REPUBLIC OF THE UNION OF MYANMAR

Myanmar National Electrification Project
Environmental and Social Management Framework

May 21, 2015

TABLE OF CONTENTS

Abbreviations

ADB	Asian Development Bank
CDD	Community Driven Development
CERC	Contingency Emergency Response Component
CPF	Country Partnership Framework
DFID	Department for International Development
DP	Development Partner
DRD	Department for Rural Development
EI	Earth Institute
EMP	Energy Master Plan
EMR	Enlightened Myanmar Research
ESE	Electricity Supply Enterprise
ESMF	Environmental and Social Management Framework
FGD	Focus Group Discussion
GoM	Government of Myanmar
GRS	Grievance Redress System
HH	Household
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IPP	Indigenous Peoples Plan
IPPF	Indigenous Peoples Planning Framework
JICA	Japan International Cooperation Agency
KII	Key Informant Interview
kWh	Kilowatt hour
LV	Low Voltage
MEPP	Myanmar Electric Power Project
MLFRD	Ministry for Livestock and Rural Development
MIGA	Multilateral Investment Guarantee Agency
MOAI	Ministry of Agriculture and Irrigation
MOECAF	Ministry of Environmental Conservation and Forestry
MOEP	Ministry of Electric Power
MV	Medium Voltage
NEMP	National Electricity Master Plan
NEP	National Electrification Plan
OBA	Output Based Aid
OP	Operational Policy

PFM	Public Finance Management
PMO	Programme Management Office
PSIA	Poverty and Social Impact Assessment
PV	Photovoltaic
REAM	Renewable Energy Association of Myanmar
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SG	Safeguards Specialist
SHS	Solar Home System
SME	Small and Medium Sized Enterprise
SRE	Self-Reliant Electrification
TA	Technical Assistance
UHC	Universal Health Coverage
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
WBG	World Bank Group
YESB	Yangon Electricity Supply Board

1. Executive Summary

1. Description of the proposed National Electrification Project (NEP)

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 project will also include 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 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 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: 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.

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. 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/BP4.37

Table 1.1 below summarizes the WBG's Safeguards Assessment of the Project.

TABLE 1.1: WBG SAFEGUARDS ASSESSMENT FOR THE NEP

Safeguard Policies	Triggered?	Explanation

Safeguard Policies	**Triggered?**	**Explanation**
Environmental Assessment OP/BP 4.01	Yes	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 has been given a **Category B** classification under OP4.01.
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. The ESMF provides specific screening provisions to determine if natural habitats are an issue, as well as what environmental instrument is needed.

Safeguard Policies	**Triggered?**	**Explanation**
Forests OP/BP 4.36	No	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.
Pest Management Op 4.09	No	Myanmar has no practice of pesticide use for maintenance of cleared power line corridors
Physical Cultural Resources OP/BP 4.11	Yes	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 determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF. The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include “Chance Find” procedures.
Indigenous Peoples OP/BP 4.10	Yes	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

Safeguard Policies	Triggered?	Explanation
		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 IPPF was informed by the PSIA and consultations undertaken during project preparation following requirement for social impact assessment under OP 4.01 and 4.10.
Involuntary Resettlement OP/BP 4.12	Yes	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

Safeguard Policies	**Triggered?**	**Explanation**
		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 process for subprojects concerning involuntary resettlement impacts. The RPF also includes a protocol for voluntary land donations.
Safety of Dams OP/BP 4.37	Yes	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 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.

Safeguard Policies	Triggered?	Explanation
Projects on International Waterways OP/BP 7.50	No	The project interventions are 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.
Projects in Disputed Areas OP/BP 7.60	No	The project interventions are not in disputed areas and will be wholly within the borders of Myanmar.

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 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 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.

3. 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.
- An Indigenous Peoples Policy Framework (IPPF).
- 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 Code of Practice (ECoP).

4. Private Investors

It is expected that part of the off-grid subproject investments to be funded by 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 proposed 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 (MOEP) and Ministry of Fisheries, Livestock and Rural Development. 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, DFID, Norway, Australia, 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.

3. Project description

The NEP has the following components:

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

The grid component will support the purchase of equipment to extend distribution networks currently operated by the Yangon Electricity Supply Board (YESB) and 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 will include 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.

MOEP Project Management Office manages this component, working closely with ESE, YESB and other partners.

International Development Assistance (IDA) funding will finance procurement of goods (transformers, poles, conductors, cables, meters and auxiliary equipment), which ESE and YESB 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 will target 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, diesel and hybrid systems (e.g. diesel/solar). MLFRD 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 will 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].

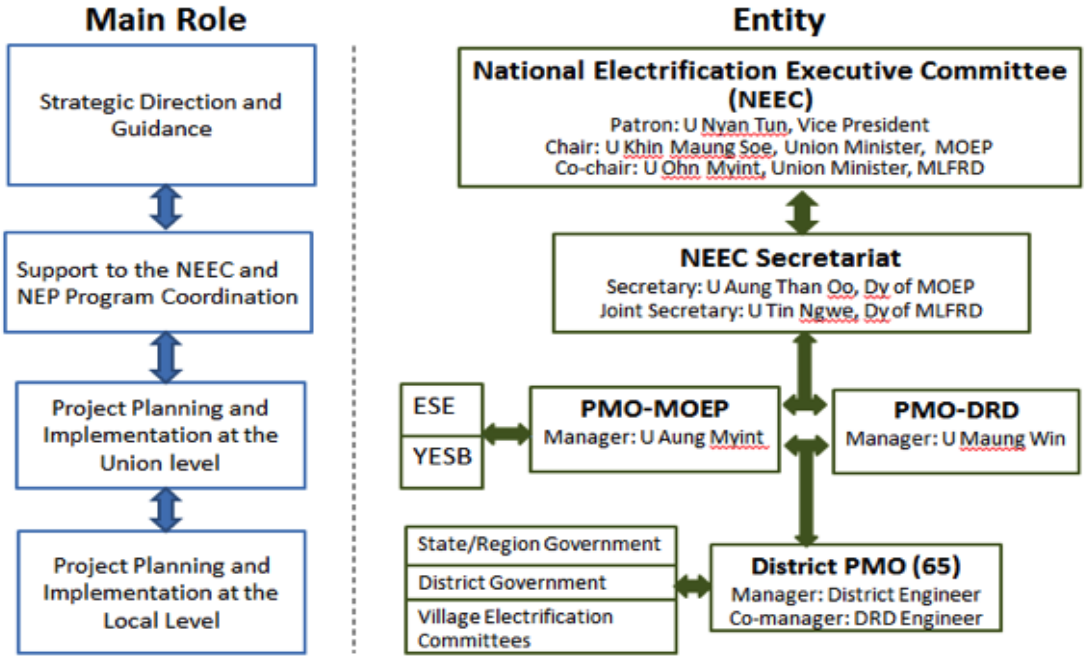
The objective of this "zero component" is to allow a rapid reallocation of IDA credit proceeds from other components to provide emergency recovery and reconstruction support following an adverse natural disaster event. This component would finance public and private sector expenditure on a positive list 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 apply to this component, detailing financial management, procurement, safeguard and any other necessary implementation arrangements.

4. Institutional Arrangements for Project Implementation

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 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, YESB 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 Figure below shows the institutional implementation framework and responsibilities allocated to each level.

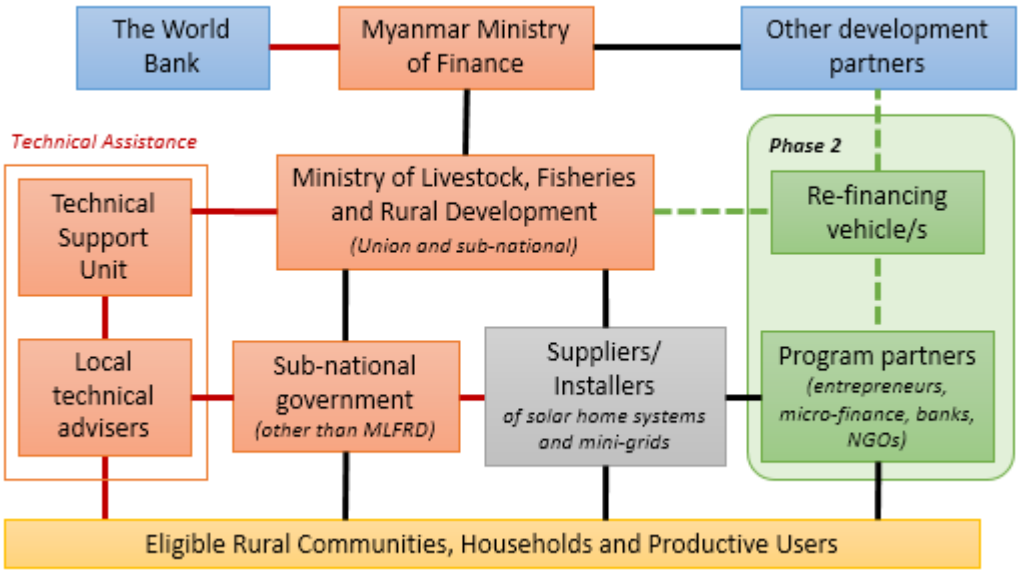
Figure 4.1: NEP Institutional Implementation Framework



Off-Grid Program Institutional Arrangements

The institutional framework for the off-grid component is currently being further developed. Figure 4.2 below shows the current proposed implementation framework.

Figure 4.2: Electrification Program Off-grid Component Design Proposal (2015-2020)



At the township and village level, Local Technical Advisors (LTA) will provide guidance to village communities and townships in selecting and developing appropriate off-grid electrification solutions. LTAs will consist of 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.

Institutional Arrangements for environmental and social safeguards

The two implementing agencies—MOEP and MLFRD (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 will be adequately staffed for this purpose with environmental and social safeguards officers (see figure 4.3 below); four safeguard staff have been onboard since January 2015; two for each central PMO covering social and environmental safeguards respectively. 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 MOEP or DRD) will clarify tasks and responsibilities regarding implementation of the specific subproject (e.g. operators, MOEP, 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.) are generally prepared by the local PMOs with the support of consultants as needed. In case off-grid subprojects are prepared by private investors there is a possibility that the private investor will prepare the safeguard documents. In the latter case, the central PMOs remain the responsible for the preparation of the TOR for and review and approval of the safeguard documents.

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 Standards are in draft form and are yet to be enacted. 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. Currently, there is no environmental and social impact assessment framework in Myanmar. The 2012 Conservation Law provides a general mandate to MOECAF to produce an ESIA system but, as of April 2015, specific ESIA procedures and guidelines by sector are pending. 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 are still in draft and not enacted yet. The comparison between the National draft EIA procedure guidelines and the World Bank OP/BP 4.01 are shown below in Table 5.1. There is no conflict in the draft guidelines with the Bank Policies.

Table 5.1: National Draft EIA rules versus OP/BP 4.01 EIA requirements

Issue	Draft EIA Rules	OP 4.01
Screening	Lists projects that require environmental examination including land use change, exploitation of resources for introduction of new species. MOECAF shall determine the format and timing of the reports. MOECAF will determine the type of environmental assessment required based on the environmental examination	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
Triggers	Projects with significant environmental impact	All projects financed by the World Bank. EA process depth will depend on the risk and impacts associated with the Project.
Responsibilities	Project proponent leads the EA process	Borrower leads the EA process

Issue	Draft EIA Rules	OP 4.01
Public participation	MOECAF shall arrange as it deems necessary for Public Participation. In the process of approving the EIA report, MOECAF shall take into account suggestions from project affected people and civil society. However, the rules do not specify the process of receiving feedback or incorporating it into the proposed project.	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.
Disclosure	The Project proponent shall disclose all relevant project information to MOECAF. No further requirement of disclosure to project affected people or civil society is made in the EIA rules.	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.
Screening	Lists projects that require environmental examination including land use change, exploitation of resources for introduction of new species. MOECAF shall determine the format and timing of the reports. MOECAF will determine the type of environmental assessment required based on the environmental examination	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
EA Content	MOECAF 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).	The EA needs to include assessment of project alternatives; cumulative impacts; specific mitigation measures and monitoring activities.

Issue	Draft EIA Rules	OP 4.01
Monitoring	MOECAF 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, MOECAF 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

5.1. Physical Cultural Resources

The World Bank's policy on physical cultural resources (PCR) OP 4.11 is triggered to 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 2. The likely impacts to PCR for-typical activities of the subprojects are also discussed in Annex 2. The "Chance Find" procedure for protection of cultural property is presented in Annex 3, 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 Environment, Conservation and Forestry 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.

5.2. 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 modifies 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 were to be considered significant, Project will not finance the particular subproject.

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.

5.3. 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 5). The RPF includes a protocol for voluntary land donations.

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.[1] 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 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 draft policy aims to strengthen the government's mechanisms for handling land acquisition, compensation, relocation, and restitution.

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

[1] Land Use Policy Reform in Burma: Engaging Stakeholders and Regional Lessons", 24 March, 2014, United States Agency for International Development, http://usaidlandtenure.net/ commentary/ 2014/03/land-use-policy-reform-burmaengaging-stakeholders-regional-lessons

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.

5.4. 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.[2]

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.[3] Myanmar national law sets out rights of ethnic races or nationalities to representation in State parliament.[4] 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.[5]

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 country-wide and cover all States and Regions it will include areas with ethnic minorities or national races and the World Bank's Indigenous Peoples policy (OP 4.10) applies to the project. OP 4.10 generally applies to the 135 officially recognized *national races*, except for the majority Bamar group.

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

[2] http://www.tni.org/sites/www.tni.org/files/download/accesdenied-briefing11.pdf, accessed 09 March 2015
[3] Republic of the Union of Myanmar, Ministry of Health, *Myanmar Essential Health Services Access Project Community Engagement Planning Framework*
[4] http://www.myanmar-responsiblebusiness.org/pdf/SWIA/Oil-Gas/11-Ethnic-Minorities-Indigenous-Peoples.pdf, accessed 09 March 2015
[5] Myanmar Times, 23 January 2015, MPs prepare to debate proposed law on ethnic rights

specific project sites will not be identified during project preparation, these issues will be assessed and addressed at a subproject level during project implementation. 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 the preparation of site-specific Indigenous Peoples Plans to address particular issues concerning ethnic minorities (See Annex 5).

5.5. Policy and Institutional Framework regarding women

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

- 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.

5.6. **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. World Bank Safeguard Policies Triggered and Explanation

Safeguard Policy	Triggered?	Explanation
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 underOP4.01. 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 couldbe the off-grid mini hydro-systems. Given that these systems remain below 1 MW, without a need for building significant reservoirs or land-take, it is not expected that these systems would require a different categorization. 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 stageof 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 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

Safeguard Policy	Triggered?	Explanation
		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 and YESB, 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 subprojects that are implemented by private parties, will be required to comply with the World Bank Safeguard Policies and this ESMF.[6]
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.

[6]Diversion 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.

Safeguard Policy	Triggered?	Explanation
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 resources.
Indigenous Peoples OP/BP 4.10	Yes	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 for2017). 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 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.
Involuntary Resettlement	Yes	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

Safeguard Policy	Triggered?	Explanation
OP/BP 4.12		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.
Safety of Dams OP/BP 4.37	Yes	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 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.
Projects on International Waterways OP/BP 7.50	No	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.
Projects in Disputed Areas OP/BP 7.60	No	The project interventions are not in disputed areas as defined by OP 7.60 and will be wholly within the borders of Myanmar.

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 Impact Assessments (ESIA), Environmental and Social Management Plans (ESMP), Resettlement Action Plans (RAPs), Indigenous Peoples Plans (IPP) and Environmental Codes of Practices (ECoP) are properly prepared and followed; 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 – MOEP 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. ESIA, ESMP, ECoP, 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 code of practice (ECoP)[7] 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 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] An Environmental Code of Practice (see Annex 10) has been prepared to manage minor environmental negative impacts associated with NEP subprojects. ECoP sets outs environmental impacts and mitigation measures during construction. ECoP will be incorporated into bidding documents and/or contracts.

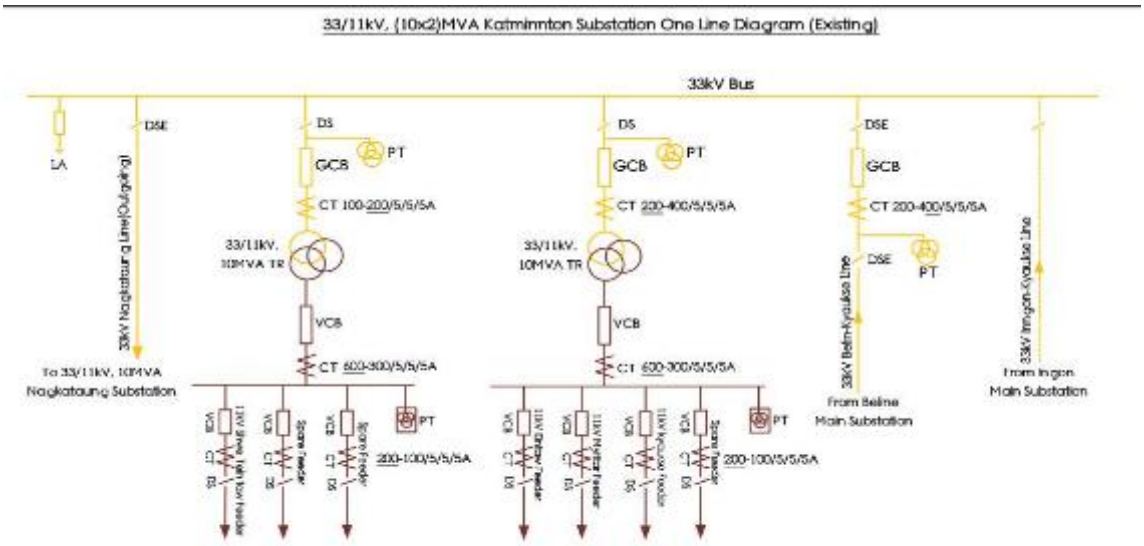
7. Description of typical infrastructure for subprojects

7.1. Grid Roll Out

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.

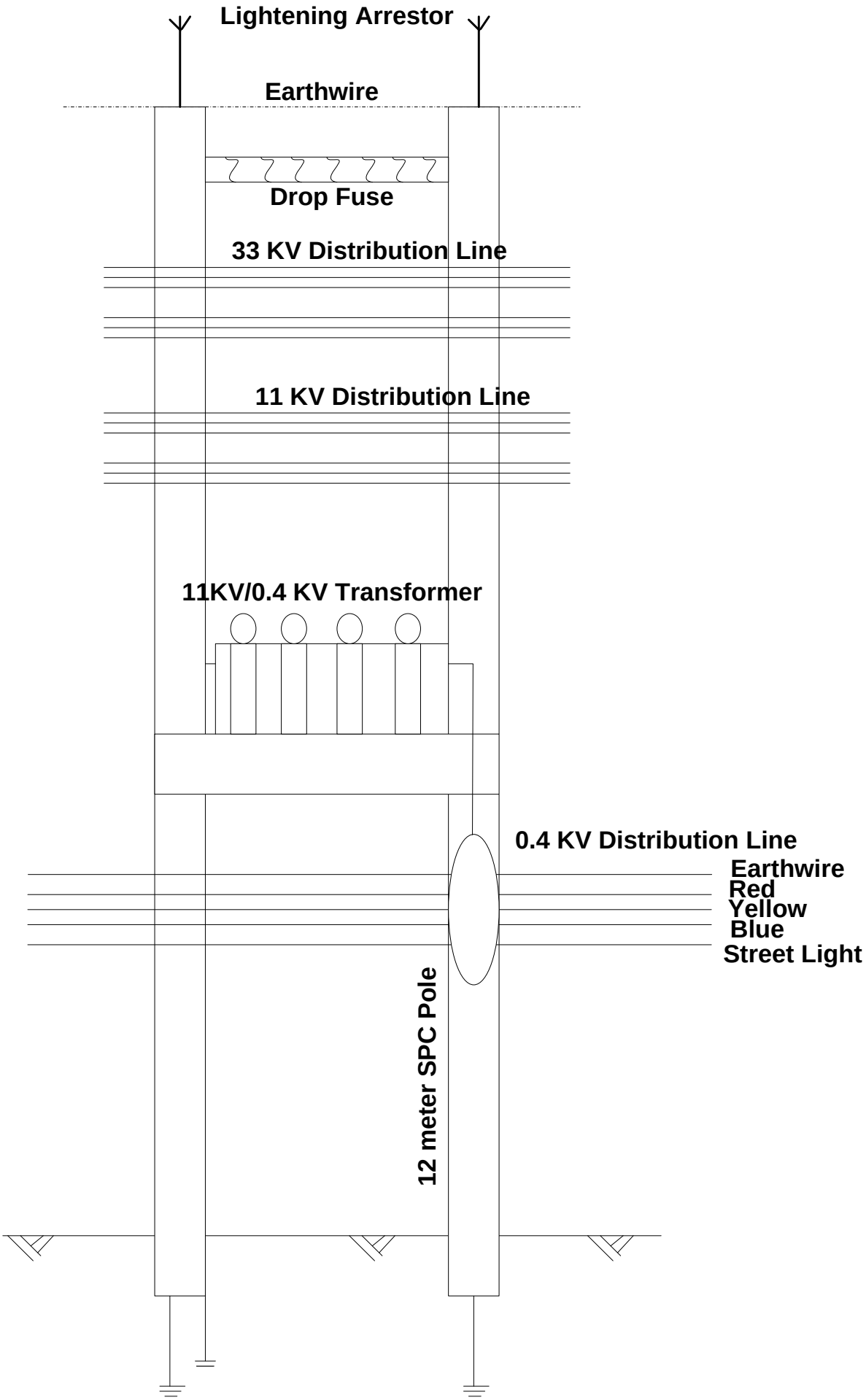
Construction of 33 KV and 11 KV Distribution Lines, LV lines and MV/LV transformers

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

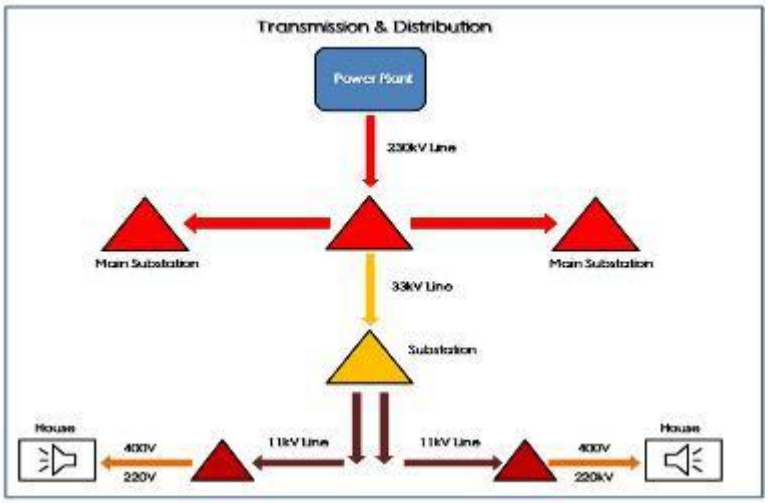


Typical Arrangement on H-Pole

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. Figure7.3 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 switch board 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

Bio Gas Power Plant

A Bio Gas Power Plant consists 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.

Dual biogas power plant consist of an inlet Tank (Mix Cow Dung with water at a ratio of 1:1, grinder blades, sieve), Bio digestion chamber, Anaerobic Digestion, gas storage with Dome shape, Methane (CH4 60-70%), outlet tank, effluent slurry, gas pipe, water trap, H2S cleaner, 32 HP Diesel Engine and 30 KVA Dynamo, Mixer, Panel board, Copper Wire 10G, Concrete Posts 7 meters height.

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, Sulpher cleaner and outlet pipe to control the hydrogen sulphite 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 7.4: Flow chart of the Bio Gas Plant

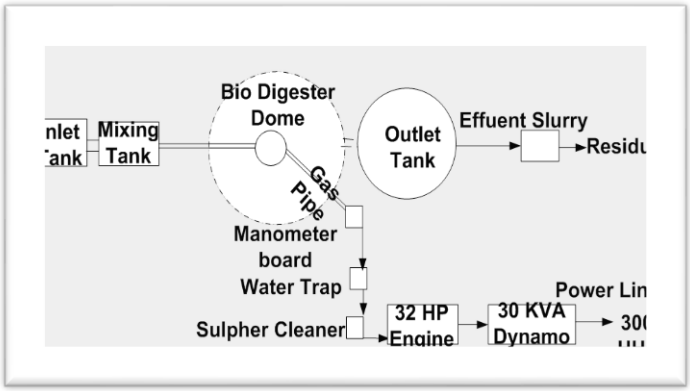
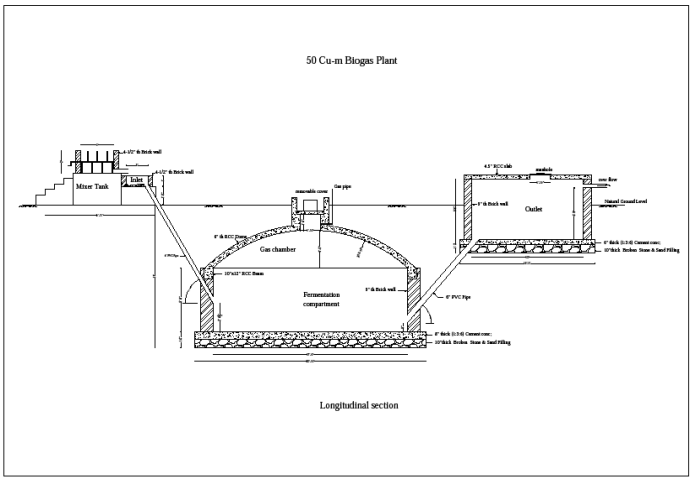


Figure 7.5: Cross Section of Bio Gas Plant



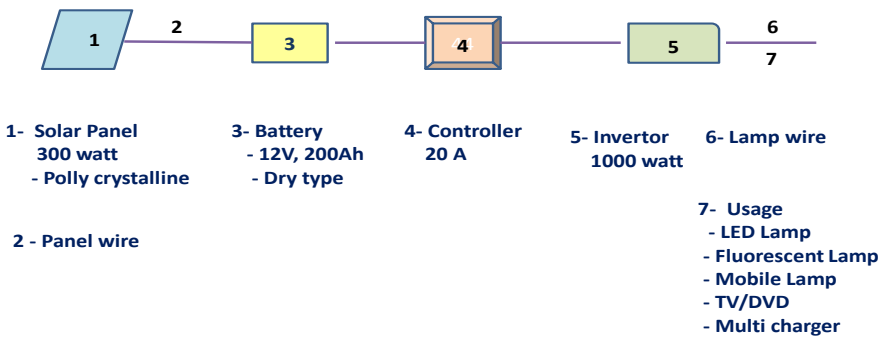
Solar Home Systems

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 5.6 below shows the components of a Typical Solar Home System.

Solar energy is a renewable energy and is considered to be most suitable in regions where the sun shines brightly. However, during the rainy season, where there is not enough sunshine, then this system can be used in dual with a diesel engine or a mini hydro power plant to give continuous lighting to the household.

Care should be taken to use dry type battery instead of the acid battery. If an acid (or lead) battery is being 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 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 return of those batteries will be incentivized to avoid sales to informal recyclers in Myanmar.
Safety measures such as cutting trees branches or any obstacle that might prohibit the sun light to enter the solar panel should be considered in choosing the installation site of the sub project. Generally, many households install the solar panel on their house roofs. Care must be taken to adhere to the relevant technical specification for installing the solar panel to get the maximum absorption of sunlight.

Figure 7.6: Components of a Typical Solar Home System

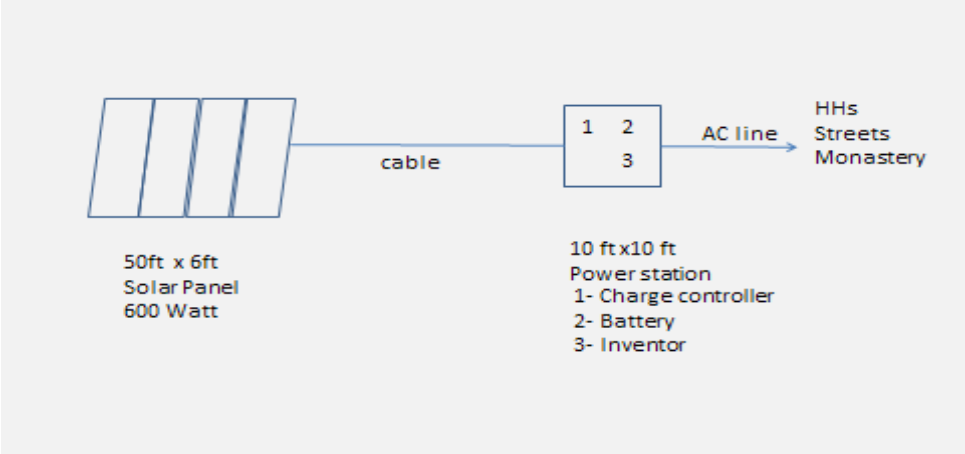


Mini Grid Solar Photovoltaic (PV)

Under the Project, mini-grids could be built to generate and distribute electricity for villages from hydro, solar, bio mass, wind, diesel or some combination thereof. 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 5.7 & 5.8).

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 accident should be considered during construction and operational stage of the subproject.

Figure 7.7 Components of a Typical Mini Grid SHS



Diesel Generator for Electrification

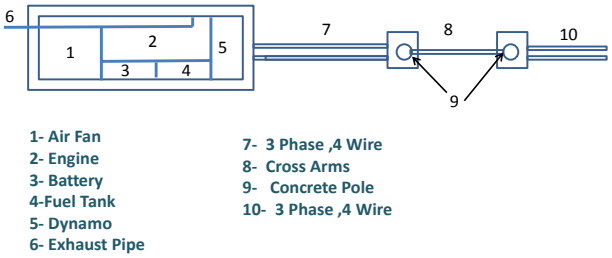
Diesel is a least preferred option under the Project due to its environmental and health impacts, however in some circumstances it may nevertheless present an appropriate solution.

Diesel generators are widely used in Myanmar as supplement energy as hybrid system for other off-grid connections such as min-hydro power and solar PV systems especially when during rainy season for solar (when sunshine is insufficient); and during dry season for Hydro power, when the stream water resource are insufficient for hydropower plants.
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.

Safeguards measures such as providing grease / oil traps or containers to capture the potential spillage of oil to the soil or nearby water body from the diesel engine are to be considered during the installation process of the sub project. Growing trees in the compound of the sub project to absorb the 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 specification.

During operational stage, safety gears (ear plug, etc.) should be provided for the workers in operation to mitigate the impact of noise level to the human system. If the subproject is of noise levels exceeding 80 dB (WHO Guideline value), then providing sound proof (acoustic) system should be seriously considered.

Figure 7.9 Layout Plan of a Diesel Generator Plant



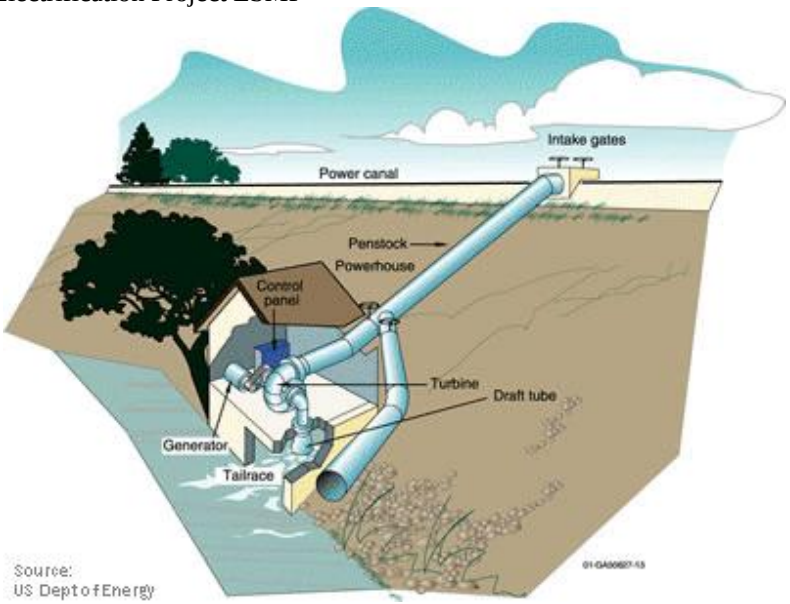
Mini Hydro Power Plant (<1MW)

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. This system requires a potential stream(s)(as shown in below Figure 7.10: stream 1 and stream 2) and rerouting <10% of the water stream, to maintain its environmental flow by a head up weir,, into a leading canal (approach channel), a de-silting basin, a headrace to a forebay (water collection pond) before entering the intake gate of a penstock and to the turbine / generator, which converts the hydraulic energy into electrical power. The outflow water from the turbine is then conveyed into the tailrace and eventually discharged back into its original natural stream.

Safeguard measures such as trash racks are generally provided at intake gate of the penstock to protect aquatic biota (fish, crabs, snails, etc) being sucked into the turbines or debris flowing into the engines. Erosion and siltation of the natural stream banks and the intake parts, and tailrace of a mini hydro power plant are to be considered during construction phase of the subproject. Measures to protect the banks with stone pitching, cement grouting should be observed for good engineering practice.

Figure 7.10 shows the components of a typical mini hydropower plant. 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.

Figure 7.10 Illustration of a Typical Mini Hydro Power Plant



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. Usually sites are pre-selected on the basis of a wind atlas, and validated with on-site wind measurements. For small turbines, the electricity generated can be used to charge batteries or used directly.

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. 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. Configuring turbine arrays to avoid avian mortality (e.g. group turbines parallel to known bird movement)[i] should be considered during design considerations.

Furthermore, 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.

Figure 7.11: Typical Wind Energy Blades

8. Addressing Environmental and Social Impacts

8.1 ESMF Implementation Flowchart and Responsibilities

The following general procedures apply for all works/goods for subprojects financed through the Project. The details of this procedural flow may vary, depending on the specific nature of the proposed activity.

Screening and Scoping

For every sub-project, the responsible PMO analyzes the following:

- Does the sub-project have the potential to cause any social or environmental impact – whether directly or indirectly;
- Which – if any-- World Bank safeguard policies would be triggered by the nature of the sub-project and its associated activities?
- Could there be activities under a sub-project that could cause significant impacts, beyond what is acceptable under the World Bank Category B Environmental Assessment categorization? (See Section 5.6 above on World Bank categorization and safeguard policies triggered).

The District PMO, in consultation with the Union PMO, screens each activity in more detail for potential impacts, identifies the triggered safeguard policies, and proposes the general scope of work for the required safeguard instruments (ESIA, ESMP, ECoP, RAP, IPP). The District PMO prepares a screening report (typically less than five pages with supporting maps), which is reviewed by the Union PMO. A template for the screening report is provided in Annex 1.

Initially, the Union PMO will submit the draft screening reports to the World Bank for review. As the capacity of the District and Union PMOs increases, World Bank review may be reduced to post-review or spot-checking of screening reports that have already been reviewed by the Union PMO.

Safeguard Instrument Preparation

The District PMO is responsible for preparing the safeguard instruments, in consultation with the Union PMO. The responsible PMO may contract consultants to prepare a safeguard instrument. In this case, the responsible PMO prepares a detailed terms of reference (TOR) that accords with the general guidelines of this ESMF. The responsible PMO contracts the consultant in accordance with World Bank procurement rules.

The responsible PMO ensures the quality and consistency of safeguard instruments with the requirements outlined in this ESMF. The responsible PMO will disclose instruments locally (see also Section 11). Public consultations with affected communities and other relevant stakeholders are required in the preparation of the safeguard instruments.

The World Bank will initially review TORs and safeguard instruments prior to finalization. As PMO capacity increases, the World Bank involvement may reduce to post-review or spot-checking of subsequent TORs and safeguard instruments.

Safeguard Instrument Implementation

The PMOs are responsible for monitoring and ensuring the adequate implementation of the safeguard instrument/s for all subprojects. The responsible PMO may contract consultants to support monitoring of safeguard instrument/s implementation. In this case, the responsible PMO prepares a TOR and procures the contractor for safeguards implementation supervision/monitoring in accordance with World Bank procurement rules.

Initially, the World Bank will review and provide comments on the TOR for the contractor/consultant. With PMO capacity increasing, World Bank involvement may reduce to post-review or spot-checking with subsequent TOR for contractors, if more than one contractor/consultant is needed.

The responsible PMO contracts the contractor/consultant to supervise/monitor implementation of safeguard instruments 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 Bank Safeguards and ESMF to other Financiers. There is the possibility that off-grid subprojects will be implemented by private parties. This ESMF equally applies to private sector initiators of subprojects and all private parties are required to prepare and implement subprojects in compliance with the World Bank Safeguard Policies and the Project's ESMF. In this context it is possible that (private) initiators will prepare the required safeguards documents (such as screening report and ESIA and ESMP), but the screening of subprojects, the scoping (determining required safeguard instruments), review and approval of safeguard documents, monitoring of implementation and (initial) operations and grievance redress are and remain also fully the responsibility of the PMOs for subprojects with private investors.

8.2 Procedures for screening environmental and social impacts

The District-level PMOs will identify, select and screen subprojects for environmental and social impacts, in close consultation with the Union-level PMOs. The PMO will be supported by a TA/consultant team in implementing ESMF requirements and may delegate some of this work to consultants and NGOs/CSOs; for instance, for the preparation of safeguard instruments.

All subprojects will undergo an environmental and social screening process, using the screening form provided in Annex 1. The purpose of environmental and social screening is to prepare a preliminary assessment of: (i) the degree and extent of the potential environmental and social impacts of a particular sub-project; (ii) the need for further environmental and social assessment and the indicative scope of any additional assessment required.

The Project is Categorized as 'B' per World Bank Safeguard Policies; that is a project which "*may have potentially limited adverse social or environmental impacts that are few in number, generally site specific, largely reversible, and readily addressed through mitigation measures*." Therefore, the environmental and social screening process will have the additional focus of confirming that the proposed sub-projects align with the Category B assessment. Though not expected, but if a subproject is identified as having the potential environmental and social impacts of a Category A project[8], mitigation measures will need to be implemented to lower its risk profile to align with the definition of a Category B project. If this is not possible, the subproject will not be able to be implemented under the NEP. As mentioned, in view of the types of subprojects under the NEP and their limit scale with an average size of around US Dollars 40,000-50,000 each, Category A categorization of subprojects is not expected and hence capacity is not in place with the project implementing agencies to manage Category A types of subprojects.

The environmental and social screening process will involve:

(i) a reconnaissance survey of the subproject area to identify important environmental and social features (e.g., human settlements, religious establishments, water bodies);

(ii) identification of the major subproject activities, potential areas of environmental and social risk and likely subproject implementation arrangements; and

(iii) preliminary assessment of the potential environmental and social impacts of the activities to be undertaken as part of the subproject.

8.3 Guidelines for environmental and social screening of subprojects

NEP subprojects are expected to fall within nine types of infrastructure (see Section 7). The potential impacts of each subproject, or typical infrastructure, have been divided into:

(A) impacts during construction phase; and

(B) impacts during operational phase.

[8] Per World Bank Operational Policy (OP) 4.01, a proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. A potential impact is considered "sensitive" if it may be irreversible (e.g., lead to loss of a major natural habitat) or raise issues covered by OP 4.04, Natural Habitats; OP/BP 4.10, Indigenous Peoples; OP/BP 4.11, Physical Cultural Resources or OP 4.12, Involuntary Resettlement.

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.

Ecological Impacts

Generally, four parameters have been considered for screening of ecological impacts during construction phase; these include (i) 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 nor essentially modified the area's primary ecological functions) for which protection is required under WB Safeguard policies (including Natural Habitats) and Myanmar Laws, (ii) felling of trees, (iii) clearing of vegetation, and (iv) impact on terrestrial / aquatic / avian habitat.

If the answer to whether the location of the subproject or related infrastructure may affect a Natural Habitat is "Yes", then the PMO must consider an alternative site for construction of the subproject. If the proposed route of, for example, a power line subproject passes through biodiversity areas and a notable biological corridor, then a detailed analysis of alternative routes should be carried out to identify possible route(s) that would eliminate/reduce risk to biodiversity, vegetation and natural habitats. If it is not possible to completely avoid such sensitive areas, then possible impacts on biodiversity must be further analyzed with Environmental and Social Instruments (e.g. ESIA, RPF) commensurate with the expected impacts and mitigation measures proposed.

For example, construction and operation of a subproject in the vicinity of a water body (e.g. river, wetland) could have negative impacts on the aquatic ecology (e.g. conversion of wetland, introduction of invasive species, pollution and waste management), thereby affecting aquatic flora and fauna. The impact of each parameter could be classified as significant, moderate or insignificant depending on the amount of biomass removed and/or its importance for ecosystems nearby. Moreover, if there is a natural habitat (Natural forest, natural wetlands) located close to the proposed subproject location, then construction and operation of the project could generate adverse impact (e.g. through discharge of waste/wastewater from subproject activities, spills and leaks of oil/chemical) on the natural habitat with or in the absence of any mitigation/management. The nature of impact would be classified as "significant' or "moderate" or "insignificant", depending on the proximity of the proposed subproject location to the natural habitat, and the nature of the expected impacts. Also the clearing of vegetation can have impacts on hydrology and erosion patterns.. The electromagnetic field (EMF) of an electrical power line should also be screened for its potential impact on communities and biodiversity, mostly avian. Screening should also include biological impacts such as likelihood to birds getting trapped in wind plant's blades, likelihood of possible change in aquatic life due to hydro power plants and possible disease causing impacts due to insanitary conditions.

Physical-Chemical Impacts

The parameters considered for screening of physical-chemical impacts during construction phase of a subproject include noise and air pollution, water/land pollution, and drainage congestion. If construction of the subproject involves use of equipment/machines producing significant noise (e.g., generators, pile driver) and if the proposed subproject site is located close to human settlements/schools/hospitals, noise pollution would be significant (in the absence of mitigation measures). Similarly, use of stone crushers, excavation works and movement of vehicle would generate air pollution. Possible air pollution form 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 substation 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 proximity 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 the proposed substation site is such that it 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 impact on drainage would most likely be "minor". Subprojects are also screened to ascertain their likely impacts on physical cultural resources (see Annex 2 and 3).

During operational phase of a subproject, parameters including noise level, air pollution, erosion and siltation, drainage congestion, water logging, water pollution, solid/liquid waste disposal, likelihood of PCBs and hazardous material are screened for their impact as significant, moderate or insignificant depending on its likelihood of severity.

Social Impacts

The proposed sub-projects to be funded by the Project are expected to result in a number of positive social impacts for local communities as a result of improved access to electrification. This could include improvements in livelihoods and economic development, health and education services and community safety, as well as in women's empowerment. Some positive impacts will be the direct result of project activities, while others could result from initiatives undertaken by development partners and businesses, using the platform of improved access to electricity provided by the Project.

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

- Infrastructure impacts during construction and operations activities, including land acquisition and/or loss of assets such as trees and standing crops;
- Social exclusion, based on an inability to afford access to the expanded electricity services available and lack of connections to facilitate access;
- Indebtedness, in particular due to the high cost of connection via self-reliant electricity systems;
- Negative impacts on ethnic minorities and vulnerable groups, in particular in regards 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) could impact the quality of implementation of sub-project activities and the level of Project benefits achieved.

For most sub-projects, the primary potential adverse social impacts relate to land and livelihoods and also to social exclusion. There is also the potential for adverse impacts on ethnic minorities, in areas where they are present, and other vulnerable groups.

Land and Livelihoods: Related to land and livelihoods, the potential impacts of sub-projects could include: direct or indirect change of land use; loss of income through temporary or permanent change in land use; and the potential requirement 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 RPF allows for

this should it be needed in exceptional cases.[9] Sub-projects may also include instances of voluntary land donation to house infrastructure. While such donations are not directly covered by OP 4.12 they are closely related and should only occur under specific circumstances. Affected people must be able to decline a request to donate land for the purpose of housing infrastructure and receive compensation instead. A protocol for voluntary land donation is included in the RPF (Annex 6).

In regards to livelihoods, it is important to gain early insights into the potential impacts of proposed subprojects on livelihoods within the proximity of the proposed subprojects, both on those livelihoods linked to use of land and also other livelihoods that may be affected by the proposed subproject.

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. Also, companies working in their communities may not be aware of or respectful of their local cultures and ways of doing things.

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 inform the preparation of sub-project Indigenous Peoples Plans (IPPs), as required in accordance with OP 4.10. In accordance with the Indigenous Peoples Planning Framework (see IPPF, Annex 5), 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 required to be considered to ensure that sub-projects provide appropriate benefits to, and do not have adverse impacts on, ethnic minorities.

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

Local Benefits

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

The Project also intends to provide electricity to social infrastructure within communities - such as health clinics and schools - and to provide street lights to enhance community safety, particularly for women and children. The screening process will be used to identify the best location/s for the associated electricity infrastructure, as agreed with a representative sample of community members.

8.4 Optional approach for scoring of environmental and social issues

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.

[9] 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.

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. This assessment will be made by assessing four variables: the Extent, Duration, Magnitude and Probability of the potential impact. These variables will be assigned a score of 1 to 3 based on the criteria in Table 8.1 below.

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

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

Using the Significance formula below, the significance of the potential impact can then be rated as Low, Medium or High.

Significance = (Extent + Duration + Probability) x Magnitude

The significance of a potential impact is rated as low when the total is less than 9; medium when the total is less than or equal to 14 and high when the total is more than or equal to 15. Potential impacts can be positive or negative.

See Table 8.3 for examples of Impact Assessment Matrices for a subproject during the construction phase and also for a sub-project during the operations phase. Impacts are negative unless indicated with shading in the impact matrix. Green shading represents a positive impact or benefit.

The significance rating of the potential impacts scoped will determine the level of the environmental and social safeguards instrument needed in order to undertake further assessment and propose adequate mitigation measures to ensure that the sub-project is a Category B subproject and/or a Category C[10]

[10] Per World Bank Operational Policy (OP) 4.01, a proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts.

subproject. The environmental and social safeguards instruments may range from an Environmental Code of Practice (ECoP) to an environmental and social management plan (ESMP) to a full environmental and social impact assessment (ESIA), as shown in Table 8.2.

Table 8.2. Environmental Instrument needed based on Impact Scoping Assessment

Impacts Scoped (overall)	**Environmental Instruments**
Low	ESMP/Environmental Code of Practice
Medium	ESMP/ESIA (and RAP, IPP, if needed)
High	ESIA (and RAP, IPP, if needed)

Myanmar's current draft Environmental Procedures classify all typical NEP subprojects as requiring Initial Environmental Examination (IEE) rather than Environmental Impact Assessment (EIA) or ESIA. However, a full Environmental and Social Impact Assessment (ESIA) will be required if potential impacts on natural habitats, ethnic minorities or vulnerable groups are categorized as high during the scoping process, even if the other potential impacts are confirmed as low/medium.

Table 8.3: Example of an Impact Assessment Matrix for a sub-project during Construction

SAMPLE IMPACT ASSESSMENT MATRIX OF CONSTRUCTION PHASE IMPACTS

		Green for positive impact	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	
Ref.	**Impact/Issue**	**Comment/Description of Impact**	**Extent**	**Duration**	**Magnitude/ Intensity**	**Probability**	**Significance**
Bio-Physical & Chemical							
BPC/1	**Changes in surface water quality**	**Significance mostly in direct area during construction period.**	**1**	**1**	**1**	**2**	**low**
BPC/2	**Changes in groundwater quality**	**Soil composition has low permeability, so negligible impact by pollutants into the ground water.**	**1**	**1**	**1**	**1**	**low**
BPC/3	**Changes to drainage patterns**	**Alteration of the natural drainage system**	**1**	**3**	**1**	**3**	**low**
BPC/4	**Changes in rates of erosion and siltation**	**No significant erosion but some siltation may occur in nearby water body because of construction work.**	**1**	**1**	**1**	**3**	**low**
BPC/5	**Changes to air quality**	**Air quality will be changed because of particulate matter.**	**2**	**3**	**2**	**2**	**medium**
BPC/6	**Changes to ambient noise levels**	**Noise levels will be significant during construction if all infrastructural works are carried out simultaneously.**	**2**	**3**	**2**	**2**	**medium**
BPC/7	**Changes to aquatic biota**	**No significant change in aquatic biota due to construction of substation**	**1**	**1**	**2**	**2**	**low**
BPC/8	**Changes to terrestrial biota**	**No significant changes expected in terrestrial biota as site all ready cleared.**	**1**	**3**	**1**	**3**	**low**
BPC/9	**Changes to disease vector populations**	**Health risk to construction laborers during construction period**	**1**	**2**	**1**	**2**	**low**

SAMPLE IMPACT ASSESSMENT MATRIX OF CONSTRUCTION PHASE IMPACTS

		Green for positive impact	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	
Ref.	**Impact/Issue**	**Comment/Description of Impact**	**Extent**	**Duration**	**Magnitude/ Intensity**	**Probability**	**Significance**
BPC/10	**Changes to land cover**	**Due to different kinds of construction works, original land cover may change.**	**1**	**3**	**1**	**3**	**low**
BPC/11	**Changes to areas of natural habitat**	**Due to the changes in vegetation in land and water, natural habitat may be changed to a certain extent.**	**1**	**3**	**1**	**3**	**low**
Socio-Economic & Cultural							
SEC/1	**Changes involving loss of private and/or communal assets**	**No significant acquisition of private and/or communal assets of local inhabitants in the project area of influence.**	**1**	**3**	**1**	**1**	**low**
SEC/2	**Changes involving loss of physical cultural heritage**	**No significant impacts on physical cultural heritage**	**1**	**1**	**1**	**1**	**low**
SEC/3	**Changes involving physical and/or economic displacement of people**	**No significant physical and/or economic displacement of inhabitants.**	**1**	**3**	**1**	**1**	**low**
SEC/4	**Changes to local traffic patterns**	**Simultaneous construction works may change traffic patterns.**	**2**	**2**	**1**	**3**	**low**
SEC/5	**Changes to fisheries**	**Some changes in fisheries expected at nearby pond.**	**1**	**2**	**1**	**2**	**low**
SEC/6	**Changes in local wage labour incomes/livelihood opportunities**	**Imported skilled workers are mostly employed.**	**2**	**2**	**1**	**2**	**low**
SEC/7	**Changes in local trade/commercial incomes/opportunities**	**No significant local trade / commercial incomes during construction phase.**	**1**	**2**	**1**	**2**	**low**
SEC/8	**Changes in visual amenity**	**No significant amenity to vision during construction period.**	**1**	**1**	**1**	**3**	**low**

SAMPLE IMPACT ASSESSMENT MATRIX OF CONSTRUCTION PHASE IMPACTS

		Green for positive impact	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	score 1, 2 or 3	
Ref.	**Impact/Issue**	**Comment/Description of Impact**	**Extent**	**Duration**	**Magnitude/ Intensity**	**Probability**	**Significance**
SEC/9	**Changes to public infrastructure/community resources**	**Improved infrastructure and community resources with positive impact**	**2**	**3**	**1**	**2**	**low**

Table 8.3: Example of an Impact Assessment Matrix for a sub-project during Operations

SAMPLE IMPACT ASSESSMENT MATRIX OF OPERATIONS PHASE IMPACTS

Green for positive impact

Ref.	Impact/Issue	Comment/Description of Impact	Extent (score 1, 2 or 3)	Duration (score 1, 2 or 3)	Magnitude/ Intensity (score 1, 2 or 3)	Probability (score 1, 2 or 3)	Significance
Bio-Physical & Chemical							
BPC/1	Changes in surface water quality	In case of effluent (waste water) from substation spills into streams and water body untreated	2	1	1	1	low
BPC/2	Changes in groundwater quality	Due to the soil type, there is low permeability for pollution of ground water.	1	1	1	1	low
BPC/3	Changes to drainage patterns	Operation of the subproject do not significantly affect existing drainage system	1	3	1	3	low
BPC/4	Changes in rates of erosion and siltation	Due to the sea going vessels coming to and from ... River, the flow pattern of the …. river may change to a certain extent	1	3	1	3	low
BPC/5	Changes to air quality	Due to the wind speed and wind direction, the air quality in the project area and its surroundings may change.	2	2	2	1	medium
BPC/6	Changes to ambient noise levels	Noise from electrical equipment / generators may affect noise levels	2	2	2	3	medium
BPC/7	Changes to aquatic biota	In case of leakage of petroleum, oil, lubricants (POL), and chemicals, changes in aquatic biota may happen.	1	3	1	2	low
BPC/8	Changes to terrestrial biota	No terrestrial biota are expected after construction phase.	0	0	0	0	low
BPC/9	Changes to disease vector populations	Some Health risk to people at project area due to inhaling the air from plant	1	1	1	2	low
BPC/10	Changes to land cover	No definite impact after construction of infrastructure in the project area.	0	0	0	0	low

BPC/11	**Changes to areas of natural habitat**	**No further impact in project area**	**0**	**0**	**0**	**0**	**low**
Socio-Economic & Cultural							
SEC/1	**Changes involving loss of private and/or communal assets**	**No potential impact during the operations phase.**	**0**	**0**	**0**	**0**	**low**
SEC/2	**Changes involving loss of physical cultural heritage**	**No impact in the operations phase.**	**0**	**0**	**0**	**0**	**low**
SEC/3	**Changes involving physical and/or economic displacement of people**	**No potential social impact**	**0**	**0**	**0**	**0**	**low**
SEC/4	**Changes to local traffic patterns**	**For the future development of Myanmar, there may be changes in local traffic patterns.**	**2**	**3**	**1**	**2**	**low**
SEC/5	**Changes to fisheries**	**Water, air, and noise pollution may interfere with fish migration.**	**2**	**3**	**1**	**3**	**low**
SEC/6	**Changes in local wage labour incomes/livelihood opportunities**	**Possibility of increased income and livelihood opportunities due to the project.**	**2**	**3**	**1**	**2**	**low**
SEC/7	**Changes in local trade/commercial incomes/opportunities**	**Possibility of increased income and livelihood opportunities due to the project.**	**2**	**3**	**2**	**2**	**medium**
SEC/8	**Changes in visual amenity**	**The natural landscape is affected by the presence of infrastructure.**	**2**	**3**	**1**	**3**	**low**
SEC/9	**Changes to public infrastructure/community resources**		**2**	**3**	**1**	**2**	**low**

8.5 Procedures and Guidelines for selecting (site-specific) safeguard instruments per subproject

As summarized in Table 8.2 for subprojects for all environmental and social impacts have been categorized as **low**, or insignificant and all potential impacts are covered by existing environmental codes of practice (ECOP), the application of ECOPs will suffice. If some impacts are not covered by ECOPs, an ESMP needs to be prepared. This ESMP for low impact subproject could become the basis for additional ECOPs that can be applied to future subprojects of similar nature.

For subprojects with impacts that are potentially negative but still are not considered significant ("**medium**"), normally an ESMP will be required. In some cases, when certain impacts have not been reviewed before or are difficult to categorize, an ESIA could be required.

Then finally, for subprojects with one or more impacts considered significant or highly significant ("**high**"), ESIAs are required.

The environmental and social impact assessment (ESIA) instruments range from applying standardized Environmental Codes of Practice (ECoP) to an Environmental and Social Management Plan (ESMP) to a full Environmental and Social Impact Assessment (ESIA) and will result from applying the screening form in Annex 1. Both an ESMP and ESIA would include the same elements, as outlined below, but would require a different level of detail in the information sourced and analysis undertaken. ECoPs, however, are standardized sets of measures that are generally applicable to certain types of potential impacts with low significance and which can be followed without the need to separately address those impacts in a dedicated manner, e.g. in an ESMP. In principle, it is possible for subprojects with limited impacts that all can be addressed by existing ECoPs, that no further tailored ESMP is required (called Category C projects in Annex 1).

It is expected that the sets of ECoPs (see Annex 11, which presents a preliminary set of ECoPs) will evolve and be extended during the implementation of the Project, as ESMPs are being prepared and more subprojects are being developed that are largely similar to earlier developed subprojects. The repetitive nature of certain types of subprojects (e.g. grid extensions) --and if the impacts of these subprojects are limited-- would allow for mitigation measures that were initially defined in ESMPs but will become ECoPs for following and similar subprojects.

If the screening of a low impact subproject indicates that ECoPs would be sufficient as safeguards instrument and hence the preparation of a dedicated ESMP or ESIA would not be required, this would only be allowed if for earlier subproject in the same category (out of nine categories, see Section 7) at least two ESMPs were prepared for comparable subprojects. In other words, 'ECoPs-only' subprojects are not allowed at the start of project implementation and not until experience has been gained from preparing ESMPs for similar subprojects.

If a subproject involves land acquisition or other impacts covered by the Bank's policy on involuntary resettlement, a RAP is prepared (see Annex 6 for details). If a subproject's area of influence is in area of ethnic minorities, an IPP is prepared (see Annex 5 for details).

Preparation of Environmental and Social Management Plan (ESMP) and Environmental and Social Impact Assessment (ESIA)

The key elements of an ESIA are as follows:

1. Identification of the area of influence of a sub-project;
2. Establishment of an environmental and social baseline for the area of influence of the sub-project, against which the potential impacts of the proposed sub-project would be evaluated;
3. Identification of major sub-project activities during the construction and operations phases;
4. Assessment and evaluation of the potential impacts of key project activities on the baseline environment during the construction and operations phases of the sub-project;
5. Carrying out public consultations;
6. Identification of mitigation measures for avoiding/mitigating/compensating potential adverse impacts and enhancing potential positive impacts;
7. Preparation of an ESMP including overview of potential impacts, mitigation measures, monitoring measures, identification of responsibilities/roles in implementation of ESMP and monitoring measures, and costs of measures and monitoring.
8. Identification of environmental code of practice (ECoP) where applicable for common (repeating) activities with limited adverse impacts, including cost of ECoP;
9. Disclosure of documents.

As described, an ESIA would include the development of an environmental and social management plan (ESMP), including monitoring requirements, capacity building plan and cost estimate of ESMP implementation. If the screening results in the requirement that only an ESMP is needed (and not a full ESIA), other ESIA elements require less detail during the preparation of the safeguard instrument.

Sub-project Area of Influence

The District PMO in consultation with the Union PMO will define the area of influence for each 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 ancillary facilities. 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 (e.g., substation, power line, mini hydro) 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 the area in 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 some sub-projects (e.g. mini-hydros) can have downstream and cumulative effects, as well as waste and hazardous materials disposal if it is being taken to another 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 8.5 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 8.5 Guidelines for identifying direct area of influence when limited to the works[11]footprint

Subproject	Area of Influence
Substation	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
Power Line	Right of Way for the Distribution line: For 33 kV Distribution Power Line - 12 ft (3.6 m) ≤ 11 kV Distribution - 8 ft (2.4m) No building or human habitation within the ROW of the Distribution Power Lines
Household meters and connections	No defined particular distance
Bio Gas Plant	Surrounding area within 50 ft (15m) of sub-project effluent slurry (no tube to be drilled to prevent pathogen / ecoli infection)
SHS (Solar Home System)	Areas and communities 0.2 km (0.12 mile) around a solar home system using Acid Type Battery
Mini Grid Solar Photovoltaic (PV)	Areas and communities 0.5 km (0.31 mile) around a mini grid solar photovoltair (PV) system
Mini-Hydro	Area 0.5 km (0.31 mile) within forebay water shed area and 2 km downstream of Mini Hydro Power Plant
Diesel Engine for Electricity	Within 7m (23 ft) of the surrounding area from a diesel engine (<500 kVA)
Wind Energy System	Atmospheric area of flying birds and insects within 1 km (0.62 mile) of Wind Energy Plant

[11] 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 (ESIA) 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.

Environmental and Social Baseline Development for ESIA

In order to conduct an adequate environmental and social impact assessment (ESIA), it is important to define the environmental and social baseline against which the environmental and social impacts of a particular sub-project would be subsequently evaluated. The characteristics of the environmental and social baseline would depend on the:

- Nature of the sub-project location,
- Nature/extent of a sub-project and its likely impacts,
- Level of detail related to the type of environmental and social safeguards instrument (e.g., ESMP, ESIA).

For example, ambient air quality and noise level are important parameters for describing the baseline scenario for a substation sub-project because these parameters are likely to be impacted by the project works. However these parameters are not likely to be as important for sub-projects such as construction of a distribution line. Similarly, ecological parameters (e.g., diversity of plants and animals) are not likely to be critical for a power line to be constructed along a main road or through a commercial area but these could be important for a power line that crosses a river or marshy land, where aquatic plant and animal habitat could be impacted by the sub-project activities.

To facilitate systematic data collection, the environmental and social baseline is usually classified into physical-chemical, ecological environment, and social aspects. Important features/parameters within each category are identified and measured/recorded during the baseline survey. The nature of the important features/parameters about which data is collected would depend on the nature and location of the sub-project and level of environmental and social assessment required, in accordance with the significance of potential impacts identified during the screening and scoping phases. The following sections provide a guideline regarding the identification of important features/parameters and collection of environmental and social baseline data specific to the sub-project.

Ecological environment

Important parameters for description of biological environment include:

- General bio-ecological features of the subproject area and its surroundings (e.g. bio-ecological zone, rivers, wetlands, hills, agricultural lands)
- Wildlife sanctuary, protected area, park, ecologically critical area
- Plant habitat and diversity (terrestrial and aquatic)
- Animal (including fish)

- Threatened plants and animals

It should be noted that all the subprojects (namely, grid roll out and off-grid projects) are likely to have minor ecological impacts since they will most likely be located in areas close to human settlements. In most cases, the most significant direct impact would result from felling/cutting of trees/vegetation within the subproject sites and along the route of the new distribution lines. If the particular subproject is located close to a water body, it could have some potential impacts on water quality and aquatic ecology during construction and operation. However, for many subprojects these are not expected to be significant, thus, for these subprojects a general bio-ecological description of the subproject area would be sufficient for description of baseline biological environment.

Table 8.6 Guidelines for collection and presentation of data for Biological environment for a sub project

Sub project	Data / Information from secondary source	Data from primary survey / measurement
Expansion of Existing MV Station and construction of MV (33/11 KV) Substation	General Bio-ecological features, wild life sanctuary, Natural Habitats	Number of trees to be felled; Area to be cleared of vegetation; Filling up of seasonal wetland (if required)
Construction of 33 KV & 11 KV Distribution Lines, LV Lines and MV/LV Transformer	General bio-ecological features, Wildlife sanctuary, Natural Habitats; Plant and animal diversity	Number of trees to be felled or trimmed
Household Connections and Meters	General bio-ecological features	Number of trees felled or trimmed
Bio Gas Plant	General bio-ecological features, Wildlife sanctuary, Natural Habitats; Plant and animal diversity	Number of trees to be felled
Solar Home System (SHS)	General bio-ecological features	Number of trees felled or trimmed
Mini Grid Photovoltaic PV System	General bio-ecological features, Wildlife sanctuary, Natural Habitats; Plant and animal diversity	Number of trees to be felled or trimmed
Mini Hydro Plant (<1MW)	General bio-ecological features, Wildlife sanctuary, Natural Habitats; Plant and animal diversity	Number of trees to be felled, biodiversity study: aquatic biota at intake stream / river,
Diesel Generator Plant	General bio-ecological features, Wildlife sanctuary, Natural Habitats; Plant and animal diversity	Number of trees to be felled
Wind Energy Plant	General bio-ecological features, Wildlife sanctuary, Natural Habitats; Plant and animal diversity	Number of trees to be felled or trimmed, avian study of birds / bats at project site

Physical-chemical environment

The important physical-chemical parameters for defining baseline include:

Important Environmental Features

The baseline exercise will include a map of Important Environmental Features (IEFs) such as Natural Habitats (including land and water), human settlements; educational institutions (school, college,

university); health care facilities (hospitals, clinics); commercial/recreational establishments (tea shops, markets, restaurants, parks, offices); religious establishments (temples, pagodas, shrines); major utility infrastructure (water/wastewater treatment plants, water mains, sewers, power plants, sub-station, gas/electricity transmission/distribution lines); landfills; and physical and cultural resources.

Under most circumstances, it is sufficient to identify IEFs based on a survey covering the subproject influence area. Thus, a rapid physical survey of each subproject and a desk review of available maps will be required to identify the IEFs within the subproject influence area.

Climate
It is important to have a general idea about the climate of the area where the subproject would be implemented. Important climatic parameters include precipitation, temperature, relative humidity, wind speed and direction. These data should be collected from secondary sources (e.g. Hydro-Meteorological Department, Myanmar Information Management Unit, Myanmar Meteorological Department).

Topography and Drainage
Data and information on topography are important for the design of the subprojects. Information on the topography is essential for locating subprojects in areas with low environmental impacts. For example, it is important to know whether the area where the substation would be constructed suffers from water-logging or inundation problems, which could endanger the equipment and operation for the substation. For the design of these subprojects, it may be necessary to carry out topographic survey in the subproject area. However, for environmental assessment (EIA or EMP), secondary information on topography and drainage may be sufficient.

Geology and soil
Characteristics of soil could be important if a particular subproject involves significant excavation/ earthworks, because wind-blown dust from these activities could contribute to air pollution. In such cases, characteristics of soils (particularly heavy metal content) are often determined as a part of baseline survey. However, considering the nature and scale of the structures to be constructed in the subprojects to be implemented under the ESE/DRD, geology and soil characteristics do not appear to be critical except for the off-grid subproject. However for mini-hydropower, geology and soil pose a very critical parameter to assess as they play a very important role in dam stability. The soil for the foundation of a dam construction should have enough bearing capacity to withhold the dam from seepage, and bearing pressure

Air quality
Data on ambient air quality is not likely to be available in the areas where the ESE and DRD subprojects will be implemented. Particulate matter (particularly PM_{10} and $PM_{2.5}$) is the most important air quality parameter from health perspective. However, measurement of air quality is relatively expensive and facilities for air quality measurement are not widely available. Therefore, baseline air quality data (PM) may be collected only when impacts to air quality are considered high meriting a detailed ESIA.

Noise Level
Noise is typically generated from operation of machines and equipment (e.g., pile drivers, excavators, concrete mixing machine), and movement of vehicles. Noise is of particular importance if the subproject component (e.g. substation, transmission tower, or other subproject) is located close to sensitive installations such as educational institutions, health care facilities, religious establishments, and human settlements. Activities to be carried out during construction phase of the subprojects would generate noise. For subprojects with potential for significant noise generation during operation and close to sensitive installations, baseline noise level should be measured and recorded, so that these could be compared with those generated during construction/operation phase of the subprojects. The location and frequency of baseline noise level measurements would depend on physical extent of project, and presence of sensitive installations within subproject influence area, as noted above.

Water Quality

A number of activities during the implementation of subprojects could have impacts on water quality both during construction and operation. Accidental spillage of gasoline, transmission oil, transmission oil, transformer oil, etc., may contaminate surface or ground water-bodies. Stagnation resulting from obstruction of cross drainage pattern in rural areas following construction of access roads and substations may result in deterioration water quality in the areas surrounding these sites. For subprojects close to sensitive installations such as educational institutions, health care facilities, religious establishments, and human settlements as well as important natural habitats, baseline water quality of the relevant water body should be measured, as a part of baseline.

With respect to water quality, the dry season is the critical period, and hence water samples for water quality characterization should –where relevant-- be collected during the dry season. Parameters will be determined for each subproject, and could include pH, TDS, TSS, ammonia, nitrate, phosphate, BOD_5, and COD.

Traffic
Storage of construction materials, power cables (conductors), poles of distribution lines, steel members of transmission towers, transformers, etc. on adjacent roads are likely to cause traffic congestion. Similarly, movement of additional vehicles carrying construction and power transmission equipment along public roads is likely to increase traffic congestion. For all subprojects, it would be necessary to collect traffic data from primary survey, as part of carrying out ESMP/ESIA (by the consultant engaged for this purpose); both number and composition of traffic are important in the baseline study.

Electro-Magnetic Fields (EMF):
Health concerns over exposure to EMF are often raised when a new transmission line is proposed. To date the research has not been able to establish a cause and effect relationship between exposure to magnetic fields and human disease, no a plausible biological mechanism by which exposure to EMF could cause disease. Rehabilitation of existing power lines in unlikely to increase EMF but new lines may induce EMF. However, this issue needs to be addressed while conducting a comprehensive impact assessment. Thus, measurement of existing EMF along the selected route of the existing and new transmission and distribution lines around the substation sites would be necessary, as a part of carrying out ESMP /ESIA (by the consultant engaged for this purpose).

Below table presents a guideline for collection of primary and secondary data on physical-chemical environmental parameters for different types of sub projects.

Table 8.7 Guideline for collection of sub project specific physical-chemical data / information

Sub project	Data / Information from secondary source	Data from primary survey / measurement
Expansion of Existing MV Station and construction of MV (33/11 KV) Substation	IEFs; Climate; Geology and soil; Hydrology and water resources; and drainage	IEFs; Noise level, Soil, Surface water quality[1]; site topography; EMF
Construction of 33 KV & 11 KV Distribution Lines, LV Lines and MV/LV Transformer	IEFs; Climate; Geology and soil; Topography and drainage, Hydrology and water resources	IEFs; Noise level, Surface water quality[2]; Traffic; EMF
Household Connections and Meters	Climate, Geology and soil; Topography and drainage, Hydrology and water resources	IEFs; Site topography
Bio Gas Plant	IEFs; Climate; Geology and soil; Topography and drainage, Hydrology and water resources	IEFs; Noise level, Soil, Surface water quality[1]; site topography
Solar Home System (SHS)	Climate; Geology and soil; Topography and drainage, Hydrology and water resources	IEFs; site topography
Mini Grid Photovoltaic PV System	IEFs; Climate; Geology and soil; Topography and drainage,	IEFs; Surface water quality[1]; site topography

	Hydrology and water resources	
Mini Hydro Power Plant (<1MW)	IEFs; Climate; Geology and soil; Topography, Hydrology and drainage	IEFs; Noise level, Soil, Surface water quality testing; site topography
Diesel Generator Plant	IEFs; Climate; Geology and soil; Topography and drainage, Hydrology and water resources	IEFs; Noise level, Soil, Surface water quality[1]; site topography, noise level, air quality (if required)
Wind Energy Plant	IEFs; Climate; Meteorological data including wind speed and direction (minimum past continuous 7 years data), Geology and soil; Topography and drainage, Hydrology and water resources	IEFs; Sub project site wind (speed and direction) for analysis of feasibility study for plant implementation; site topography, noise level

[1]If water body is located close to the sub project site
[2]If the power line passes over or close to stream/ river / wetlands

Social Issues

All the NEP sub-projects, whether focused on grid extension or off-grid electrification, are expected to cause socio-economic impacts in the communities within which they are implemented. In most cases, these impacts are expected to be positive but adverse impacts may also occur.

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.

Potential social impacts are discussed in detail in the *Preliminary Poverty and Social Assessment (PSIA) to inform NEP* Report. In summary, the most significant direct impacts, whether positive or negative, are likely to result from: changes within communities that result from access to electricity (livelihoods, education and health infrastructure and outcomes, women's empowerment, etc.); changes in land use; impacts during construction and operations activities; and, as relevant, potential impacts on ethnic minorities and vulnerable groups.

When preparing the socio-economic baseline for a subproject, key primary and secondary data is required to be collected to inform the development of a Community Profile. Table 8.8 below summarises the key data to be collected from both secondary sources and through primary research. Sources of secondary data will include the Integrated Households Living Condition Assessment (IHLCA), the 2014 Myanmar Population and Housing Census, the Living Standards Measurement Study (LSMS) and also other data available from the Central Statistical Organization (CSO). As shown in Table 8.8, primary surveys will need to be undertaken to supplement available secondary data.

Table 8.8 Guidelines for collection and presentation of data for Social Issues for a subproject

Subproject	Data / Information from secondary source	Data from primary survey / measurement
Upgrade/Construction of 33/11 KV Substation / Switching stations	Demographic characteristics, including administrative boundaries, ethnic and gender composition Settlement patterns Planning and zoning (land use and land ownership) Livelihood data Social infrastructure: education and health facilities	Livelihood and land use survey Local companies and workers that may be able to be involved in construction and/or operations activities
Construction / Rehabilitation of 33 KV & 11 KV Distribution Lines	Demographic characteristics, including administrative boundaries, ethnic and gender composition Settlement patterns Planning and zoning (land use and land ownership) Livelihood data Social infrastructure: education and health facilities Electricity infrastructure (government-provided)	Livelihood and land use survey Local companies and workers that may be able to be involved in construction and/or operations activities Organizational capacity, current role and governance of Village Electrification Committee (VEC) Electricity infrastructure (privately provided)
Bio Gas Plant	Demographic characteristics, including administrative boundaries, ethnic and gender composition Settlement patterns Planning and zoning (land use and land ownership) Livelihood data Social infrastructure: education and health facilities Electricity infrastructure (government-provided)	Livelihood and land use survey Local companies and workers that may be able to be involved in construction and/or operations activities Organizational capacity, current role and governance of Village Electrification Committee (VEC) Electricity infrastructure (privately provided)

Subproject	**Data / Information from secondary source**	**Data from primary survey / measurement**
Mini Hydro Plant (<1MW)	Demographic characteristics, including administrative boundaries, ethnic and gender composition Settlement patterns Planning and zoning (land use and land ownership) Livelihood data Social infrastructure: education and health facilities Electricity infrastructure (government-provided)	Livelihood and land use survey Local companies and workers that may be able to be involved in construction and/or operations activities Organizational capacity, current role and governance of Village Electrification Committee (VEC) Electricity infrastructure (privately provided)
Diesel Generator Plant	Demographic characteristics, including administrative boundaries, ethnic and gender composition Settlement patterns Planning and zoning (land use and land ownership) Livelihood data Social infrastructure: education and health facilities Electricity infrastructure (government-provided)	Livelihood and land use survey Conflict assessment Local companies and workers that may be able to be involved in construction and/or operations activities Organizational capacity, current role and governance of Village Electrification Committee (VEC) Electricity infrastructure (privately provided)
Photovoltaic PV System SHS	Demographic characteristics, including administrative boundaries, ethnic and gender composition Settlement patterns Planning and zoning (land use and land ownership) Livelihood data Social infrastructure: education and health facilities Electricity infrastructure (government-provided)	Livelihood and land use survey Local companies and workers that may be able to be involved in construction and/or operations activities Organizational capacity, current role and governance of Village Electrification Committee (VEC) Electricity infrastructure (privately provided)

Subproject	Data / Information from secondary source	Data from primary survey / measurement
Wind Energy Plant	Demographic characteristics, including administrative boundaries, ethnic and gender composition Settlement patterns Planning and zoning (land use and land ownership) Livelihood data Social infrastructure: education and health facilities Electricity infrastructure (government-provided)	Livelihood and land use survey Local companies and workers that may be able to be involved in construction and/or operations activities Organizational capacity, current role and governance of Village Electrification Committee (VEC) Electricity infrastructure (privately provided)

Assessment and Evaluation of Environmental and Social Impacts

After identification of the sub-project activities during the construction and operations phases, the next step involves the assessment/evaluation of the potential environmental and social impacts of these activities on the existing environment as documented in the environmental and social baseline.

Assessment and Evaluation of Environmental and Social Impacts during the Construction and Operations Phases of a Sub-Project

Potential environmental and social impacts during the construction and operations phases of sub-projects can be categorized into: (a) bio-physical-chemical (BPC) impacts; and (b) social impacts. As undertaken in the scoping phase, the potential environmental and social impacts of a proposed sub-project will be rated using the methodology included in section 8.4. That is, BPC and social impacts will be assessed using four parameters: extent; magnitude; duration; and probability and then scored as 1(low), 2(medium) and 3 (high). BPC and social impacts will be also classified as positive or negative.

BPC Impacts:

Changes in the following issues / considerations may be generally assessed for impacts of the subprojects on the BPC impacts:

Surface Water Quality:
Pollution to surface water sources may result from discharge of wastewater (e.g. liquid waste from labor sheds), spills and leaks of oils / chemical into nearby water bodies and erosion from soils stripped of vegetation. The presence and existing use of water bodies surrounding the subproject site would determine the level of impact. For example, if a pond located close to a subproject site is being used for washing/ bathing or for fish culture, pollution of the pond from subproject activities would generate significant adverse impacts.

Construction of infrastructure near water bodies could also generate water pollution during construction phase. Leakage of oils/fuel from diesel generator could also pollute surface water sources nearby.

Ground Water Quality:
Soil contamination from spilled oils, lubricants can pose a risk to and ultimately pollute ground water resources of the locality of a sub project. Over exploitation of ground water resources (over pumping)

for a sub project can also change the ground water level, and can ultimately impose subsidence in the locality. However, it is not expected that subprojects will make use of excessive ground water resources.

Drainage congestion:
During execution of civil engineering projects, temporary drainage congestion often results from obstruction to natural flow of drainage water due to the storage of materials, piled up excavated material / soil, and temporary embankments constructed to keep the work area dry. Such congestion is particularly important at the project sites adjacent to low-lying areas. Drainage congestions could create significant discomfort to people living in project-surrounding areas.

In some sub projects, construction debris is likely to be generated from different sub project activities. Solid wastes will also be generated from labor sheds. Improper management of construction debris and solid waste could cause blockage of drainage line/path and environmental pollution.

Erosion and siltation:
During construction of a sub project erosion and siltation may result due to soil condition of the foundation, slope or the hydro-morphology of a stream or river, in the case of Mini-Hydro.

Air Quality:
During construction phase, air pollution may result from emissions from machines and equipment (e.g. drilling rig, mixing machines, generators) used for different sub project activities, and movement of vehicles (carrying material and equipment) to and from the subproject site. However, for the proposed sub project, adverse impacts of air pollution are likely to be limited to the areas surrounding the sub project sites.

Noise Level:
Noise pollution could results from a wide range of construction activities, including movement of vehicles (carrying equipment / material to and from site), operation of construction equipment and generators. Significant noise is generated from operation of pile drivers, bulldozers, dump trucks, compactors, mixing machines, and generators, etc. (which could be used for construction of substations and transmission towers).Demolition activities, if required, also generate noise. Such noise may cause discomfort to the people living in the surrounding areas at close proximity of the sub project site, especially if such activities are continued during the night. Noise pollution is particularly important for sensitive establishment; e.g. hospitals, educational and religious institutions.

Aquatic and Terrestrial Biota:
The proposed Subproject Mini Hydro power plant (<1MW) will be a run-of-the river hydroelectric plant, which do not require the construction of a dam and can be installed in place where the water drop and the steady flow rate are high enough. However, Mini Hydro can impact fish migration by the way of interfering to fish migration route. Moreover, fish and other aquatic biota could be sucked into the turbines of a hydro power plant.

The oscillating blades of the wind energy plant generate wind energy which is converted into electricity at the wind energy plants. Flying birds, bats and avian population encounter risk of being cut by the blades while they fly in the air near / at the plant

Some of the power transmission line may have to cross some major River like Ayeyarwaddy, Chindwin, or Sittang River. The foundation of each tower requires installation of piles of large diameter to a depth of significant length. Pile driving activities generate very high under water noise levels and have potential impact on the aquatic life. Piles are usually driven into the substrata using one of two types of hammers – impact hammers and vibratory hammers .Impact hammers consist of a heavy weigh that is repeatedly dropped onto the top of the pile, driving it into the substrata. Vibratory hammers utilize a combination of a stationary, heavy weight and vibration, in the plane perpendicular to the long axis of the pile, to force the pile into the substrate. The type of hammer used depends on a variety of factors, including pile material and substrate type. Impact hammers may be more harmful than vibratory hammers for two reasons: First they produce more intense pressure waves, and second, the

sounds produced do not elicit an avoidance response in fishes, which will expose them for longer periods to those harmful pressures.

It can be concluded that noise levels from vibratory pile driving are limited to near the vicinity of piles and have comparatively lesser impacts on fisheries and other aquatic life than impact drivers.

Disease Vector population:
During the construction phase of a sub project, water borne disease, cholera, dysentery, malaria and other contagious diseases are to be considered that can have a negative impact to the health and well-being of the workers and local population. Insanitary practices and unhealthy living with no proper sanitation facilities and drainage, may impact the health of workers, especially contagious disease may affect the other person's health (for example: disease transmitted from one person to another through excrement, body fluids) and ultimately the entire surrounding inhabitants with a risk of an epidemic if not properly addressed.

Land Cover:
Sub-projects can directly cause or indirectly induce land use change. The sub-project site will be strategically selected to cause or induce the least amount of land use change.

Areas of Natural Habitat:
Sub-projects can directly or indirectly affect Natural Habitats in a variety of ways from land use change to the introduction of invasive species. NEP will carefully consider mitigation measures such as site selection to cause or induce the less possible conversion or degradation of Natural Habitats. This ESMF includes provision to avoid the implementation of a particular subproject if it is considered to cause significant impact on Natural Habitats.

Social Impacts

Table 8.9 below summarizes key potential social impacts that typically occur during the construction and operations phases of infrastructure projects, including the type of grid and off-grid subprojects to be implemented. To identify key potential impacts, each subproject will need to be assessed in detail by District PMOs that are familiar with the community and cultural context of the location within which the subproject is proposed to be implemented. PMOs will be supported by TA/consultant teams and may contract consultants and NGOs/CSOs to prepare safeguard instruments.

Common impacts of infrastructure projects can be grouped into four themes: social and cultural impacts and changes; economic changes; socio-environmental changes; and impacts that result from the processes through which projects are designed, implemented, monitored and evaluated. Social impacts may be the direct result of the subproject or they may be indirect impacts over time over which the subproject has no influence or control.

The social impact assessment aims to help design subprojects to enhance benefits and avoid or mitigate adverse impacts. It will also inform the preparation of RAPs and IPPs when needed (please see Annexes 5 ad 6 for details on the preparation of RAPs and IPPs). The *themes of common changes* and *description of potential impacts / mitigation measures* should be considered by the PMOs when identifying potential impacts associated with the sub-projects at a scale proportional to the sub-project's level and type of impacts.

Please note that these themes are provided as indicative guidance only as many sub-projects are likely to have mainly positive impacts and likely to have only minor or limited adverse social impacts. Additional guidance and specific case study examples may be prepared under the TA activities during project implementation.

Table 8.9 Description of Potential Social Impacts

Theme of Common Impacts	Potential Impacts, Issues and Mitigation Measures
Social and Cultural Impacts and Changes	
Population and demographics	In-migration, out-migration, workers' camps, social inclusion, conflict and tensions between social groups
Social infrastructure and services	Demands on and investment in housing, skills (shortages, retention), health (i.e. health clinics), education (i.e. schools), and training
Social order	Change in social norms, pace of change for vulnerable communities
Culture and customs	Change in traditional family roles, changing production and employment base, change in civil society participation, community cohesion, community leadership, cultural heritage
Community health and safety	Disease, vehicle accidents, spills, alcohol and substance abuse, pollution, interruption to traditional food supply, awareness and treatment programs
Labor	Health and safety, working conditions, remuneration, labor force participation for women
Gender and vulnerable groups	Disproportionate experience of impact and marginalization of vulnerable groups (e.g., women, disabled, aged, ethnic minorities, indigenous, and young), equity in participation and employment
Security	Conduct of security personnel
Economic Change	
Distribution of benefits	Employment, training, local business spending, community development and social programs, compensation, managing expectations, equitable distribution across state/regional, local/ethnic/ family groups
Inflation/deflation	Food, access to social services
Infrastructure	Demands on in roads, rail, ports, sanitation, telecommunications, power and water supplies
Socio-Environmental Change	
Pollution and amenity	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 to monitor and regulate
Resources (access/competition)	Land, water (groundwater, river, ocean), cultural heritage, forest resources, human
Resettlement	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

Theme of Common Impacts	Potential Impacts, Issues and Mitigation Measures
Disturbance	Disruption to economic and social activities, consultation for land access, frequency and timing, compensation
The Process of Change	
Community engagement	Consultation, communication, participation, empowerment, access to decision makers, transparency, timing, inclusiveness – particularly for vulnerable and marginalised groups – respect of customs and authority structures, reporting
Participation	Planning, development of programs, monitoring, selection of alternatives and technologies, operational aspects
Remedy	Grievance and dispute resolution, acknowledgment of issues, compensation, mitigation
Agreements	Equity, timely honoring of commitments, issues with delivery, duress, clarity of obligations, capacity and governance (including government capacity to respond to and manage change)
Community development	Participation, adequacy, appropriateness, capacity to facilitate, consistency, prioritization

Environmental and Social Management Plan (ESMP)

An Environmental and Social Management Plan (ESMP) is prepared either as a stand-alone document or as part of an ESIA depending on the scale and scope of identified potential environmental and social impacts. 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; and

(c) a monitoring plan to assess the effectiveness of the mitigation measures employed.

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 all sub-projects, the ESMP should be a part of the Contract Document.

The major components of the ESMP include:

- Summary of Impact Analysis
- Mitigation and enhancement measures
- Community Consultation and Engagement Approach
- Grievance Redress Mechanism
- Monitoring plan
- Estimation of cost of ESMP
- Institutional arrangements for implementation of ESMP
- Capacity Building Plan

Mitigation and Enhancement Measures

Mitigation and enhancement measures will be designed in accordance with existing GoM regulations and World Bank Group Safeguard Policies. These will include but not be limited to noise and vibration generation, air quality, vapor and exhaust emissions, water quality, fisheries, access to natural resources, impacts on utilities, public/worker health and safety and social and cultural impacts including land use.

Construction Phase:

This section suggests mitigation and enhancement measures that could be applied to sub-project construction. It is expected that sub-project specific ESMP and ESIA, where applicable, will determine more specific impacts and mitigation measures. Preliminary estimations and field visits to potential project sites and existing examples of typical infrastructure likely to be funded through the Project reveal that many of the potential adverse impacts anticipated could be minimized by adopting readily available mitigation measures. There is also scope to enhance some of the beneficial impacts generated by the proposed sub-projects.

In order to identify potential mitigation/enhancement measures, the possible impacts have been categorized into:

(a) "general impacts", which are typical common impacts likely to be experienced in most sub-projects,
(b) "sub-project specific impacts" which are impacts considered likely for particular sub-projects.

Annex 2 shows typical activities to be carried out under the different sub projects, corresponding general impacts and suggested mitigation and enhancement measures.

Operations Phase:

Apart from regular operation and maintenance, a number of issues have been identified as critical to reduce or avoid possible adverse environmental impacts.

These include regular maintenance of storm drains (e.g. restricting discharge and periodically cleaning the drain) to reduce the risk of water pollution. Adequate monitoring is also needed to ensure that the storm drain does not receive direct discharge of toilet wastewater from the office or residential quarters located within the sub-project area, as relevant. Such discharges would contaminate the drainage water,

and eventually the receiving water body (river or stream), and would bring about a wide range of adverse environmental and health outcomes.

Accidental spillage of transformer/generator fuel into the drainage system is also a serious concern, which can cause environmental pollution. Spilled fuel from a transformer/generator, if not properly disposed of, could bring about adverse health and environmental impacts.

Proper management of traffic and pedestrian movement could minimize increased risks of accidents during the maintenance of transmission lines/distribution lines sub-projects near roadways. Movement of heavy vehicles (loaded trucks) on local roads is a likely cause of road damage at many sub-project sites.

Annex 2 shows some important potential subproject impacts during the operations phase and corresponding mitigation measures.

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. In accordance with the Institutional Implementation Framework developed for the Project, District PMOs are responsible for planning and implementation of sub-projects in coordination with Village Electrification Committees (VECs), District Government and State/Region Government. The District PMOs are also responsible, under the guidance of the Union PMO, for monitoring the implementation of sub-project safeguard instruments. Detailed monitoring arrangements for specific sub-projects will be outlined in the safeguard instruments prepared for each sub-project (see also Section 9.1).

During project implementation, the Union PMO (either directly or through the District 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. ESIAs, ESMP RAP, IPP), as well as those required by national legislation. The Union PMO (either directly or through the District 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. A supervision report discussing the environmental and social management issues reviewed during the supervision site visit will be included in the site visit report.

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 ESIA/ESMP/ECoP/RAP/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 ESIA/ESMP/ECoP/RAP/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 during preparation of the ESMP (standalone or under ESIA) or selection of ECoP. Table 9.1 below provides a general example of monitoring arrangements.

The (daily) 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 ear plugs etc. and regularly rotated.

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

- The construction camps 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.

- The construction camps shall have in-house community / common entertainment facilities.

- Daily/weekly check on ESMP requirements.

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

Table 9.1: Guidelines for monitoring of environmental parameters during construction for subprojects with medium/high impacts

Monitoring Parameter and Scenario	Monitoring Frequency	Resource Required and Responsibility
Noise Level	Once every week, particularly during operation of heavy equipment	Contractor, under guidance of PMOs
Surface Water Quality (pH, BOD_5/ COD)	Once during construction period (at a location downstream of the work area)	Contractor, under the guidance of PMOs
Appropriate Disposal of Chemical Oil	Once a week during operation period as and when needed	Contractor, under the guidance of PMOs
Visual observation of drainage congestion within around subproject location	Monthly	Contractor, VEC staff
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,	Once a week, when drainage / traffic congestion suspected Once a week, and as and when needed	Contractor, under the guidance of PMOs

etc.)		
Monitoring and surveillance for prevention of fire hazard	Once a week, and as and when needed	VEC staff under the guidance of

Monitoring during operation

During operational phase, monitoring of environmental parameters would be required for the subproject. Table 9.2 presents guideline for monitoring of specific environmental parameters during operation phase that needs to be further tailored to specific subproject

Table 9.2 Guidelines for monitoring during operational phase

Parameters	Monitoring Frequency	Resource Required and responsibility	Comment
Danger Trees	Once every month, and as directed by Project Engineer	Vehicle with Ladder and cutting accessories; maintenance team's responsibility	Results to be reported to ESE or relevant party
Dielectric strength of Transformers	Once in 6 months, and as directed by the Project Engineer	Testing equipment, Monitoring team	Results to be reported to ESE or relevant party
Tan – ð test	Once in 10 years, and as directed by the Project Engineer	Testing equipment, Monitoring team	Results to be reported to ESE or relevant party
Water Pollution	Once in 6 months, and as directed by the Project Engineer	Testing equipment, Monitoring team	Results to be reported to ESE or relevant party
Noise Level	Once in 6 months, and as directed by the Project Engineer	Testing equipment, Monitoring team	Results to be reported to ESE or relevant party

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 estimation 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. These estimates should be prepared for all mitigation and monitoring measures proposed in the ESMP/ESIA and RAP and IPP when required.

Cost of implementing subproject safeguard instruments, including monitoring activities, needs to be estimated as a part of the preparation of the ESMP/ESIA/RAP/IPP. Many of the activities to be carried

out as a part of ESMP/ESIA/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 mitigation measures (including health and safety measures) would also require additional cost; these include of 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 in agreement with the respective local authorities depending on the type of subproject; this should be included in the subproject budget.

Table 10.1: Estimated Budget for ESMF Implementation

Activity	Cost Estimate (USD)	Remark
Safeguard Capacity Building	250,000	
Translation and Publication of ESMF material for implementation	75,000	
Screening, Monitoring of subproject safeguards instruments	200,000	
Baseline Studies (air, water, data collection, measurements, social surveys)	600,000	
TA and Consultants	700,000	
Contingency (10%)		
TOTAL ESTIMATED BUDGET	**1,800 ,000**	

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 ongoing 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 6).

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 ESIA/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, (e.g., local and district level ESE, DRD, GAD offices) 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, 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 subprojects (Components 1 and 2) are to be implemented. The objective of the community consultation is to encourage potential beneficiaries to participate in the subprojects, as relevant, by informing them of various benefits of the subproject, and ensuring that they are also aware of potential negative environmental and social impacts, measures to address them and the contact of the GRM, VEC and Safeguard Focal Point within the MOEP 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 application for electricity connection from villagers;

3. Gather information to explain who (female headed households, widowers, elderly, etc.) do not sign up for connection 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 on the danger of electricity, proper house wiring (many utilities have safety standard for house wiring), efficient use of electricity, how to select efficient lighting and home appliances; and

5. Gender sensitive consultations to educate women on the use of electricity for cooking such as electric rice cooker, empowering women by providing information and educating women on electricity tariff, efficient electric appliances that would reduce monthly electricity bill.

Public consultation for the off-grid will also be carried out in the same manner as in the grid case. For example villagers will need to know how the program works, how much the solar home system cost, type of battery, what is the best size for their family, which lighting and appliances are the best fit for the system, quality and warrantee.

Table 11.1Key stakeholder groups

Government and regulatory agencies	DRD, ESE, States/Regions, Districts and Townships.
Private sector companies and social enterprises	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.
Non-government organizations	National, regional and local civil society and Non-government organizations, including environmental and ethnic minority organizations.
Local stakeholders	Community-based organizations (CBOs), Municipal and district-level committees, unions, and other local groups.
Academic and research institutions	Environmental research groups, universities, and technical institutes.
Beneficiaries and affected communities and households	Project beneficiaries 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.
Ethnic minority communities	If projects are planned to be performed in areas ethnic minority communities a process of free, prior and informed consultations will be undertaken with communities in the project area of influence (see IPPF,

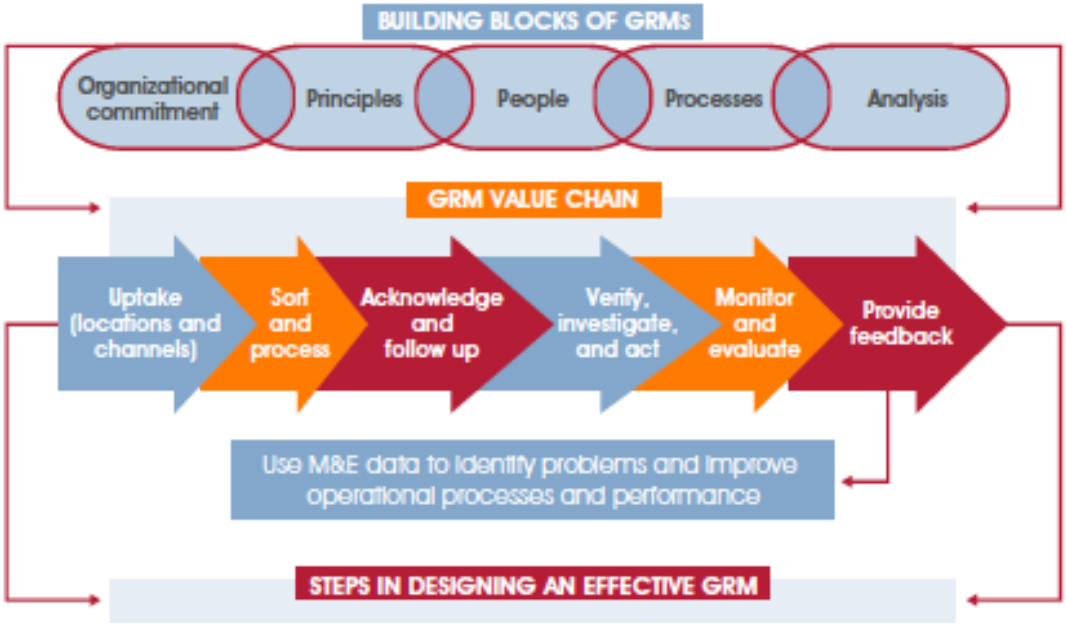
	Annex 5)
Development Partners	Other development organizations engaged in the energy sector in Myanmar

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 7 for more details on the consultation process during preparation of the Project and the ESMF.

12. Grievance redress mechanism

A grievance redress mechanism (GRM) has been prepared for the Project to create an enabling environment for affected communities and individuals to raise complaints to implementing entities in regards 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 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.



Source: World Bank, Feedback Matters: Designing Effective Grievance Redress Mechanisms for Bank-Financed Projects p. 3

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 MOEP 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 MOEP PMO. 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 MOEP 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 MOEP 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 MOEP 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 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 MOEP 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.

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 MOEP 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. For this reason, 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. Sections below describe preliminary plans and arrangements subject to further tailoring during NEP implementation.

PMO Institutional Strengthening and Implementation Support

Institutional Strengthening

Both the MOEP and DRD PMOs have assigned human resources for carrying out safeguard and operational standards-related activities. However, the background and experience of government staff is

mostly focused on engineering and needs to be expanded to cover safeguard expertise (see Capacity Building and Training section below).

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, State/Region and District level PMOs. Specific number of staff and background will be further designed during implementation. The specifics tasks carried out by the Environmental and Social Safeguard Staff will be further developed during implementation and 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;
- Collecting and managing information relevant to the project and accounts (i.e., environmental and social monitoring and audit 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. At minimum, field appraisal should be undertaken to each service provider's first two contracts; 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.
- 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 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 amongst those trained, particularly from within the NGOs/CSOs that will be included in the TAG.

Implementation Support

It is envisioned that the PMO will need on the job training and hand holding in all aspects of safeguards management both technical and operational and both at the national and local level, at least during the early stages of project implementation. To address this, it is envisioned that the project will hire a team of international consultants or a firm (ideally a consortium of a national and an international) to support the PMOs Safeguard Units. The objective of this support will be to ensure sound safeguard management and compliance with the requirements of the ESMF and to deliver the project's outcomes

in a timely manner. The specifics of the consultancy will be further developed during implementation 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, ESMP, ESIA, RAP, IPP) and their related Terms of Reference and interim draft reports;
- Work closely with the PMOs to clarify subproject circle including safeguards requirements, from identification to monitoring, including rules and responsibilities, procedures, templates and clearances both from the World Bank and the GoM side. Whenever the draft Myanmar EIA rules and procedures are approved, work together with the MOEP, MOECAF and DRD to update subproject circle.
- Assist the PMOs in the review and approval of subproject safeguard instruments.
- Liaise closely with the PMOs in the design and implementation of Safeguard Related Capacity Building Program including trainings, knowledge exchanges, mentoring. This will include either directly providing in house training as well as drafting TOR and technical specifications for contracting specific capacity building initiatives, where needed;
- Liaise closely with the PMOs in the design and implementation of Technical Assistance and Analytical work including Environmental and Social Baselines, Surveys and others;
- Support the reporting process including guiding local staff and provide quality control over the preparation of Safeguard's monitoring reports. This includes the drafting of TOR and technical specifications of third party monitoring, including CSOs and NGOs, when needed;
- Advice the PMOs on Stakeholder Engagement, including grievance 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.

In addition, the Project will require a large amount of safeguard instruments related to approximately 1500 subproject for the grid extension and 500 for the off grid on an annual basis (note that not all subprojects will require safeguard instruments and many may only require the application of ECoPs). To address this issue, the PMOs will hire a firm (ideally a consortium of a national and an international firms) as a retainer to be activated when an environmental and/or social instrument is needed. The specifics of the consultancy will be further developed during implementation but it is envisioned that it will cover the following activities:

- Preparation of Environmental and Social instruments, including screening/scoping reports, in accordance to the ESMF, World Bank safeguards and Myanmar regulation
- Gathering of the necessary baseline data to assess environmental and social impacts, when needed
- Assist in the design, organization and delivery of appropriate sub-project related consultations, including disclosure of documentation
- Provide on the job capacity building to local PMOs staff as well as any other stakeholder working on the implementation of NEP

Safeguards-related Capacity Building Program

The PMO, together with the implementation support firm, will identify capacity building needs on an ongoing basis as well as design and regularly update a Capacity Building Program during implementation. This Capacity Building Program will cater to the PMOs but also may include other entities involved in implementation of the ESMF and subproject safeguard instruments such as VECs, NGOs, local communities, and private sector entities involved in NEP activities, in coordination with capacity building provided by the Technical Support Unit (TSU) and local technical advisors (LTA) including local CSOs and consultants collaborating with local governments. Efforts will be made to ensure that both male and female staff of relevant agencies and communities have equal opportunity to participate in the capacity building and training support from the Project. Likewise, efforts will be made to ensure that ethnic minority representatives are included amongst those trained, as appropriate.

Safeguard Capacity Building Program

Initial training needs analysis undertaken during project preparation indicates that basic training will be needed on regulatory requirements, environmental and social impact assessment, preparation and implementation of safeguard instruments (e.g. ESMP, RAP, IPP), monitoring and evaluation, and public consultations and community engagement.

Table 12.1. Training Requirements for Environmental and Social Management

Training Type /Contents	Participants	Schedule
General environmental and social awareness, regulatory requirements, ESMF for project, environmental and social impacts and mitigation, analysis of alternatives, environmental and social management	Relevant engineers/ officials of MOEP/ DRD	Prior to commencement of subproject activities
Advance training on environmental and social assessment and management (ESIA, ESMP, RAP, IPP, EC_OP), monitoring, including details on ESMF	Participants from (a) Environment/safeguard Unit of MOEP/ M_OLFRD (b) Relevant engineers/ official of ESE/DRD Participants will include local level staff	Immediate after project commencement
Mentoring and on the job training for the PMOs four dedicated staff, by pairing them with international consultants, specific site visits, study tours, etc.	PMOs environmental and social dedicated staff, including local level staff	Immediate after project commencement
Health and Safety, and relevant Performance Standards, such as Labor	PMOs environmental and social dedicated staff, included local level staff, constructor when necessary	Prior to commencement of subproject activities

A preliminary safeguards Capacity Building Program is presented below. This program will be refined and adjusted throughout project implementation.

<u>At Project Launch</u>

General introduction to the ESMF and practical lessons on implementation of ESMFs in the contact of Myanmar.

Audience: All PMO (Union, State/Region, District) and other relevant government staff.

<u>Year 1: Training Activities:</u>

Workshop 1: General Introduction to ESMF and World Bank Safeguard Policies (2 days)

Audience: All PMO (Union, State/Region, District) and other relevant government staff, TSU and TAG members, consultants, and civil society.

Workshop 2: Training on Environmental and Social Instruments, ESMP and ECoP (4 days)

Audience: PMO Environmental, Social and Engineering Staff (Union, State/Region, District), other relevant government staff, TAG members, consultants, service providers and civil society.

Workshop 3: Training on Environmental and Social Management Action Plan (ESIA): 1 day

Audience: PMO Environmental, Social and Engineering Staff (Union, State/Region, District), other relevant government staff, TAG members, consultants, service providers (?) and civil society.

Workshop 4: Training on Resettlement Action Plans: 1 day

Audience: PMO Environmental, Social and Engineering Staff (Union, State/Region, District), other relevant government staff, TAG members, consultants, service providers (?) and civil society.

Workshop 5: Training on Indigenous Peoples Plans: 1 day

Audience: PMO Environmental, Social and Engineering Staff (Union, State/Region, District), other relevant government staff, TAG members, consultants, service providers (?) and civil society.

Workshop 6: Specialized Training as Needed to Contractors (1 day)

Audience: Contractors and Construction Supervision Consultant Responsible for ESMP, Occupational Health and Safety

Annual Training: Years 2-5

Refresher Course: General Introduction to ESMF and World Bank Safeguard Policies: 2 days

Audience: All PMO (Union, State/Region, District) and other relevant government staff, TSU and TAG members, consultants, and civil society.

Refresher Course: Specialized Training as Needed to Contractors (1 day)

Audience: Contractors and Construction Supervision Consultant Responsible for ESMP, Occupational Health and Safety

Annex 1

Screening Form for Potential Environmental & Social Safeguards Issues

This form is to be used by the Implementing Agency to screen potential environmental and social safeguards issues in subprojects, determine Bank policies triggered and the instrument to be prepared

Subproject Name	
Subproject Location	
Subproject Proponent	
Subproject Type/Sector	
Estimated Investment	
Start/Completion Date	

Questions	Answer		If Yes WB Policy triggered	Documents Required if Yes
	Yes	No		
Are the subproject impacts likely to have significant adverse environmental impacts that are sensitive,[12] diverse or unprecedented?[13] Please provide brief description:			*OP 4.01 Environmental Assessment* Category A	Scale and Impacts are outside scope of Project, subproject is not elligible
Do the impacts affect an area broader than the sites or facilities subject to physical works and are the significant adverse environmental impacts irreversible? Please provide brief description:			*OP 4.01 Environmental Assessment* Category A	Scale and Impacts are outside scope of Project, subproject is not elligible
Is the proposed project likely to have minimal or no adverse environmental impacts?[14] Please provide brief justification.			*OP 4.01 Environmental Assessment* Category C	No action needed beyond screening and application of relevant ECoPs.
Is the project neither a Category A nor Category C as defined above?[15] Please provide brief justification.			*OP 4.01 Environmental Assessment* Category B	Limited ESIA or ESMP

[12] Sensitive (i.e., a potential impact is considered sensitive if it may be irreversible, e.g., lead to loss of a major natural habitat, or raise issues covered by OP 4.04, Natural Habitats; OP 4.36, Forests; OP 4.10, Indigenous Peoples; OP 4.11, Physical Cultural Resources; or OP 4.12, Involuntary Resettlement; or in the case of OP 4.09, when a project includes the manufacture, use, or disposal of environmentally significant quantities of pest control products).

[13] Examples of projects where the impacts are likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented are large scale infrastructure such as construction of new roads, railways, power plants, major urban development, water treatment, waste water treatment plants and solid waste collection and disposal, etc.

[14] Examples of projects likely to have minimal or no adverse environmental impacts are supply of goods and services, technical assistance, simple repair of damaged structures, etc.

[15] Projects that do not fall under Category A or Category C can be considered as Category B. Examples of Category B subprojects include small scale *in-situ* reconstruction of infrastructure projects such as road rehabilitation and rural water supply and sanitation, small schools, rural health clinics, etc.

Questions	Answer		If Yes WB Policy triggered	Documents Required if Yes
	Yes	No		
Are the project impacts likely to have significant adverse social impacts that are sensitive, diverse or unprecedented?[16] Please provide brief description.			*OP 4.01 Environmental Assessment* Category A	ESIA
Will the project adversely impact physical cultural resources?[17] Please provide brief justification.			*OP 4.11 Physical Cultural Resources*	Addressed in ESIA (ESIA with PCR Management Plan and/or Chance Find Procedures)
Will the project involve the conversion or degradation of non-critical natural habitats? Please provide brief justification.			*OP 4.04 Natural Habitats*	Addressed in ESIA
Will the project involve the significant conversion or degradation of critical natural habitats?[18]			*OP 4.04 Natural Habitats*	Not eligible for financing
Does the subproject construct a new dam or rely on the performance of an existing dam or a dam under construction of more than 10 m height?			*OP 4.37 Dam Safety*	Not eligible for financing
Does the subproject construct a new dam water retaining structure (e.g. for hydropower generarion) or rely on the performance of an existing dam or a dam under construction which is below 10m height?			*OP 4.37 Dam Safety*	Dam Safety Plan as part of ESIA/ESMP

[16] Generally, subprojects with significant resettlement-related impacts should be classified as Category A. Application of judgment is necessary in assessing the potential significance of resettlement-related impacts, which vary in scope and scale from subproject to subproject. Subprojects that would require physical relocation of residents or businesses, as well as subprojects that would cause any individuals to lose more than 10 percent of their productive land area, often are classified as Category A. Scale may also be a factor, even when the significance of impacts is relatively minor. Subprojects affecting whole communities or relatively large numbers of persons (for example, more than 1,000 in total) may warrant Category A, especially for projects in which implementation capacity is likely to be weak. Subprojects that would require relocation of Indigenous Peoples, that would restrict their access to traditional lands or resources, or that would seek to impose changes to Indigenous Peoples' traditional institutions, are always likely to be classified in Category A.

[17] Examples of physical cultural resources are archaeological or historical sites, including historic urban areas, religious monuments, structures and/or cemeteries, particularly sites recognized by the government.

[18] Subprojects that significantly convert or degrade critical natural habitats such as legally protected, officially proposed for protection, identified by authoritative sources for their high conservation value, or recognized as protected by traditional local communities, are ineligible for Bank financing.

Questions	Answer		If Yes WB Policy triggered	Documents Required if Yes
	Yes	No		
Does the project procure pesticides (either directly through the project, or indirectly through on-lending, co-financing, or government counterpart funding), or will it affect pest management in a way that harm could be done, even though the project is not envisaged to procure pesticides?			*OP4.09 Pest Management*	Not eligible for project financing
Does the subproject involve involuntary land acquisition, loss of assets or access to assets, or loss of income sources or means of livelihood? Please provide brief justification.			*OP 4.12 Involuntary Resettlement*	Resettlement Action Plan
Are Indigenous Peoples' communities present in, or do they have collective attachment to, the subproject area?			*OP 4.10 Indigenous Peoples*	Indigenous Peoples Plan
Will the project have the potential to have impacts on the health and quality of forests or the rights and welfare of people and their level of dependence upon or interaction with forests; or does it aim to bring about changes in the management, protection or utilization of natural forests or plantations? Please provide brief justification.			*OP4.36 Forestry*	Not eligible for project financing
Will the project have the potential to have significant impacts on, or significant conversion or degradation of critical natural forests or other natural habitats?			*OP4.36 Forestry*	Not eligible for financing
Is there any territorial dispute between two or more countries in the subproject area and in the area of its ancillary aspects and related activities?			*OP7.60 Projects in Disputed Areas*	Governments concerned agree
Will the subproject and its ancillary aspects and related activities, including detailed design and engineering studies, involve the use or potential pollution of, or be located in international waterways?[19]			*OP7.50 Projects on International Waterways*	Notification (or exceptions)

Conclusion and Safeguards Instruments Required

The subproject is classified as a Category _____ project as per World Bank OP 4.01, and the following safeguard instruments will be prepared:

1. _____
2. _____

[19] International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

3. _____
4. _____
5. _____

ANNEX 2: Expected Key Environmental Impacts, mitigation measures and corresponding expected environmental safeguard instruments		
Expected Key Environmental Impacts	**Mitigation Measures**	**Expected Environmental Safeguard Instrument (ECoP, ESMP, ESIA)**
Subproject 1 – Grid Extension Substation		
Construction Stage		
Impact 1: Risk of Lightning, electrocution	Measure 1: • Provide Lightning Arrestors / Earthing	ECoP
Impact 2: Risk of Fire	Measure 2: • Safety measures for fire extinguishers, design for prevention of fire hazards:	ECoP
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	ECoP /ESMP
Impact 4: Occupational Health and Safety[iii]	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.	ECoP / ESMP
Impact 5: Noise Level	Measure 5: • 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.	ECoP /ESMP
Impact 6: Air pollution	Measure 6: • 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	ECoP /ESMP

	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 substation and checking for environmental performance during commissioning of plant.	
Operational Stage		
Impact 1: Change in Noise levels from running equipment	Measure 1: • 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.	ECoP /ESMP
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	ECoP /ESMP
Impact 3: Health and Safety of Workers	Measure 3: • Avoid utilizing PCB Transformers, However, if used, follow ECOP (Annex 10) • Provide PPE to workers.	ECoP / 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	ECoP / ESMP
Overall subproject characterization:		*Category B*

--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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 2 – Grid Extension Distribution and Power Lines		
Construction Stage		
Impact 1: Change in land cover	Measure 1: • Route survey and analysis of alternative routes for finalizing alignments of distribution lies for least impact to land cover and encroachment of private land • Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.	ECoP
Impact 2: Electrocution	Measure 2: • Equip workers with relevant PPE and provide health and safety measures while working on heights	ECoP / ESMP
Impact 3: Occupational Health and Safety	Measure 3: • Adherence to good engineering practice of hoisting poles and towers and preventive measure to prevent accidents and mishaps	ECoP / ESMP

	• Equip workers with relevant PPE and provide health and safety measures while working at heights.	
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • 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.	ECoP /ESMP
Overall subproject characterization:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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		
Impact 1: Change in land cover	Measure 1: • Route survey and analysis of alternative routes for finalizing alignments of distribution lines to household • Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.	ECoP
Impact 2: Risk of Electrocution	Measure 2: • Equip workers with relevant PPE and provide health and safety measures while working on heights	ECoP
Impact 3: Occupational Health and Safety	Measure 3: • 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.	ECoP / ESMP
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • 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. • 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. • Prohibit placing trash container that would attract undesirable pests or dogs under the H-pole. • 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 accessories to household connections	ECoP /ESMP

	• Prevent electricity pilferage (losses) by supply check / counter check the meter box seal (cover, terminal, box) • Law enforcement according to Order 504/2009 if breeching of electrical consumption without a household meter box installed at household level.	
Overall subproject characterization:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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 4 – Off-Grid Bio Gas Power Plant		
Construction Stage		
Impact 1: Change in land cover	Measure 1: • Route survey and analysis of alternative site for subproject land acquisition and for finalizing alignments of distribution lines to household • Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.	ECoP

Impact 2: Occupational Health and Safety	Measure 2: • 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 on heights or handling wastes	ECoP / ESMP
Impact 3: Noise Level	Measure 3: • 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.	ECoP /ESMP
Impact 4: Air pollution	Measure 4: • 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 Bio Gas Power Plant and checking for environmental performance during commissioning of plant.	ECoP /ESMP
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • 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.	ECoP /ESMP

	• Monitoring and surveillance for safety measure to prevent fire hazard	
Impact 2: Occupational Health and Safety	• 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 manometer, water trap, Sulpher cleaner, engine, dynamo and power lines to household connections	ECoP /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	ECoP / ESMP
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.	ECoP / ESMP
Overall subproject characterization:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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 5 – Off-Grid Solar Home System		
Construction Stage		
Impact 1: Electrocution / Occupational Health of workers	Measure 2: • 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 commissioning.	ECoP / ESMP
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • 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	ECoP /ESMP
Impact 2: Health impact from batteries	Measure 2:	ECoP/ESMP

	Explore options for recycling of used batteries. • Collection of used batteries and plan for proper disposal • Proper disposal of used batteries (lead acid or nickel-cadmium) if acid batteries utilized • Use dry cell batteries instead of acid / lead batteries for SHS. • Use of old lead batteries under the subproject is not allowed. • 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 return of those batteries will be incentivized to avoid sales to informal recyclers in Myanmar.	
Overall subproject characterization:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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 6 – Mini Grid Solar Photovoltaic (PV) System		
Construction Stage		
Impact 1: Change in land cover	Measure 1: • 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 • Supervision of vegetation clearance for installation of the mini grid solar panel for maximum sunlight absorption	ECoP
Impact 2: Electrocution / Occupational Health of workers	Measure 2: • Equip workers with relevant PPE and provide health and safety measures while working on heights and electrification work • Ensure technically sound installation of the mini grid solar panel and its accessories for electrification and check for its environmental performance during commissioning.	ECoP / ESMP
Impact 3: Health impact from batteries	Measure 3: • Explore options for recycling of used batteries • 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. • Use dry cell batteries instead of acid / lead batteries	
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • Regular Patrolling along the power lines to identify immediate maintenance operation. • Maintenance work to household electrification such as	ECoP /ESMP

	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:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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		
Impact 1: Change in land cover	Measure 1: • Route survey and analysis of alternative site for subproject land acquisition and for finalizing alignments of distribution lines to household • Clear vegetation, cutting / trimming trees for ROW of	ECoP

	Power line only for relevant areas.	
Impact 2: Electrocution / Occupational Health of workers	Measure 2: • Equip workers with relevant PPE and provide health and safety measures while working on heights or handling wastes	ECoP / ESMP
Impact 3: Noise Level	Measure 3: • 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.	ECoP /ESMP
Impact 4: Air pollution	Measure 4: • 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.	ECoP /ESMP
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • 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	ECoP /ESMP

	prevent fire hazard	
Impact 2: Occupational Health and Safety	Measure 2: • 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.	ECoP / ESMP
Impact 3: Noise Level	Measure 3: • Provide PPE to workers in operation • Noise mitigation measure such as acoustic system / sound proof system in plant / generator, engine room	ECoP / ESMP
Impact 4: Air pollution from exhaust emission, vapor, etc.	Measure 4: • Grow trees within subproject compound and environs to absorb GHG (Green House Gas) emission and Particulate Matter • Ensure exhaust pipe height according to technical specification	ECoP / ESMP
Impact 5: Soil / water pollution from spills and leaks of oil, toxic chemicals	Measure 5: • Good housekeeping, proper handling of lubricating oil and fuel • Collection, proper treatment and disposal of spills • Provide grease / oil traps	ECoP / ESMP
Overall subproject characterization:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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 alignments of distribution lines to household • Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.	ECoP
Impact 2: Electrocution / Occupational Health of workers	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.	ECoP / ESMP
Impact 3: Noise Level	Measure 3: • 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.	ECoP /ESMP

	• Limit the use of construction equipment producing excessive noise from 9:00 a.m. to 5:00 p.m.	
Impact 4: Air Pollution	Measure 4: • 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 Mini Hydro Power Plant and choice of turbine, generator equipment; checking for environmental performance during commissioning of plant.	ECoP /ESMP
Impact 5: Water Pollution	Measure 5: • Prevent discharge of fuel, lubricants, chemicals, and waste (solid / liquid) into river, stream from which hydro power is extracted	ECoP /ESMP
Impact 6: Destruction of Aquatic Habitat	Measure 6: • Install sediment basins or trap sediments in storm water prior to discharge to surface water • Keep noise level (e.g. from equipment) to a minimum level, as certain fauna are very sensitive to loud noise • Provide trash capture mesh / screen at intake / entrance gate of penstock before entering turbine	ECoP /ESMP
Impact 7: Erosion and Siltation	Measure 7: • Develop landscaping and erosion control work • Technically sound engineering design and practice for construction of a mini hydro power plant • Provide stone pitching or masonry work at banks of intake structure • Provide de-silting basin before forebay at inlet of	ECoP /ESMP

	infrastructure and de-silt regularly	
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • 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	ECoP /ESMP
Impact 2: Occupational Health and Safety	Measure 2: • 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.	ECoP / ESMP
Impact 3: Noise Level	Measure 3: • 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.	ECoP / 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	ECoP / ESMP

	• Collection, proper treatment and disposal of spills • Provide grease / oil traps	
Overall subproject characterization:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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 9 – Wind Energy for Electrification		
Construction Stage		
Impact 1: Change in land cover	Measure 1: • Route survey and analysis of alternative site for subproject land acquisition and for finalizing alignments of distribution lines to household • Clear vegetation, cutting / trimming trees for ROW of Power line only for relevant areas.	ECoP
Impact 2: Electrocution / Occupational Health of workers	Measure 2: • Equip workers with relevant PPE and provide health and	ECoP / ESMP

	safety measures while working on heights. • Provide safety measures while installing the wind baldes and hoisting the system • 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 • 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.	
Impact 3: Noise Level	Measure 3: • 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.	ECoP /ESMP
Impact 4: Air pollution	Measure 4: • 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 and handling. • Avoid use of equipment such as stone crusher at site, which produce significant amount of particulate matter	ECoP /ESMP

	• 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.	
Impact 5: Destruction of Avian Population	Measure 5: • 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. • 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. • Configuring turbine arrays to avoid avian mortality (e.g. group turbines parallel to known bird movement) [iii] should be considered during design considerations.	ECoP /ESMP
Operational Stage		
Impact 1: Risk of fire hazard and electrocution	Measure 1: • 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	ECoP /ESMP
Impact 2: Occupational Health and Safety	Measure 2: • Equip workers with relevant PPE and provide health and	ECoP / ESMP

	safety measures while working on heights and handling equipment	
Impact 3: Noise Level	Measure 3: • Provide PPE to workers in operation	ECoP / 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	ECoP / ESMP
Overall subproject characterization:		*Category B*
--'Typical (most common) safeguard instrument for total subproject		ECoP / ESMP (IEE)
--'Possible significant impacts that could require full ESIA 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).

Annex 3: Guidelines for Physical and Cultural Resources

As stated in the World Bank Physical and 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 4: 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.

Annex 5 Indigenous Peoples Planning Framework

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 (KIIs) were conducted across all research sites. The PSIA Phase 1 report was finalised in December 2014.[20]

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.
- urban areas in Yangon, Mandalay, the capital of Rakhine State (Sittwe), and in Thaton in Mon State.

[20] 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.

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[21] and improved electricity services are in demand in ethnic States as well as in the seven Regions of Myanmar (see section on consultations).

[21] Key concerns were raised by ethnic minority and civil society organisations regarding the source of electricity for the grid extension component of the NEP. Particular concerns were expressed regarding the proposed construction of new large-scale

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 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.

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 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.

hydropower projects, which originate in ethnic States. Concerns were also raised regarding coal-fired power stations. Such 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

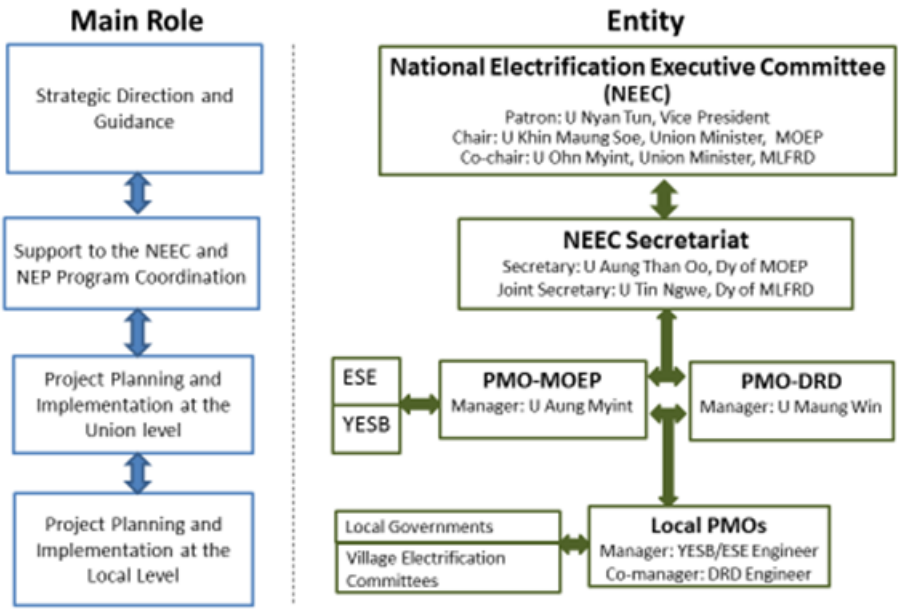
2.2.1 Component 4: Contingent Emergency Response [IDA US$ 0 million].

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.

Figure 4.1: NEP Institutional Implementation Framework



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.[22]

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 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.

[22] http://www.burmalibrary.org/docs15/1991-SLORC_Law1991-09-University_for_the_Development_of_the_National_Races_Law-en.pdf

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[23], which, in its 1983 Procedures, defines 135 national races.[24]

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."[25] 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.

3.1.3 On National Races Law. National Races Protection Law – February 2015

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*[26]. 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.
- 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.

[23] Myanmar Centre for Responsible Business, 2014, Myanmar Oil and Gas Sector Wide Impact Assessment (SWIA)
[24] Burma Library, "Burma Citizenship Law of 1982".
[25] Article 3, Myanmar Citizenship Law.
[26] Union Legislative Assembly: a joint session of upper and lower houses of parliament

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 ethnic minority 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).[27] 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.[28]

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.[29]

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 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.[30] 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;

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[27] Republic of the Union of Myanmar, Directorate of Water Resources and Improvement of River Systems, *Myanmar Ayeyarwady Integrated River Basin Management Project Final Environmental and Social Management Framework*.

[28] http://www.tni.org/sites/www.tni.org/files/download/accesdenied-briefing11.pdf, accessed 09 March 2015

[29] Adam Smith International in partnership with Myanmar Development Resources Institute (MDRI), 2015, Institutional and Regulatory Assessment of the Extractive Industries in Myanmar p. 60

[30] http://documents.worldbank.org/curated/en/2014/11/23025474/myanmar-systematic-country-diagnostic-ending-poverty-boosting-shared-prosperity-time-transition, accessed 04 March 2015

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.[31]

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)[32] estimated that there were at least 110,000 IDPs spread across 23 townships (222 village tracts) in southeast Myanmar.[33] In December 2014, TBC verified 110,094 refugees living in refugee camps.[34] 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.[35]

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.

TABLE 1: THE POPULATION OF MYANMAR BY SEX AND STATE/REGION

[31]Ministry of Health, Republic of the Union of Myanmar. 2014, *Myanmar Essential Health Services Access Project Indigenous Peoples Planning Framework*,

[32] 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.

[33] The Border Consortium, 2015, The Border Consortium Programme Report July – December 2014 p.5

[34] ibid.

[35]http://www.worldbank.org/content/dam/Worldbank/document/EAP/Myanmar/WBG_SCD_Full_Report_English.pdf, accessed 04 March 2015

State/Region	Total	Male	Female
Union	*51,419,420*	*24,821,176*	*26,598,244*
Union (enumerated)	50,213,067	24,225,304	25,987,763
Union (not enumerated)	1,206,353	595,872	610,481
Kachin	*1,689,654*	*877,664*	*811,990*
Kachin (enumerated)	1,643,054	854,633	788,421
Kachin (not enumerated)	46,600	23,031	23,569
Kayah	286,738	143,461	143,277
Kayin	*1,572,657*	*775,375*	*797,282*
Kayin (enumerated)	1,502,904	739,234	763,670
Kayin (not enumerated)	69,753	36,141	33,612
Chin	478,690	230,005	248,685
Sagaing	5,320,299	2,518,155	2,802,144
Tanintharyi	1,406,434	700,403	706,031
Bago	4,863,455	2,324,214	2,539,241
Magway	3,912,711	1,814,993	2,097,718
Mandalay	6,145,588	2,919,725	3,225,863
Mon	2,050,282	986,454	1,063,828
Rakhine	*3,188,963*	*1,529,606*	*1,659,357*
Rakhine (enumerated)	2,098,963	992,906	1,106,057
Rakhine (not enumerated)	1,090,000	536,700	553,300
Yangon	7,355,075	3,517,486	3,837,589
Shan	5,815,384	2,908,259	2,907,125
Ayeyawady	6,175,123	3,010,195	3,164,928
Nay Pyi Taw	1,158,367	565,181	593,186

Source: Ministry of Immigration and Population, Department of Population, Republic of the Union of Myanmar. The Population and Housing Census of Myanmar, 2014, Summary of the Provisional Results p.4

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 regards 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 regards 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 [36] 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 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

[36] Research team observation highlighted the quality of housing construction, infrastructure and related it to the source of income of the village/migration.

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 Marginalised 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.[37]

PSIA Phase 1 research also found noteworthy issues of access, particularly by informal settlers in Yangon (namely in the poorer ward visited, YGN-3).[38] 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.

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.[39]

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.[40] 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.[41]

[37]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.
[38]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)
[39]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.
[40] World Bank Group, 2015, Country Partnership Framework for Myanmar for the Period FY15-17 p. 23-24
[41] South.A and Jolliffe, K. United Nations High Commissioner for Refugees, February 2015, New Issues in Refugee Research. Research Paper No. 274. Forced Migration and the Peace Process p.31.

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.[42] Involvement of, and consultation with, ethnic State authorities as well as ethnic non-state groups and communities will be important for the 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.[43]

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).

[42] See for example Joliffe, K. Asia Foundation, June 2014, Ethnic Conflict and Social Services in Myanmar's Contested Regions, and World Bank, November 2014, Myanmar: Developing a Framework for WBG Engagements in Conflict-Affected Areas Workshop Summary p.2

[43] Lessons 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

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:

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 (ESIA) as described in the ESMF or undertaken as a separate exercise.[44]

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):

[44]For more guidance on conducting a social analysis see the World Bank's website: www.worldbank.org/socialanalysis. Key documents include the World Bank's Social Analysis Sourcebook from 2003; A User's Guide to Poverty and Social Impact Analysis from 2003; and the Participation and Social Assessment: Tools and Techniques from 1998.

- 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.[45] 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 ESIA 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 last 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.

[45] 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.

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 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 6 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 200m^2; (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.[46] 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.[47]

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.

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

[46] Land Use Policy Reform in Burma: Engaging Stakeholders and Regional Lessons", 24 March, United States Agency for International Development, http://usaidlandtenure.net/ commentary/ 2014/03/land-use-policy-reform-burmaengaging-stakeholders-regional-lessons

[47] 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.

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.[48]

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.

[48] http://usaidlandtenure.net/commentary/2014/11/burma-draft-national-land-use-policy-public-consultations, accessed 11 March 2015

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 - ENTITLEMENT MATRIX

Type of Losses	Entitled Persons	Entitlements	Implementation Issues
Loss of land	Legal owners or occupants identified during census	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)	
	Affected persons who have no recognisable legal right or claim to the land they are	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	

	occupying	implementation, whichever is higher. Assistance may involve access to electricity, training, opportunities for employment during construction, and technical support to improve livelihoods	
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 areasTo 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 CHECK LIST

Screen/Check for	**Yes/No**	**Requirements**
Will the implementation of project-financed activities require temporary or permanent land acquisition or result in loss of private assets (e.g. trees, fences, standing crops, etc) that are owned or		If yes, apply OP 4.12 as described in this RPF. Assess type and scope of impacts to determine appropriate preparation process and mitigation

used by private individuals?		measures
Has there been a history of land confiscation by Government (or others) in the area?		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.
Has it been clearly explained to affected people that they are entitled to compensation at replacement cost?		If no, ensure efforts are made to inform and consult with affected communities; disclose RPF in a manner and language understandable to local communities
Have alternative technical solutions or design adjustments been explored to avoid or minimise impacts?		If no, assess if alternatives are available to avoid or minimise impacts
Has land been acquired before Bank intervention?		If yes, undertake a due diligence assessment and report to assess if land acquisition has followed national requirements and is consistent with the objectives of OP 4.12. Prepare an action plan to address gaps identified in the due diligence process

Are there any conflicts over land and/or titling of land?		If yes, undertake process to resolve issues before financing

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[49]:

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 minimise resettlement; and the mechanisms established to minimise 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);

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;

[49] 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.

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 ESIA 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 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 MOEP 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 MOEP 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 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 MOEP 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.

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 200m^2 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

Region/State:	
District:	
Township:	
Village tract:	
Village:	
Sub-project ID:	

Name of land owner:	NRC Number:		Beneficiary of the sub-project: Y/N	
Sex:	Age:		Occupation:	
Address:				
Description of land that will be taken by the sub-project:	Area affected:	Total landholding area:	Ratio of land affected to total land held:	Map code, if available:
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.*				
	Details		**Number**	
– Trees that will be destroyed				
– Fruit trees				
– Trees used for other economic or household purposes				
– Mature forest trees				
– Other				
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 7: 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 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.

ISSUES/COMMENTS	**RESPONSE**
Project Specific	

How can the project speed up the roll-out of electrification? Should solicit support from private sector and other donors.	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.
The off-grid component should receive the same amount of funding as the grid component.	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.
Cooperation with other ministries on rural electrification is needed for successful off-grid development. There should also be a clear role of the public.	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.
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.	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 instruments, such as ESMPs, RAPs and IPPs.
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 ESIA, 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 ESIA 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 PMOs meet international standards?	The Project includes financing for technical assistance and training for general project 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.
Land issues for hydro, coal and turbine should be carefully considered.	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.

Annex 8: Sample Table of Content for an ESIA

1. Executive Summary

1.1 Introduction

1.2 The Project

1.3 Project Setting

1.4 Environmental Impact Assessment

1.4.1 General

1.4.2 Conclusions and Recommendations

2. INTRODUCTION to the Environmental Study

2.1 Scope of Work of the EIA Study

2.2 Policy, Legal and Regulatory Context in Myanmar

2.2.1 Environmental Policy, Legal Framework and Environmental Legislation

3. PROJECT DESCRIPTION

3.1 Project Context

3.1.1 Project Justification

3.2 Location and Setting

4. Baseline Conditions

4.1 Physical Characteristics

4.1.1 Landscape

4.1.2 Geology & Soils

4.1.2.1 Geology

4.1.2.2 Soils

4.2 Hydrology and Climate

4.2.1 Meteorological Data

4.2.2 Surface & Groundwater Regime

4.3 Water Quality

4.3.1 ….. river and creeks/chaungs

4.3.2 Domestic water supply

4.3.3 Reservoir Water Quality

Annex 9: Sample Table of Contents for an ESMP

1. INTRODUCTION
   - 1.1 Overview
   - 1.2 project component
   - 1.3 standard , guidelines
   - 1.4 main activities relevant to environmental aspect

2. SUMARY OF POTENTIAL ENVIRONMENTAL IMPACT
   - 2.1 mitigation measures
   - 2.2 project chance finds

3. ENVIRONMENTAL MONITORING
   - 3.1 the emp and project phases
     - 3.1.1 Construction Period
     - 3.1.2 Operation Period
   - 3.2 Project Performance Monitoring
   - 3.3 Public Consultation Process and Information Disclosure

4. EMP OrganizatioN
   - 4.1 Roles and responsibilities of environmental management officers, staff
   - 4.1.1 TRAINING AND AWARENESS
   - 4.1.2 HEALTH AND SAFETY AWARENESS PROGRAM
   - 4.2 ENVIRONMENTAL MONITORING FRAMEWORK
   - 4.2.1 COST ALLOCATION

5. EMERGENCY / INCIDENT RESPONSE PROCEDURE

ANNEXES
LIST OF TABLES
LIST OF FIGURES

Annex 10: Environmental Codes of Practice (ECoP) for NEP subprojects

The Environmental Code of Practice (ECOP) is a guideline for mitigating or eliminating environmental risk due to various activities associated with the construction of a sub project under the National Electrification Project (NEP), Myanmar.

1. **Planning and Design Phases of a subproject**

1.1 General

This code of practice details the factors to be considered during project preparation to avoid / address environmental concerns through modification in project design and incorporation of mitigation measures.

1.2 Compliance to Legal Requirements

The bid document shall include the various applicable clearances pertaining to environmental management and shall contain the necessary procedures for compliance of the same.

2. Site Selection / Route Selection

- Adequate consultations with the communities to identify the concerns and preferences need to be taken up during selection of site or the alignment of a transmission or distribution lines
- Consultations with the local communities are to be conducted to obtain their suggestions and incorporate their concerns to address the potential impacts.

3. **Tower / Pole Erection**

3.1 General

- Inform local community about the installation schedule
- Make clearance of the designated locations for installation of SPC poles / steel tower. Scope of this ECOP includes only the measures to address environmental concerns expected during the Pole erection process
- The contractor shall submit the schedule and methods of operations for various items during the Pole / Tower erection operation for a subproject to the relevant PMO (ESE/DRD) for approval.
- The clearance of site shall involve the removal of all materials such as trees, bushes, shrubs, stumps, roots, grass, weeds, part of topsoil and rubbish. Towards this end, the contractor shall adopt the following measures:

(1) To minimize the adverse impact on flora and vegetation, only ground cover shrubs that impinge directly on the permanent works shall be removed

(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) The disposal of wastes shall be in accordance with the provisions of described in section 8: "Waste Management".

(4) For river / stream crossings of towers, all regulatory clearance shall be obtained before actual start of work; requiring proper protective measures against 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.

4. **Installation of Transformers on H-Pole**

4.1 General

Installation of Transformers on H-Poles along the route:

(1) Inform the local community about the installation schedule

(2) Mark and clear the designated location for installation of transformer on H-pole. Scope of this ECOP includes only the measures to address environmental concerns expected during the power cable installation process

4.2 Activities involved in Transformer installation on H-Pole by Contractor: submit schedule and methods of operations for various items during the installation operations of the transformer on H-Pole to the relevant PMO (ESE/YESC) for approval. The clearance of site shall involve the removal of all materials such as trees, bushes and rubbish. Towards this end, the contractor shall adopt the following measures:

- Minimize the adverse impact on flora and vegetation, only ground cover /shrubs that impinge directly on the permanent works, if any, shall be removed.
- The disposal of wastes shall be in accordance with the provisions described in Section 8: "Waste Management"
- All regulatory clearances shall be obtained before actual start of work.

5. **Topsoil Salvage, Storage and Replacement**

5.1 General

Loss of topsoil will be a long-term impact along the process of construction of a sub project due to:

(1) Site clearance and excavation of soil for the sub project and ancillary infrastructures

(2) Development of borrow areas

(3) Temporary construction activities as material storage locations, diversion routes, etc.

Scope of this ECOP includes removal, conservation and replacement of topsoil.

5.2 Pre-construction Stage

The arrangements for temporary usage of land, borrowing of earth and materials by the Contractor with the land owner shall include the conservation / preservation of topsoil.

5.3 Construction Stage

- 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.
- 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.

- 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.
- The contractor shall preserve the stockpile material for later use on slopes or shoulders.

5.4 Post-Construction Stage

- The topsoil shall be re-laid on the area after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels and satisfaction of the farmer.
- All temporary arrangements made for stockpile preservation and erosion control are to be removed after reusing the stockpile material.

6. **Borrow Areas**

6.1 General

The scope of this ECOP extends the need to be incorporated during borrow area identification, material extraction and rehabilitation with regard to environmental management.

6.2 Pre-construction Stage

The contractor shall identify the borrow area location in consultation with the owners, after assessing the suitability of the material. The suitable sites shall be selected and finalized in consultation with the relevant PMO (ESE / DRD).

6.3 Construction Stage

The contractor should adopt the following precautionary measures to minimize any adverse impacts on the environment:

(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 com of topsoil and should be drained.

(2) The contractor shall maintain erosion and drainage control in the vicinity of all borrow pits and make sure that surface drains do not affect the adjacent land or future reclamation.

(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.

(4) In case of riverside, borrow pit should be located not less than 15 m from the toe of the bank, distance depending on the magnitude and duration of flood to be withstood.

6.4 Post-construction Stage

All reclamation shall be in accordance with the restoration plan. A certificate of completion of reclamation is to be obtained by the contractor from the landowner that the land has been restored to his satisfaction. The final payment shall be made after the verification by the relevant PMO (ESE/DRD).

7. **Slop Stability and Erosion Control**

7.1 General

Stability of slope is a major concern in hill areas and location of high embankment. Soil erosion is consequent to high runoff on hill slopes. High wind velocities cause erosion of embankments made up of cohesion-less sandy soils. Erosion control is provided to prevent soil damage done by moving water. The scope of this ECOP includes measures to minimize the adverse environmental impacts on slope stability and soil erosion due to the construction of embankments. The adverse environmental impact can be:

(1) damage to adjacent land

(2) silting of ponds and lakes disturbing the aquatic habitat

(3) erosion of rich and top fertile top layer of soil

(4) contamination of surface water bodies and
(5) reduction in road formation width due to erosion of shoulders / berms

7.2 Pre-construction Stage

- Interceptor ditches are constructed in hill areas to protect the road bench and hillside slope from erosion due to heavy rainfall and runoff
- Interceptor ditches are very effective in the areas of high intensity rainfall and where the slopes are exposed.

7.3 Construction Stage

- The vegetative cover should be planted in the region where the soil has the capacity to support the plantation and at locations where meteorological conditions favors vegetative growth.
- On side slopes in hills, immediately after cutting is completed and debris is removed, vegetative growth has to be initiated by planting fast growing species of grass.
- In regions of intensive rainfall, locations of steep slopes, regions of high soil erosion potential and regions of short growing seasons, erosion control matting should be provided.
- Adequacy of drainage for erosion control.

7.4 Post-construction Stage

All the exposed slopes shall preferably be covered with vegetation using grass, bushes, etc. Locally available species possessing the properties of (i) good growth (ii) dense ground cover and (iii) deep root shall be used for stabilization.

8. **Waste Management**

8.1 General

This code of practice describes procedures for handling, reuse and disposal of waste materials during construction of a subproject under NEP, Myanmar. The waste materials generally can be classified into:

(1) Construction waste
(2) Domestic waste
(3) Discarded electrical appliances such as conductors, switchboxes, bus-bars, transformers, etc.

8.2 Pre-construction Stage

- The contractor shall identify the activities during construction that have the potential to generate waste and work out measures for the same in the construction schedule.
- The contractor shall educate his workforce on issues related to disposal of waste, the location of disposal sites as well as the specific requirement of the management of these sites.

8.3 Construction Stage

- The waste management practices adopted by the contractor shall be reviewed by the relevant PMO (ESE/DRD)
- Discarded conductors should be recycled under the guidance of ESE/MOEP.
- Discarded transformers should be properly disposed as per the guideline of MOEPso as to minimize environmental pollution.
- The old transformers may contain hazardous chemicals such as PCB (Polychlorinated biphenyl) which should be handled as per the national / international hazardous waste management guidelines. PCB should be discarded following available 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.

- The waste generated from the discarded switchgears, bus-bars, tec. following rehabilitation process should be handled as per the relevant guidelines from ESE/MOEP.

8.4 Post-construction Stage

- After decommissioning of construction sites, the contractor shall hand over the site after clearing the site of all debris / wastes to the relevant PMO (ESE/DRD)
- In case of disposal of wastes on private land, certificate of Completion of reclamation is to be obtained by the contractor from the land owner that the land is restored to his satisfaction.

9. **Water Bodies**

9.1 General

Water bodies may be impacted when the infrastructure development project activities are adjacent to it or the runoff to the water body is affected by change of drainage pattern due to construction of embankment. The following activities are likely to have an adverse impact on the ecology of the area:

(1) Earth moving
(2) Removal of vegetation
(3) Waste disposal from construction works

9.2 Pre-construction Stage

When there is interruption to regular activities of the inhabitants near the water body due to construction work, the contractor is responsible to:

(1) restrict on use of water during construction, if any, should be intimated to the community in advance.
(2) provide alternate access to the water body in case there is interruption to use the existing access.
(3) provide alternate source of drinking water to the users during the period for which its use is affected if the water body is a drinking water source.

9.3 Construction Stage

- The contractor should ensure that the runoff from construction site entering the water body is generally free from sediment
- Silt / sediment should be collected and stockpiled for possible reuse as surfacing of slopes where they have to be re-vegetated.
- Cutting of embankment reduces the water retention capacity and also weakens it, hence the contractor should ensure that the decrease in water retention should not lead to flooding of the construction site and surroundings causing submergence and interruption to construction activities. Any perceived risks of embankment failure and consequent loss / damage to the property shall be assessed and the contractor should undertake necessary precautions such as provision of toe protection, erosion protection, sealing of cracks in embankments. Failure to do so and the consequence of embankment failure shall be the responsibility of the contractor. The PMO (ESE / DRD) shall monitor regularly whether safe construction practices near water bodies are being followed.

- Alternate drain inlets and outlets shall be provided in the event of closure of existing drainage channels of the water body.
- Movement of workforce shall be restricted around the water body, and no waste from construction sites shall be disposed into it.

9.4 Post-construction Stage

- The zones of the water body have to be left clean and tidy with the completion of construction
- Engineers of ESE / DRD will check if drainage channels of adequate capacity have been provided for the impacted water body.

10. Water Qualities

10.1 General

- Construction of a sub project, its ancillary infrastructure such as a small-scale access road, a small scale embankment construction may affect the aquatic environment, by lowering or raising water levels, and decreasing water quality
- Deterioration of water quality and disturbance of aquatic environment by lowering or rising of water levels.

10.2 Pre-construction Stage

Prior to construction the contractor should undertake the following measures:

- Base line data collection of water quality
- Assess the availability of sufficient water during the dry season

10.3 Construction Stage

- Improper disposal of solid and liquid waste including excreta generate from sites will pollute the water quality and proper prevention measures should be taken.
- Wastewater and toxic chemical disposal, sanitation / latrines may have positive cumulative effects on human health, but if not properly implemented may affect ground and surface and ground water quality. Therefore proper attention should be given during construction stage.
- Protect water bodies from sediment loads by silt screen or bubble curtains or other barriers.

10.4 Post-construction Stage

- Regular monitoring and surveillance of water quality

11. **Drainage**

11.1 General

- Drainage is designed for temporary access roads to direct surface or subsurface flow away to a safe outfall without damage to the structure, adjoining property or agricultural fields.

11.2 Pre-construction Stage

Prior to the commencement of construction, the contractor shall undertake the following measures:

(1) Inform the downstream and upstream user one month in advance of construction

(2) Schedule the construction activities based on the nature of flow in the stream

(3) Inform all concerned departments about the scheduling of work. This shall form part of the overall scheduling of the civil works to be approved by PMO (ESE/DRD)
(4) Install al the safety / warning signs before start of construction

- Take consent from the concerned department for utilization of water from the stream, for the construction

11. 3 Construction Stage

- Provide temporary drainage at construction site at the earliest to ensure proper compaction
- Provide sub surface drains for hill areas as necessary immediately after cutting the slopes and forming the roadbed (sub grade)
- Erect safety devise and flood warning signs while working over streams and canals.

11.4 Post-construction Stage

- Regular inspection and cleaning of drains to remove debris or vegetative growth that may interrupt the flow.
- Remove all temporary structures before handling over to ensure free flow through the channels.

12. **Electromagnetic Field (EMF)**

12.1 General

Electric and magnetic fields (EMF) are invisible lines of force emitted by and surrounding any electrical device (e.g. power lines and electrical equipment). Electric fields are produced by voltage and increase in strength as the voltage increases. Electric field strength is measured in volts per meter (V/m). Magnetic fields result from the flow of electric current and increase in strength as the current increases. Magnetic fields are measured in units of gauss (G) or tesla (T), where 1T equals 10,000 G. Electric fields are shielded by materials that conduct electricity, and other materials, such as trees and building materials. Magnetic fields pass through most materials and are difficult to shield. Both electric and magnetic fields decrease rapidly with distance. Power frequency EMF typically has a frequency in the range of 50-60 Hertz (Hz), and is considered extremely low frequency (ELF).

Although there is public and scientific concern over the potential health effects associated with exposure to EMF (not only high voltage power lines and substations but also from everyday household uses of electricity), there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmission lines and equipment. However, while the evidence of adverse health risks is weak, it is still sufficient to warrant limited concern. Recommendations applicable to the management of EMF exposures include: evaluating potential exposure to the public against the reference levels developed by the international Commission on non-ionizing radiation protection (ICNIRP). Average and peak exposure levels should remain below the ICNIRP recommendation for general public exposure. If EMF levels are confirmed or expected to be above the recommended exposure limits, application of engineering techniques should be considered to reduce the EMF produced by power lines, substations or transformer. Examples of these techniques include:

- shielding with specific metal alloys
- burying transmission lines
- increasing height of transmission towers
- modifications to size, spacing, and configuration of conductors

12.2 Post Construction:

- During the post-construction phase ESE / MOEP should monitor the EMF around the substations and under the distribution / transmission lines on a regular basis
- Construction of residential building and / or small households should only be allowed ensuring the safe distance as specified in the code.

13. **Public Health and Safety**

13.1 General

The safety and health of the public is impacted due to the hazards created during the construction period. this code of practice describes the measures needed to be taken to mitigate the impacts.

13.2 Pre-construction Phase

- In order to incorporate public health and safety concerns, ESE/ DRD and the contractor shall disseminate the following information to the community:

(1) Location of sub project activities
(2) Borrow areas
(3) Extent of work
(4) Time of construction
(5) Involvement of local labors in the construction
(6) Health issues - exposure to dust, communicable diseases etc.

13.3 Construction Phase

- the contractor shall schedule the construction activities, such as:

(1) sowing of crops
(2) harvesting
(3) local hindrances such as festivals, etc.
(4) availability of labor during particular periods

- install proper safety /warning signs to inform the public of potential health and safety hazard situations during the construction phase in the vicinity of the sub project.
- ESE/DRD shall carry out periodic inspections in order to ensure that all the measures are being undertaken as per the ECOP

13.4 Post-construction Phase

The construction site shall be cleaned of all debris, scrap materials and machinery on completion of construction for the safety of public and users. During operation phase especially during regular maintenance) following issues should be addressed:

- regular patrolling along the power lines to identify the need for regular and immediate maintenance operation
- inspect immediately after a major storm / rainfall event
- regular cutting and trimming of trees around power lines.
- provide shutting down of line in case of snapping of line.
- regular monitoring of power lines to prevent electricity pilferage especially when axially bundled cable (ABC) are used which may lead to accident
- no temporary / permanent shops underneath the H-pole to be allowed
- no dumpster to be allowed underneath the H-pole

14. **Vegetation Management**

14.1 General

- Besides improving aesthetics and ecology of the area, the vegetation provide fuel wood, act as noise barriers, provide visual screen from sensitive areas and also generate revenue by sale of its produce.
- This code of practice elaborates on the approach towards planting trees. Emphasis has been laid on a greater involvement of communities in planting trees. Emphasis has been laid on a greater involvement of communities in planting and maintenance of trees.

14.2 Project Planning and Design Phase

- During alignment of transmission line finalization, due consideration shall be given to minimize the loss of existing tree cover
- Trees felling, if unavoidable, shall be done only after compensatory plantation of at least two saplings for every tree cut is done.
- The species shall be identified in consultation with officials of forest department / local community, giving due importance to local flora, preferably same species as cut. It is recommended to plant mixed species in case of both avenue or cluster plantation.
- Design of plantation of fruit bearing trees and other suitable trees.
- It should be ensured that plantation is carried out only in areas where water can be made available during dry seasons and the plant can be protected during the initial stages of their growth.

14.3 Post-construction Phase

- During the operational phase regular trimming of trees along the route ESE / DRD personnel may become essential to prevent accidents due to over-growth onto the power lines. However, his activity should be conducted with minimal damage to the existing vegetation.

The sub project proponent would take up the planting of fruit bearing and other suitable trees, on both sides of the roads or other infrastructure development project location from their own funds

15. **Natural Habitats**

15.1 General

- The activities associated with construction a transmission line through or along the edge of natural habitat areas may destroy and degrade the habitat. the activities can have impacts on the number, health, and survival of interior native Plant and animal species, many of which are rare.
- The code of practice envisages measures to be undertaken during implementation of the proposed subproject by ESE / DRD near natural habitats. These measures shall be undertaken in addition to the measures laid down in other ECOPs.
- As per the World Bank OP 4.04, the conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. A precautionary approach to natural resource management

to ensure opportunities for environmentally sustainable development has been adopted for a sub project.

15.2 Main feature of the Bank's Natural Habitats Policy (OP 4.04)

The policy on natural habitats contains two major provisions with respect to biodiversity conservation and EA. Firstly, it prohibits Bank involvement in project, which involve significant conversion or degradation of critical natural habitats. these include: existing protected areas and adjoining or linked areas or resources (such as water sources) on which the protected areas depend; and sites identified as meriting protection. Secondly, where natural habitats out-side protected areas are within a project's area of influence, the project must not convert them significantly unless:

- There are no feasible alternatives
- The EA demonstrates that benefits substantially outweigh the costs
- Mitigation measures acceptable to the Bank are implemented, which would normally include support for one or more compensatory protected areas that are ecologically similar to, and no smaller than, the natural habitats adversely affected by the project.

15.3 Project Planning and Design

Proper line route selection, appropriate timing of operations and proper construction and maintenance of the development of the transmission line can ensure that terrestrial, riparian and aquatic habitat values and fish and wildlife population are protected from the adverse impacts. Following issues should be considered in Project planning and Design stage:

- Identify nature and type of impact on natural habitats with the help of experts and prepare a detailed inventory of ecological features along the proposed rural road
- Avoid concentrations of wildlife, areas of high value wildlife habitat and / or rare plant communities, when determining locations and routes for transmission line. A biologist or ecologist specialized in the discipline of concerns must be retained to identify and assess such areas of concern.
- In areas of continuous high value habitat, consider not developing the sub project or determine an alternative routing, if feasible.
- Adjusting pole placement and span length to minimize the impact.

15.4 Pre-construction Phase

- Contractor in consultation with local expert or any other concerned authority shall prepare as schedule of construction within the natural habitat. Due consideration shall be given to the time of migration, time of crossing, breeding habits and any other special phenomena taking place in the area for the concerned flora and fauna.
- No Construction Camps, Stockyards, Concrete batching or Hot Mix Plants shall be located within the natural habitat or within 500 m from its boundary.

15.5 Construction Phase

- Collection of any kind of construction material from within the natural habitat shall be strictly prohibited
- In the event that concentrations of wildlife species are present in the proposed construction area, consider re-scheduling construction and maintenance activities until such time when the numbers of animals present are reduced or absent from the worksite.

- 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.
- No water resources within the natural habitat shall be disturbed.
- During construction, prevent human disturbance and ecosystem impacts on sensitive areas adjacent to sub projects by using temporary fencing or flag off area to restrict travel to construction zones, right of ways and workspaces.
- Disposal of construction waste within the natural habitat shall be strictly prohibited.

15.6 Post-construction Phase

- the infrastructure development projects near the natural habitat shall be declared as a silence zone.
- Allowing tree and shrub species that reach heights of 12-15 ft to grow within the ROW, which may control to trespassing and vandalism;
- compensatory tree plantation within the project area shall be done.
- The ESE/DRD must ensure maintenance of drainage structure as described in section 11: "Drainage".

16. **Occupational Health and Safety**[50]

This ECOP describes the prevention and control measures to be considered for the occupational Health and Safety of worker(s) during construction, operation, maintenance of sub projects under NEP. Impacts include among other, exposure to physical hazards from use of heavy equipment and cranes, trip and fall hazards, exposure to dust and noise, falling objects, wok in confined spaces, exposure to hazardous materials, and exposure to electrical hazards from the use of tools and machinery. Occupational health and safety hazards specific to electrical power transmission and distribution projects primarily include:

- Live power lines
- Working at height
- Electrical and magnetic fields

16.1 **Live power lines**

Workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance, and operation activities. Prevention and control measures associated with live power lines include:

- Only allowing trained and certified workers to install, maintain, or repair electrical equipment
- Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines
- Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following:
  - ✓ Distinguish live parts from other parts of the electrical system
  - ✓ Determine the voltage of live parts

50 *IFC Environmental Health and Safety Guidelines for Electric Power Transmission and Distribution*

- ✓ Understand the minimum approach distances outlined for specific live line voltages
- ✓ Ensure proper use of special safety equipment and procedures when working near or on exposed energized parts of an electrical system

- Workers should not approach an exposed energized or conductive part even if properly 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 object; or,
  - ✓ The worker is properly isolated and insulated from any other conductive object (live-line work).
- 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.
- Worker not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, pruning, and other activities.

16.2 **Working at height on poles and structures**

Workers may be exposed to occupational hazards when working at elevation during construction, maintenance, and operation activities. Prevention and control measures for working at height include:

- Testing structures for integrity prior to undertaking work
- 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
- 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
- Installation of fixtures on tower components to facilitate the use of fall protection systems
- 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
- Hoisting equipment should be properly rated and maintained and hoist operators properly trained
- 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
- When operating power tools at height, worker should use a second (backup) safety strap

- Signs and other obstructions should be removed from poles or structures prior to undertaking work
- An approved tool bag should be used for raising or lowering tools or materials to workers on structures.

16.3 **Electric and magnetic fields**

Electric and magnetic fields (EMF) are described earlier. Electric utility workers typically have a higher exposure to EMF than the general public due to working in proximity to electric power lines. Occupational EMF exposure should be prevented or minimized through the preparation and implementation of an EMF safety program including the following components:

- 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
- Training of workers in the identification of occupational EMF levels and hazards
- 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
- Implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronic Engineers (IEEE). Personal exposure monitoring equipment should be set to warn of exposure levels that are below occupational exposure reference levels (e.g. 50%). Action plans to address occupational exposure time through work rotation, increasing the distance between the source and the worker, when feasible, or the use of shielding materials.

17. **Community Health and Safety**

Community health and safety impacts during the construction and decommissioning of transmission and distribution power lines are common and in addition to occupational health and safety standards code of practice, the operation of live power distribution lines and substations may generate the following impacts:

- Electrocution
- Electromagnetic interference
- Visual amenity
- Noise and Ozone
- Aircraft navigation Safety

17.1 Electrocution

Hazards most directly related to power transmission and distribution lines and facilities occur as a result of electrocution from direct contact with high-voltage electricity or from contact with tools, vehicles, ladders, or other devices that are in contact with high-voltage electricity. Recommended techniques to prevent these hazards include:

- Use of signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment

- Grounding conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock.

17.2 **Electromagnetic Interference**

The corona of overhead transmission lines conductors and high frequency currents of overhead transmission lines may result in the creation of radio noise. Typically, transmission line rights-of way and conductor bundles are created to ensure radio reception at the outside limits remains normal. However, periods of rain, sleet or freezing rain sharply increases the streaming corona on conductors and may affect radio reception in residential areas near transmission lines.

17.3 Visual Amenity

Power transmission and distribution are necessary to transport energy from power facilities to residential communities, but may be visually intrusive and undesirable to local residents. To mitigate the visual impact of power distribution projects, the following mitigation measures should be implemented:

- Extensive public consultation during the planning of power line and power line right-of-way locations
- Accurate assessment of changes in property values due to power line proximity
- Siting power lines, and designing substations with due consideration to landscape views and important environmental and community features
- Location of high-voltage transmission and distribution lines in less populated areas, where possible
- Burying transmission or distribution lines when power must be transported through dense residential or commercial areas.

17.4 **Noise and Ozone**

Noise in the form of buzzing or humming can often be heard around transformers or high voltage power lines producing corona. Ozone, a colorless gas with a pungent odor, may also be produced. Neither the noise nor ozone produced by power distribution lines or transformers carries any known health risks. However, use of noise barriers or noise canceling acoustic devices should be considered as necessary.

17.5 **Aircraft Navigation Safety**

Power transmission towers, if located near an airport or known flight paths, can impact aircraft safety directly through collision or indirectly through radar interference. Aircraft collision impacts may be mitigated by:

- Avoiding the siting of transmission lines and towers close to airports and outside of known flight path envelopes
- Consultation with regulatory air traffic authorities prior to installation
- Adherence to regional or national air traffic safety regulations
- Use of buried lines when installation is required in flight sensitive areas.

[i] IFC, Environmental, Health and Safety for Wind Energy

[ii] *IFC Environmental Health and Safety Guidelines for Electric Power Transmission and Distribution*

IFC, Environmental, Health and Safety for Wind Energy