If the sub-project is 5 Mw or greater, an Initial Environmental Evaluation (IEE) is required and must be approved by the Environmental Conservation Department.

2.9.2. An IEE may be requested by the DRD Safeguards Team if the sub-project is expected to have any significant environmental or social impacts.

3. Construction

3.1. Workers’ Housing and Facilities

3.1.1. If temporary housing is built or provided, it should be built with adequate and safe materials, and with adequate ventilation, natural and artificial lighting, and protection from rain and storms.

3.1.2. The housing should be on sites free from flooding and other natural hazards.

3.1.3. The housing should be kept free from rubbish and other refuse.

3.1.4. The site should have an adequate supply of clean water for consumption, personal hygiene and other domestic uses.

3.1.5. The site should have adequate drainage to avoid stagnant water.

3.1.6. Facilities must be available for adequate removal or disposal of waste water, sewage, and solid waste. Containers should be available for rubbish collection.

3.1.7. Toilets, showers, and other sanitary facilities should be clean, safe, and adequate number for the work force. Separate facilities should be available for females in the workforce.

3.1.8. A canteen where food is prepared for the workers and/or cooking facilities where the workers prepare their own food should be provided, with the facilities adequately furnished and designed for good hygiene.

3.1.9. Clean, safe, and adequate facilities for workers to wash and dry clothes should be provided.

3.1.10. First aid kits and facilities should be provided, with separate space available for any sick or injured workers. A sufficient number of workers should be provided training in administering first aid.

3.1.11. Adequate security should be provided at the workers’ housing.
3.2. Workers’ Code of Conduct

3.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.

3.2.2. The code of conduct should be provided in writing and on posters in the workers’ housing and at construction sites.

3.2.3. The code should include, but not be limited to:
   3.2.3.1. instructions on waste disposal and hygiene
   3.2.3.2. prohibition on use of illegal drugs
   3.2.3.3. prohibition on theft of personal or community property
   3.2.3.4. prohibition on hunting, fishing, or other activities causing harm to the natural environment
   3.2.3.5. restrictions on drinking or gambling with members of the community
   3.2.3.6. prohibition on making any unwanted verbal or sexual advances to those in the community
   3.2.3.7. prohibition on vandalism, theft, desecration, or otherwise damage to items or sites considered physical cultural resources in 2.7 above.
   3.2.3.8. awareness of religious practices or social customs of the community if different from that of the workers.

3.3. Occupational Health and Safety

3.3.1. Personal Protective Equipment
   3.3.1.1. Workers must use personal protective equipment (PPE) and protective clothing
   3.3.1.2. People not involved with installation should be kept safely away from the worksites.

3.3.2. Working at height
   3.3.2.1. If working at heights, sufficient protection against falls must be in place.
   3.3.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

3.4. Community Health and Safety

3.4.1. The community should be informed of the potential risks to health and safety during construction. These include risks of:
   3.4.1.1. road accidents
   3.4.1.2. communicable diseases from the workers, including HIV/AIDS and other sexually transmitted diseases
   3.4.1.3. other undesirable contact from the workers, as noted in 3.2.3 above.

3.4.2. The community should be informed of potential environmental impacts caused by the project, such as
   3.4.2.1. dust, pollution, and noise during construction
   3.4.2.2. pollution and noise during operation
   3.4.2.3. risks of and emergency procedures for fuel spills
   3.4.2.4. risks of and emergency procedures for accidents

3.4.3. The developer will install proper safety and warning signs to inform the public of potential hazards during construction

3.5. Construction Near Waters
3.5.1. Runoff from construction entering any water body should be free of pollutants and generally free of sediments.
3.5.2. No wastewater, sewage or other drainage from construction or from the workers’ housing should flow into the water bodies.
3.5.3. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.5.4. Cutting of embankments of water bodies should be avoided or if necessary kept to a minimum to avoid flooding of surrounding areas.
3.5.5. Alternative drain inlets and outlets should be provided in the event existing drainage channels of the water body are closed.
3.5.6. No waste from the construction sites or from the workers’ housing should be disposed in the water bodies.


3.6.1. If removal of any large trees is unavoidable at the sites for the solar panels, the power station, the diesel generator, fuel storage facilities, and any related infrastructure, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.
3.6.2. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.6.3. Grease traps or containers should be used to capture potential oil spillage from the diesel engine. The exhaust pipe from the diesel engine should be checked for its height according to relevant technical specifications.
3.6.4. The solar panels, power station, the diesel generator, fuel storage facilities, and any related infrastructure should be adequately protected from theft or other interference during construction.
3.6.5. If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.
3.6.6. Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.
3.6.7. Trees should be planted in the compound of the diesel generator (but not blocking the solar panels) to absorb some of the emissions and particular matter.

3.7. Plant Clearance Along Mini-Grid

3.7.1. Final alignment of the mini-grid should try to minimise the loss of existing tree cover.
3.7.2. If removal of any large trees is unavoidable, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at
sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.8. Physical Cultural Resources

3.8.1. If at any time during construction the developer or its workers comes across a “chance find,” that is, finds an item or site that appears to be archaeologically, historically, or culturally important, either nationally or locally, work on that site should be stopped immediately, the site protected, and the Chance Find Procedures in this ESMF be followed.

3.8.2. Project design should then be immediately altered to avoid the site.

3.9. Installation in Households

3.9.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.

3.9.2. All connections and wiring in households must be done by the developer only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.

3.9.3. If the household already has wiring, the developer should replace it with the wiring and materials provided under the sub-project.

3.9.4. The connections, meters and fuses should be placed out of reach and inaccessible to young children.

3.10. Installation of Public Lighting

3.10.1. The decision for location of light points (bulbs) should be decided by the contractor only after detailed discussion with the public facility authorities, but the contractor has to evaluate the safety of the suggested positions.

3.10.2. All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.

3.10.3. If the site already has wiring, the contractor should replace it with the wiring and materials provided under the sub-project.

3.11. Waste Management

3.11.1. The developer shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measures in waste disposal.

3.11.2. During construction, the developer will handle and dispose of waste according to the Waste Management Plan approved by the DRD, including arrangements for recyclable materials and toxic waste, so that debris and waste do not accumulate.

3.11.3. After construction, the developer shall clear all construction and storage sites and the workers’ housing site of all debris and waste.

3.11.4. The developer shall restore those sites to as near the original condition as possible.

3.12. Reporting
3.12.1. The developer shall include sections in its monthly reports on compliance with environmental and social safeguards, including the ESMP, Waste Management Plan, and other issues covered in this ESCoP.

4. Operations

4.1. Protection and Safety of Infrastructure and Equipment During Operation

4.1.1. Proper protection of vulnerable points in the system will be put in place (such as fencing, cages, locks, etc.), regularly inspected by the developer and the VEC, and maintained.

4.1.2. If replacement batteries are stored on site, they should be in a site free from erosion, runoff, or potential threats, to avoid damage to the batteries and risk of toxic pollution.

4.1.3. Diesel fuel should be stored in a site free from erosion, runoff, or potential threats, to avoid damage and risk of spillage.

4.2. Occupational Safety

4.2.1. Personal protective equipment (such as ear plugs for noise, proper clothing) should be provided.

4.2.2. If noise is found to exceed 80 dB (WHO Guidelines value), soundproofing should be seriously considered.

4.3. Repairs and Maintenance

4.3.1. The developer shall follow all relevant environmental measures above when carrying out any maintenance or repair work.

4.3.2. The practices detailed in Section 3 on Construction should be complied with for all repair and maintenance work.

4.4. Disposal of Used/Damaged Equipment and Waste Management

4.4.1. The developer shall dispose of any defective or used batteries according to the measures for battery disposal and recycling set by the DRD.

4.4.2. The developer shall dispose of any defective solar panels or other equipment according to measures set by the DRD.

4.4.3. Recyclable or toxic materials should be disposed according to the arrangements set in the Waste Management Plan for construction, or according to measures set by the DRD, whichever is stricter.

4.4.4. All other waste should be disposed according to the arrangements set in the Waste Management Plan for construction.

4.5. Community Health and Safety

4.5.1. The community will be informed through posters, brochures, and other means, of the risks and dangers of tampering with any part of the system.

4.5.2. The developer will install proper safety and warning signs to inform the public of potential hazards.
4.5.3. To protect local residents from excessive noise from the wind turbines or diesel generator, trees will be planted by the developer as necessary to create sound barriers.
Environmental and Social Code of Practice for Biomass-Diesel Mini-grid Systems

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice (ESCoP) provides guidelines to follow for the preparation, construction, and operation of small-scale biomass mini-grid sub-projects under the National Electrification Project (NEP) of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The developer shall comply with all relevant national laws and regulations on environmental conservation and management and with all applicable World Bank environmental and social safeguards throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.3. Consultation and Disclosure

The developer shall consult with and provide adequate and timely information to the communities and other people affected by the project throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.4. Language

Communication with affected people should be in a language they understand clearly and easily. If the contractor and / or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

2. Project Planning and Preparation

2.1. Evidence of Compliance with Environmental Laws and World Bank Safeguards Policies

2.1.1. The project proposal documents shall include all applicable clearances pertaining to environmental protection and management under the laws and regulations of the Government of Myanmar and shall contain the necessary plans and procedures for compliance of the same.

2.1.2. The project proposal documents shall include the environmental and social safeguards screening form and shall contain the necessary plans and procedures for compliance to any safeguards triggered by the sub-project.

2.1.3. Approval of the projects will be subject to review and approval by the DRD Safeguards Team for the NEP of the above-mentioned plans and procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
2.2. Consultation with Communities and Other Affected People

2.2.1. Consultation on project plans
2.2.1.1. The developer shall consult with the communities, both men and women, to be served by the mini-grid on the proposed plans for the project.
2.2.1.2. The sub-project proposal documents must show evidence of these consultations, including any concerns and recommendations that have been raised, and show evidence of agreement by the communities and other affected people to the project plans.

2.2.2. Consultation on compliance with safeguards and environmental laws and regulations
2.2.2.1. The developer shall also consult with the communities and other affected people, both men and women, on the procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
2.2.2.2. The project proposal documents must show evidence of agreement by the communities and other affected people to the selection of the site for the biomass generator, biomass storage facilities, the diesel generator, fuel storage facilities, and of any other infrastructure of the project.

2.3. Site Selection for Infrastructure and Grid Route

2.3.1. VEC members and other village representatives, both men and women, shall be consulted on selection of the sites for biomass generator, biomass storage facilities, the diesel generator, fuel storage facilities, and any related infrastructure; the proposed route of the grid; and lighting for public buildings and street lights.
2.3.2. The sites selected for the biomass generator, biomass storage facilities, diesel generator, and fuel storage facilities must be free from risk of erosion or other damage that may cause runoff into waterways, agricultural areas, residential areas or other sites used by the community. The project proposal should include plans to limit any spill and for cleaning up and rehabilitation of areas affected by a spill.
2.3.3. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.
2.3.4. The land used for the infrastructure shall be acquired according to Section 2.6

2.4. Workers’ Housing, Storage Spaces, and Other Temporary Facilities

2.4.1. If workers need to be in the community for more than 2 to 3 days, the developer will assess the need for workers’ housing, to determine if there is sufficient existing housing available or if temporary housing or workers’ camp is needed. If in the community for only 2 to 3 days, arrangements can be made for the workers to stay at the local temple or school or other public building.
2.4.2. If workers’ housing is required, the project proposal will include plans for that housing (even if in existing structures), including water supply, sanitation, health care, provision of meals, security, solid and liquid waste management, and the impact on the local communities.
2.4.3. The project proposal will include plans for storage facilities of construction materials, the protection of these sites, borrow areas, access roads, and/or any other temporary structures or facilities required during construction.

2.4.4. VEC members and other village representatives shall be consulted on the selection of the sites for workers’ housing and facilities, storage spaces, and other temporary facilities.

2.4.5. The workers’ housing and related facilities, the storage facilities, and other temporary facilities should be located on sites free of risk from erosion or runoff into any waterways.

2.4.6. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.4.7. The land used for these sites shall be acquired according to Section 2.6

2.5. Waste Management

2.5.1. The developer shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

2.5.2. The developer will prepare plans for management and disposal of any ash created from biomass combustion and gasification during operation.

2.5.3. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

2.5.4. The waste management measures adopted by the developer will be reviewed by the PMO of the DRD.

2.6. Land Acquisition and Compensation

2.6.1. All permanent and temporary land acquisition required by the project must be completed prior to construction in accordance with the Resettlement Policy Framework.

2.6.2. Any permanent or temporary loss of livelihood aside from loss of land caused by the project must be compensated prior to construction in accordance with the Resettlement Policy Framework.

2.6.3. Adequate documentation must be provided for review by the DRD-NEP Safeguards Team for all land acquisition and compensation under the Resettlement Policy Framework.

2.6.4. All land acquisition and compensation must be completed before construction can start.

2.7. Physical Cultural Resources

2.7.1. The developer shall consult with the Department of Archaeology, National Museum and Library to determine if there is any site of cultural significance in or near the project area that should be avoided.

2.7.2. The developer shall consult with VEC members and other village leaders to determine if there are any sites in the project area that are of cultural or religious
significance to members of the community, including any ethnic or religious minorities in the community, and project design should be altered to avoid any such sites.

2.8. Preparation of an Environmental and Social Management Plan, Resettlement Action Plan, and/or Indigenous Peoples Plan

2.8.1. If the screening forms and assessments indicate any environmental and/or social issues that need to be mitigated or avoided, the PMO may request the developer prepare an Environmental and Social Management Plan (ESMP), a Resettlement Action Plan (RAP), and/or an Indigenous Peoples Plan as needed.

2.8.2. The ESMP will indicate how the developer will manage those environmental and/or social issues during construction and operation of the sub-project and be included in the project plans (proposal or feasibility study).

2.8.3. The RAP will indicate how the developer will handle any compensation required for land acquisitions, loss of assets, or loss of livelihoods, and provide evidence of that compensation.

2.8.4. The IPP will detail the procedures in conducting free, prior and informed consultations with ethnic minorities in order to obtain their broad community support.

2.8.5. If no ESMP, RAP, or IPP is required, this ESCoP will serve as the framework for managing environmental and/or social issues during construction and operation of the sub-project.

2.9. Requirements for Initial Environmental Evaluation

2.9.1. If the sub-project is 5 Mw or greater, an Initial Environmental Evaluation (IEE) is required and must be approved by the Environmental Conservation Department.

2.9.2. An IEE may be requested by the DRD Safeguards Team if the sub-project is expected to have any significant environmental or social impacts.

3. Construction

3.1. Workers’ Housing and Facilities

3.1.1. If temporary housing is built or provided, it should be built with adequate and safe materials, and with adequate ventilation, natural and artificial lighting, and protection from rain and storms.

3.1.2. The housing should be on sites free from flooding and other natural hazards.

3.1.3. The housing should be kept free from rubbish and other refuse.

3.1.4. The site should have an adequate supply of clean water for consumption, personal hygiene and other domestic uses.

3.1.5. The site should have adequate drainage to avoid stagnant water.

3.1.6. Facilities must be available for adequate removal or disposal of waste water, sewage, and solid waste. Containers should be available for rubbish collection.

3.1.7. Toilets, showers, and other sanitary facilities should be clean, safe, and adequate number for the workforce. Separate facilities should be available for females in the workforce.

3.1.8. A canteen where food is prepared for the workers and/or cooking facilities where the workers prepare their own food should be provided, with the facilities adequately furnished and designed for good hygiene.
3.1.9. Clean, safe, and adequate facilities for workers to wash and dry clothes should be provided.
3.1.10. First aid kits and facilities should be provided, with separate space available for any sick or injured workers. A sufficient number of workers should be provided training in administering first aid.
3.1.11. Adequate security should be provided at the workers’ housing.

3.2. Workers’ Code of Conduct

3.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.
3.2.2. The code of conduct should be provided in writing and on posters in the workers’ housing and at construction sites.
3.2.3. The code should include, but not be limited to:
   3.2.3.1. instructions on waste disposal and hygiene
   3.2.3.2. prohibition on use of illegal drugs
   3.2.3.3. prohibition on theft of personal or community property
   3.2.3.4. prohibition on hunting, fishing, or other activities causing harm to the natural environment
   3.2.3.5. restrictions on drinking or gambling with members of the community
   3.2.3.6. prohibition on making any unwanted verbal or sexual advances to those in the community
   3.2.3.7. prohibition on vandalism, theft, desecration, or otherwise damage to items or sites considered physical cultural resources in 2.7 above.
   3.2.3.8. awareness of religious practices or social customs of the community if different from that of the workers.

3.3. Occupational Health and Safety

3.3.1. Personal Protective Equipment
   3.3.1.1. Workers must use personal protective equipment (PPE) and protective clothing
   3.3.1.2. People not involved with installation should be kept safely away from the worksites.
3.3.2. Working at height
   3.3.2.1. If working at heights, sufficient protection against falls must be in place.
   3.3.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

3.4. Community Health and Safety

3.4.1. The community should be informed of the potential risks to health and safety during construction. These include risks of:
   3.4.1.1. road accidents
   3.4.1.2. communicable diseases from the workers, including HIV/AIDS and other sexually transmitted diseases
   3.4.1.3. other undesirable contact from the workers, as noted in 3.2.3 above.
3.4.2. The community should be informed of potential environmental impacts caused by the project, such as
   3.4.2.1. dust, pollution, and noise during construction
3.4.2.2. pollution and noise during operation
3.4.2.3. risks of and emergency procedures for accidents
3.4.3. The developer will install proper safety and warning signs to inform the public of potential hazards during construction

3.5. Construction Near Waters

3.5.1. Runoff from construction entering any water body should be free of pollutants and generally free of sediments
3.5.2. No wastewater, sewage or other drainage from construction or from the workers’ housing should flow into the water bodies.
3.5.3. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.5.4. Cutting of embankments of water bodies should be avoided or if necessary kept to a minimum to avoid flooding of surrounding areas.
3.5.5. Alternative drain inlets and outlets should be provided in the event existing drainage channels of the water body are closed.
3.5.6. No waste from the construction sites or from the workers’ housing should be disposed in the water bodies.


3.6.1. If removal of any large trees is unavoidable at the sites for the biomass generator and biomass storage facilities, and any related infrastructure, the wood from those trees removed by the developer will be given to the community or, if built on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.
3.6.2. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.6.3. Grease traps or containers should be used to capture potential oil spillage from the diesel engine. The exhaust pipe from the diesel engine should be checked for its height according to relevant technical specifications.
3.6.4. The biomass generator, biomass storage facilities, diesel generator, fuel storage facilities, and any related infrastructure should be adequately protected from theft or other interference during construction.
3.6.5. Trees should be planted in the compound of the diesel generator to absorb some of the emissions and particular matter.

3.7. Plant Clearance Along Mini-Grid

3.7.1. Final alignment of the mini-grid should try to minimise the loss of existing tree cover.
3.7.2. If removal of any large trees is unavoidable, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.
3.8. Physical Cultural Resources

3.8.1. If at any time during construction the developer or its workers come across a “chance find,” that is, finds an item or site that appears to be archaeologically, historically, or culturally important, either nationally or locally, work on that site should be stopped immediately, the site protected, and the Chance Find Procedures in this ESMF be followed.

3.8.2. Project design should then be immediately altered to avoid the site.

3.9. Installation in Households

3.9.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.

3.9.2. All connections and wiring in households must be done by the developer only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.

3.9.3. If the household already has wiring, the developer should replace it with the wiring and materials provided under the sub-project.

3.9.4. The connections, meters and fuses should be placed out of reach and inaccessible to young children.

3.10. Installation of Public Lighting

3.9.5. The decision for location of light points (bulbs) should be decided by the contractor only after detailed discussion with the public facility authorities, but the contractor has to evaluate the safety of the suggested positions.

3.9.6. All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.

3.9.7. If the site already has wiring, the contractor should replace it with the wiring and materials provided under the sub-project.

3.11. Waste Management

3.9.8. The developer shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.

3.9.9. During construction, the developer will handle and dispose of waste according to the Waste Management Plan approved by the DRD, including arrangements for recyclable materials and toxic waste, so that debris and waste do not accumulate.

3.9.10. After construction, the developer shall clear all construction and storage sites and the workers’ housing site of all debris and waste.

3.9.11. The developer shall restore those sites to as near the original condition as possible.

3.12. Reporting
3.9.12. The developer shall include sections in its monthly reports on compliance with environmental and social safeguards, including the ESMP, Waste Management Plan, and other issues covered in this ESCoP.

4. Operations

4.1. Protection and Safety During Operation

4.1.1. Proper protection of vulnerable points in the system will be put in place (such as fencing, cages, locks, etc.), regularly inspected by the developer and the VEC, and maintained.

4.1.2. Safeguard measures such as pressure gauges (manometers), water traps, and sulphur cleaners and outlet pipes, as necessary, should be installed and maintained.

4.1.3. Operators should adhere to conventional safe handling practices, including use of safety equipment or personal protection equipment (PPE), such as gloves, boots, masks, etc.

4.1.4. The biomass should be stored in a site free from erosion, runoff, or potential threats, to avoid damage and risk of polluting nearby areas. The storage facilities should also minimise degradation of the biomass and the production and release of harmful gases and unpleasant odours.

4.1.5. The operator shall assure that the water required for cooling the biomass plants does not deplete the availability of water for domestic use, agriculture, or other uses.

4.1.6. Diesel fuel should be stored in a site free from erosion, runoff, or potential threats, to avoid damage and risk of spillage.

4.2. Occupational Safety

4.2.1. Personal protective equipment (such as ear plugs for noise, proper clothing) should be provided.

4.2.2. If noise is found to exceed 80 dB (WHO Guidelines value), soundproofing should be seriously considered.

4.3. Repairs and Maintenance

4.3.1. The developer shall follow all relevant environmental measures above when carrying out any maintenance or repair work.

4.3.2. The practices detailed in Section 3 on Construction should be complied with for all repair and maintenance work.

4.4. Disposal of Used/Damaged Equipment and Waste Management

4.4.1. The developer shall dispose of any defective or used equipment according to the arrangements set in the Waste Management Plan for construction.

4.4.2. Recyclable or toxic materials should be disposed according to the arrangements set in the Waste Management Plan for construction, or according to measures set by the DRD, whichever is stricter.

4.4.3. All other waste should be disposed according to the arrangements set in the Waste Management Plan for construction.
4.5. Disposal of Ash from Biomass Combustion and Gasification

4.5.1. Ash from the biomass generator should be disposed of in a safe and sustainable manner.
4.5.2. If the ash can be used in fertiliser, it should be given to the community, and the community shown how best to mix the ash with other compost.
4.5.3. If the ash cannot be used in fertiliser, it should be disposed in a safe manner, to avoid pollution, according to the plans developed under 2.5.2 above.

4.6. Community Health and Safety

4.6.1. The community will be informed through posters, brochures, and other means, of the risks and dangers of tampering with any part of the system.
4.6.2. The developer will install proper safety and warning signs to inform the public of potential hazards.
4.6.3. To protect local residents from excessive noise from diesel generator, trees will be planted by the developer as necessary to create sound barriers.
Environmental and Social Code of Practice for Wind-Diesel Mini-grid Systems

1. General

1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice (ESCoP) provides guidelines to follow for the preparation, construction, and operation of small-scale wind-diesel mini-grid sub-projects under the National Electrification Project (NEP) of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

1.2. Compliance to Legal Requirements

The developer shall comply with all relevant national laws and regulations on environmental conservation and management and with all applicable World Bank environmental and social safeguards throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.3. Consultation and Disclosure

The developer shall consult with and provide adequate and timely information to the communities and other people affected by the project throughout project planning, preparation and construction, and during operation of the mini-grid system.

1.4. Language

Communication with affected people should be in a language they understand clearly and easily. If the contractor and / or responsible authority cannot communicate in that language, a translator must be engaged to provide the oral or written information as needed.

2. Project Planning and Preparation

2.1. Evidence of Compliance with Environmental Laws and World Bank Safeguards Policies

2.1.1. The project proposal documents shall include all applicable clearances pertaining to environmental protection and management under the laws and regulations of the Government of Myanmar and shall contain the necessary plans and procedures for compliance of the same.

2.1.2. The project proposal documents shall include the environmental and social safeguards screening form and shall contain the necessary plans and procedures for compliance to any safeguards triggered by the sub-project.

2.1.3. Approval of the projects will be subject to review and approval by the DRD Safeguards Team for the NEP of the above-mentioned plans and procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
2.2. Consultation with Communities and Other Affected People

2.2.1. Consultation on project plans
   2.2.1.1. The developer shall consult with the communities, both men and women, to be served by the mini-grid on the proposed plans for the project.
   2.2.1.2. The sub-project proposal documents must show evidence of these consultations, including any concerns and recommendations that have been raised, and show evidence of agreement by the communities and other affected people to the project plans.

2.2.2. Consultation on compliance with safeguards and environmental laws and regulations
   2.2.2.1. The developer shall also consult with the communities and other affected people, both men and women, on the procedures to comply with national environmental laws and regulations and with World Bank environmental and social safeguards.
   2.2.2.2. The project proposal documents must show evidence of agreement by the communities and other affected people to the selection of the site for the array of wind turbines and storage batteries, the diesel generator, fuel storage facilities, and of any other infrastructure of the project.

2.3. Site Selection for Infrastructure and Grid Route

2.3.1. VEC members and other village representatives, both men and women, shall be consulted on selection of the sites for wind turbines and power station, the diesel generator, fuel storage facilities, and any related infrastructure; the proposed route of the grid; and lighting for public buildings and street lights.

2.3.2. VEC members and other village representatives, both men and women, shall be consulted about bird or bat habitats and migration patterns in the area that should be avoided when selecting the site of the wind turbines.

2.3.3. The sites selected for the diesel generator and fuel storage facilities must be free from risk of erosion or other damage that may cause runoff into waterways, agricultural areas, residential areas or other sites used by the community. The project proposal should include plans to limit any spill and for cleaning up and rehabilitation of areas affected by a spill.

2.3.4. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.3.5. The land used for the infrastructure shall be acquired according to Section 2.6.

2.4. Workers’ Housing, Storage Spaces, and Other Temporary Facilities

2.4.1. If workers need to be in the community for more than 2 to 3 days, the developer will assess the need for workers’ housing, to determine if there is sufficient existing housing available or if temporary housing or workers’ camp is needed. If in the community for only 2 to 3 days, arrangements can be made for the workers to stay at the local temple or school or other public building.

2.4.2. If workers’ housing is required, the project proposal will include plans for that housing (even if in existing structures), including water supply, sanitation, healthcare, provision of meals, security, solid and liquid waste management, and the impact on the local communities.
2.4.3. The project proposal will include plans for storage facilities of construction materials, the protection of these sites, borrow areas, access roads, and/or any other temporary structures or facilities required during construction.

2.4.4. VEC members and other village representatives shall be consulted on the selection of the sites for workers’ housing and facilities, storage spaces, and other temporary facilities.

2.4.5. The workers’ housing and related facilities, the storage facilities, and other temporary facilities should be located on sites free of risk from erosion or runoff into any waterways.

2.4.6. The proposed sites are to be presented to the community and other affected people for their consideration and agreement under Section 2.2 above.

2.4.7. The land used for these sites shall be acquired according to Section 2.6

2.5. Waste Management

2.5.1. The developer shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

2.5.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Environmental Conservation and Forestry.

2.5.3. The waste management measures adopted by the developer will be reviewed by the PMO of the DRD.

2.6. Land Acquisition and Compensation

2.6.1. All permanent and temporary land acquisition required by the project must be completed prior to construction in accordance with the Resettlement Policy Framework.

2.6.2. Any permanent or temporary loss of livelihood aside from loss of land caused by the project must be compensated prior to construction in accordance with the Resettlement Policy Framework.

2.6.3. Adequate documentation must be provided for review by the DRD-NEP Safeguards Team for all land acquisition and compensation under the Resettlement Policy Framework.

2.6.4. All land acquisition and compensation must be completed before construction can start.

2.7. Physical Cultural Resources

2.7.1. The developer shall consult with the Department of Archaeology, National Museum and Library to determine if there is any site of cultural significance in or near the project area that should be avoided.

2.7.2. The developer shall consult with VEC members and other village leaders to determine if there are any sites in the project area that are of cultural or religious significance to members of the community, including any ethnic or religious minorities in the community, and project design should be altered to avoid any such sites.
2.8. Preparation of an Environmental and Social Management Plan, Resettlement Action Plan, and/or Indigenous Peoples Plan

2.8.1. If the screening forms and assessments indicate any environmental and/or social issues that need to be mitigated or avoided, the PMO may request the developer prepare an Environmental and Social Management Plan (ESMP), a Resettlement Action Plan (RAP), and/or an Indigenous Peoples Plan as needed.

2.8.2. The ESMP will indicate how the developer will manage those environmental and/or social issues during construction and operation of the sub-project and be included in the project plans (proposal or feasibility study).

2.8.3. The RAP will indicate how the developer will handle any compensation required for land acquisitions, loss of assets, or loss of livelihoods, and provide evidence of that compensation.

2.8.4. The IPP will detail the procedures in conducting free, prior and informed consultations with ethnic minorities in order to obtain their broad community support.

2.8.5. If no ESMP, RAP, or IPP is required, this ESCoP will serve as the framework for managing environmental and/or social issues during construction and operation of the sub-project.

2.9. Requirements for Initial Environmental Evaluation

2.9.1. If the sub-project is 5 Mw or greater, an Initial Environmental Evaluation (IEE) is required and must be approved by the Environmental Conservation Department.

2.9.2. An IEE may be requested by the DRD Safeguards Team if the sub-project is expected to have any significant environmental or social impacts.

3. Construction

3.1. Workers’ Housing and Facilities

3.1.1. If temporary housing is built or provided, it should be built with adequate and safe materials, and with adequate ventilation, natural and artificial lighting, and protection from rain and storms.

3.1.2. The housing should be on sites free from flooding and other natural hazards.

3.1.3. The housing should be kept free from rubbish and other refuse.

3.1.4. The site should have an adequate supply of clean water for consumption, personal hygiene and other domestic uses.

3.1.5. The site should have adequate drainage to avoid stagnant water.

3.1.6. Facilities must be available for adequate removal or disposal of waste water, sewage, and solid waste. Containers should be available for rubbish collection.

3.1.7. Toilets, showers, and other sanitary facilities should be clean, safe, and adequate number for the workforce. Separate facilities should be available for females in the workforce.

3.1.8. A canteen where food is prepared for the workers and/or cooking facilities where the workers prepare their own food should be provided, with the facilities adequately furnished and designed for good hygiene.

3.1.9. Clean, safe, and adequate facilities for workers to wash and dry clothes should be provided.
3.1.10. First aid kits and facilities should be provided, with separate space available for any sick or injured workers. A sufficient number of workers should be provided training in administering first aid.

3.1.11. Adequate security should be provided at the workers’ housing.

3.2. Workers’ Code of Conduct

3.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.

3.2.2. The code of conduct should be provided in writing and on posters in the workers’ housing and at construction sites.

3.2.3. The code should include, but not be limited to:
   3.2.3.1. instructions on waste disposal and hygiene
   3.2.3.2. prohibition on use of illegal drugs
   3.2.3.3. prohibition on theft of personal or community property
   3.2.3.4. prohibition on hunting, fishing, or other activities causing harm to the natural environment
   3.2.3.5. restrictions on drinking or gambling with members of the community
   3.2.3.6. prohibition on making any unwanted verbal or sexual advances to those in the community
   3.2.3.7. prohibition on vandalism, theft, desecration, or otherwise damage to items or sites considered physical cultural resources in 2.7 above.
   3.2.3.8. awareness of religious practices or social customs of the community if different from that of the workers.

3.3. Occupational Health and Safety

3.3.1. Personal Protective Equipment
   3.3.1.1. Workers must use personal protective equipment (PPE) and protective clothing
   3.3.1.2. People not involved with installation should be kept safely away from the worksites.

3.3.2. Working at height
   3.3.2.1. If working at heights, sufficient protection against falls must be in place.
   3.3.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

3.4. Community Health and Safety

3.4.1. The community should be informed of the potential risks to health and safety during construction. These include risks of:
   3.4.1.1. road accidents
   3.4.1.2. communicable diseases from the workers, including HIV/AIDS and other sexually transmitted diseases
   3.4.1.3. other undesirable contact from the workers, as noted in 3.2.3 above.

3.4.2. The community should be informed of potential environmental impacts caused by the project, such as
   3.4.2.1. dust, pollution, and noise during construction
   3.4.2.2. pollution and noise during operation
   3.4.2.3. risks of and emergency procedures for fuel spills
3.4.2.4. Risks of and emergency procedures for accidents
3.4.3. The developer will install proper safety and warning signs to inform the public of potential hazards during construction

3.5. Construction Near Waters

3.5.1. Runoff from construction entering any water body should be free of pollutants and generally free of sediments.
3.5.2. No wastewater, sewage or other drainage from construction or from the workers’ housing should flow into the water bodies.
3.5.3. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.5.4. Cutting of embankments of water bodies should be avoided or if necessary kept to a minimum to avoid flooding of surrounding areas.
3.5.5. Alternative drain inlets and outlets should be provided in the event existing drainage channels of the water body are closed.
3.5.6. No waste from the construction sites or from the workers’ housing should be disposed in the water bodies.

3.6. Wind Turbines, Power Station, Diesel Generator, Fuel Storage Facilities, and Related Infrastructure

3.6.1. If removal of any large trees is unavoidable at the sites for the wind turbines, the power station, the diesel generator, fuel storage facilities, and any related infrastructure, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.
3.6.2. Dirt, silt, or sediment should be collected and stockpiled for possible reuse, for example surfacing of slopes that need to be re-vegetated. Those stockpiles need to be protected from runoff.
3.6.3. Grease traps or containers should be used to capture potential oil spillage from the diesel engine. The exhaust pipe from the diesel engine should be checked for its height according to relevant technical specifications.
3.6.4. The wind turbines, power station, the diesel generator, fuel storage facilities, and any related infrastructure should be adequately protected from theft or other interference during construction.
3.6.5. If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.
3.6.6. Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.
3.6.7. Trees should be planted in the compound of the diesel generator (but not blocking the wind turbines) to absorb some of the emissions and particular matter.

3.7. Plant Clearance Along Mini-Grid
3.7.1. Final alignment of the mini-grid should try to minimise the loss of existing tree cover.
3.7.2. If removal of any large trees is unavoidable, the wood from those trees removed by the developer will be given to the community or, if on private land, to the land owner. For every tree felled, the developer will do compensatory planting, at sites selected by the community, of two (2) saplings of species of equal or greater value, such as fruit trees.

3.8. Physical Cultural Resources

3.8.1. If at any time during construction the developer or its workers comes across a “chance find,” that is, finds an item or site that appears to be archaeologically, historically, or culturally important, either nationally or locally, work on that site should be stopped immediately, the site protected, and the Chance Find Procedures in this ESMF be followed.
3.8.2. Project design should then be immediately altered to avoid the site.

3.9. Installation in Households

3.9.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.
3.9.2. All connections and wiring in households must be done by the developer only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.
3.9.3. If the household already has wiring, the developer should replace it with the wiring and materials provided under the sub-project.
3.9.4. The connections, meters and fuses should be placed out of reach and inaccessible to young children.

3.10. Installation of Public Lighting

3.10.1. The decision for location of light points (bulbs) should be decided by the contractor only after detailed discussion with the public facility authorities, but the contractor has to evaluate the safety of the suggested positions.
3.10.2. All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.
3.10.3. If the site already has wiring, the contractor should replace it with the wiring and materials provided under the sub-project.

3.11. Waste Management

3.11.1. The developer shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.
3.11.2. During construction, the developer will handle and dispose of waste according to the Waste Management Plan approved by the DRD, including arrangements for recyclable materials and toxic waste, so that debris and waste do not accumulate.
3.11.3. After construction, the developer shall clear all construction and storage sites and the workers’ housing site of all debris and waste.
3.11.4. The developer shall restore those sites to as near the original condition as possible.

3.12. Reporting

3.12.1. The developer shall include sections in its monthly reports on compliance with environmental and social safeguards, including the ESMP, Waste Management Plan, and other issues covered in this ESCoP.

4. Operations

4.1. Protection and Safety of Infrastructure and Equipment During Operation

4.1.1. Proper protection of vulnerable points in the system will be put in place (such as fencing, cages, locks, etc.), regularly inspected by the developer and the VEC, and maintained.
4.1.2. If replacement batteries are stored on site, they should be in a site free from erosion, runoff, or potential threats, to avoid damage to the batteries and risk of toxic pollution.
4.1.3. Diesel fuel should be stored in a site free from erosion, runoff, or potential threats, to avoid damage and risk of spillage.

4.2. Occupational Safety

4.2.1. Personal protective equipment (such as ear plugs for noise, proper clothing) should be provided.
4.2.2. If noise is found to exceed 80 dB (WHO Guidelines value), soundproofing should be seriously considered.

4.3. Repairs and Maintenance

4.3.1. The developer shall follow all relevant environmental measures above when carrying out any maintenance or repair work.
4.3.2. The practices detailed in Section 3 on Construction should be complied with for all repair and maintenance work.

4.4. Disposal of Used/Damaged Equipment and Waste Management

4.4.1. The developer shall dispose of any defective or used batteries according to the measures for battery disposal and recycling set by the DRD
4.4.2. The developer shall dispose of any defective components of the wind turbines or other equipment according to measures set by the DRD
4.4.3. Recyclable or toxic materials should be disposed according to the arrangements set in the Waste Management Plan for construction, or according to measures set by the DRD, whichever is stricter.
4.4.4. All other waste should be disposed according to the arrangements set in the Waste Management Plan for construction.

4.5. Community Health and Safety
4.5.1. The community will be informed through posters, brochures, and other means, of the risks and dangers of tampering with any part of the system.

4.5.2. The developer will install proper safety and warning signs to inform the public of potential hazards.

4.5.3. To protect local residents from excessive noise from the wind turbines or diesel generator, trees will be planted by the developer as necessary to create sound barriers.