



Environmental and Social Management Framework

for

**Nepal: Business Models for Private Sector-led Mini-grid
Energy Access Project**

Government of Nepal
Ministry of Energy, Water Resources and Irrigation
Alternate Energy Promotion Centre (AEPC)

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Executive Summary

Alternative Energy Promotion Centre (AEPC) is the apex government body under the Ministry of Energy, Water Resources and Irrigation (MoEWI), established to promote the use of rural/renewable energy technology to meet the energy needs in Nepal. The Environmental and Social Management Framework (ESMF) has been prepared for the proposed Project, “Nepal: Business Models for Private Sector-led Mini-grid Energy Access Project” (Nepal Mini-grid Project).

The total fund under the proposed project is US\$7.61 million. The proposed project consists of two components: (A) Credit Facility to support to Renewable Energy Mini-grid Subprojects (5.61 m USD) and (B) Technical Assistance to Mini Grid Sector (2 m USD). Project’s resources will be used for mobilizing credit, technical assistance (TA) to project’s stakeholders; and project management. Renewable Energy Mini-grid subprojects include three types of Subprojects:

- i. New Micro/Mini Hydro, Solar, and Solar/Wind Hybrid Mini Grid Subprojects
- ii. Up-gradation of existing Mini Grids
- iii. Grid Interconnection of Mini Grids

Under its investment component, the project will support mini-grid based renewable energy systems in off-grid areas for AEPC which includes installation of micro/mini-hydro electric power plants with the aggregated capacity up to 3 MW and solar or solar/wind hybrid systems with the aggregated capacity up to 2 MW, in selected rural communities.

The project beneficiaries include (a) residential, industrial, and commercial customers, which will gain energy access in rural areas (b) the AEPC and commercial Partner Banks (PBs), who will get financing and/or risk-mitigation¹ support to mobilize credit to; Energy Service Companies (ESCOs); (c) mini-grid developers which are private ESCOs, which will gain access to finance to build mini-grids; and (d) existing subproject owners, who will gain access to finance for the interconnection. AEPC, commercial partner banks, and ESCOs, will also receive TA supports and capacity development opportunities.

The objective of the project is to increase electricity delivery from renewable energy mini-grids in selected areas by mobilizing ESCOs. The project will deliver financing support to ESCOs to facilitate financial closure and enhance financial viability of the renewable energy mini-grid subprojects. Financing to ESCOs will be provided in the form of mini-grid sub-loans through PBs. The project complements Scaling Up Renewable Energy Program (SREP) Investment Plan for Nepal. The SREP funds will be used for the sub-loans with marginally commercial interest rate. AEPC will function as a wholesale institution for the SREP loan.

This Environmental and Social Management Framework (ESMF) specifies the process for

¹ Risk-mitigation on mini-grid sub-loan portfolio for partner banks could be through allocation of credit risk between partner banks and AEPC.

managing environmental and social (E&S) risks and impacts of the project and includes: (i) applicable environmental and social requirements, as per the Government of Nepal regulations and World Bank policies; (ii) selection criteria for mini-grid subprojects that will incorporate some exclusion parameters; (iii) the process for screening and assessment of risks and impacts for each subproject, including E&S risk mitigation instruments to be prepared; (iv) roles and responsibilities of all key stakeholders (AEPC, ESCOs, partner banks) in ensuring due process for risk and impact assessment and subsequent monitoring. In particular, through its contractual relationships with partner banks, AEPC will ensure E&S provisions are included in legal agreements with ESCOs. Moreover, ESMF includes Resettlement Policy Framework (RPF) and Vulnerable Community Development Framework (VCDF) to ensure effective management of these specific social risks in the subprojects financed.

Key Anticipated E&S Risks and Impacts of the Subprojects

The ESMF has identified the potential E&S impacts associated with micro/mini hydro, solar and solar/wind hybrid mini-grid subprojects at various stages of the project cycle. The exact locations and associated risks and impacts of subprojects are not known at this stage. Therefore, overall analysis has been provided for E&S risks of potential subprojects of Nepal Mini-grid Project and mitigation steps and measures have been suggested.

For component A, E&S impacts of most of the subprojects are likely to be moderate. There is a possibility that some of the new mini grid subprojects may be located in protected or conservation areas as renewable energy mini-grids represent more sustainable and cleaner energy options where there is no access to the grid. E&S risks associated with subprojects may involve labor and working conditions issues during construction, community health and safety issues, potential impacts on physical cultural resources, and Indigenous Peoples.

Interconnection of mini grids and upgradation of existing mini-grids under Component A is not expected to result in significant adverse environmental and social impacts necessitating comprehensive E&S assessment, because all works (minor equipment installation and line connections) will be executed within existing facility area, such as in power houses. However, if E&S risks are identified through initial E&S screening by AEPC, subproject owners will implement mitigation measures described in ESMPs.

Responsibilities of Key Stakeholders for E&S Risk Management

Managing E&S risks and impacts for this complex, multilevel project means that AEPC, the Partner Financial Institutions (PFIs), PBs, and project sponsors (ESCOs or other entities that manage interconnection subprojects) shall develop and maintain adequate systems, procedures, and capacity for identifying, managing, and monitoring risks and impacts of sub-projects commensurate with the types, scope, and nature of subprojects financed. The ESMF has proposed key steps of Environmental and Social due diligence

process for the Nepal Mini-grid Project to ensure adequate environmental and social consideration (**Table 1**).

Table 1: Key Stakeholders and Their Roles and Responsibilities for E&S Initial Screening, Due Diligence, and Supervision

Core Functions	AEPC	ESCOs, Subproject Owners	PBs	World Bank
1. Initial E&S screening	Conduct E&S screening and make decision on subproject eligibility	Provide necessary information and details to AEPC on subprojects and their potential E&S issues	Ensure that E&S risks are understood and factored into investment decision-making	Review and provide advice on the long-list of subprojects and their respective categorization (with regard to the E&S aspect)
2. E&S categorization of sub-projects	Determine subproject E&S risk category (to be confirmed after risks and impacts assessment)	Prepare E&S instruments in accordance with subproject E&S category (ESCOs)	Obtain categorization decision from AEPC and include in project / loan file	Observe the process as part of supervision activities
3. E&S assessment (identification of E&S risks and impacts)	Review E&S instruments (ESIA, ESMP, and other plans – RAP, VCDP, as relevant) for all ESCO mini-grid subprojects (component A) Prepare ESMPs for interconnection subprojects ² (component A) and ensure these are provided to interconnection subproject owners and PBs that will finance these	Prepare ESIA (ESCOs) in line with the requirements of GoN and WB Review and adopt ESMPs prepared by AEPC (for interconnection subproject owners) Obtain required permits and clearances from GoN authorities	Ensure E&S assessment and management instruments are prepared by either ESCOs or AEPC and cleared before financing is provided (including GoN clearances) Ensure E&S instruments are incorporated in the PB's overall due diligence process (must be part of loan file for all subprojects)	Support and provide advice to AEPC in managing the process

² AEPC will support subproject owners and PBs providing sub-loans for interconnection subprojects in E&S due diligence.

Core Functions	AEPC	ESCOs, Subproject Owners	PBs	World Bank
	projects	(ESCOs and interconnection subproject owners)	Embed E&S legal covenants (including ESMP compliance) in loan agreements with ESCOs and subproject Owners	
4. Review and clearance of E&S instruments for subprojects	<p>Provide clearance of E&S instruments prepared by ESCOs for mini-grid subprojects (component B) categorized as medium or low risk</p> <p>Submit for WB clearance instruments for subprojects categorized as high risk</p> <p>Ensure adequate legal E&S covenants are included in all agreements under the project (including agreement between AEPC and PBs)</p>	Ensure clearance is obtained from AEPC (or, WB, through AEPC) for all mini-grid subprojects	Ensure clearance is obtained before signing any agreements for financing; keep records of clearances as part of loan files	<p>Provide clearance of E&S instruments prepared by ESCOs for mini-grid subprojects categorized as high risk</p> <p>Review quality of and compliance with E&S instruments for subprojects categorized as medium or low risk³ as part of Bank's supervision</p>
5. Subproject supervision/performance monitoring	Oversee E&S monitoring process; engage external expertise as needed	Comply with ESMPs, carry out monitoring and implement monitoring	Participate in monitoring activities for subprojects financed	Conduct supervision / implementation support activities

³ All interconnection subprojects are expected to be medium or low risk. In case of an interconnection projects that AEPC categorizes as high risk, AEPC will notify WB and obtain prior clearance for supporting such subprojects under Nepal Mini-grid Project.

Core Functions	AEPC	ESCOs, Subproject Owners	PBs	World Bank
		actions at subproject level		

E&S Risk Management Process

(1) Environmental and Social Screening

Screening will determine whether the proposed subprojects are likely to have potential negative environmental and social impacts, establish the level of environmental/social assessment required, help ESCOs, PBs to understand environmental and social issues related to the subprojects before they are considered for implementation, and assist in the decision-making process. Screening will be conducted based on criteria mentioned in Schedule 1 and 2 of Environment Protection Regulation 1997 (EPR, 1997), other government acts and regulations (such as *Forest Act*, *National Park and Wildlife Conservation Act*, etc.) and potential impacts and risks as per World Bank Operational Policies (OPs). The environmental and social screening checklist samples are provided in **Annex 5**.

As a first step, initial E&S screening will help determine **subprojects' eligibility for financing on E&S grounds**. Subprojects will not be eligible for financing due to high environmental and social risks where:

- Third party E&S due diligence of the subprojects (in case of high risk category)
- Subprojects must have all relevant and up-to-date permits from the GoN (not eligible if not able to obtain required permits)
- Subprojects with significant adverse impacts on ecologically sensitive areas⁴, if deemed unacceptable by AEPC, will not be eligible
- Subprojects involving large-scale resettlement⁵ will not be eligible
- Subprojects with significant adverse impacts on cultural heritage will not be eligible
- Subprojects in disputed areas will not be eligible

Further, it is recognized that many of the subprojects involving significant impacts on Indigenous Peoples shall be classified as high risk. However, due to the nature of the overall project, where Indigenous Peoples (IPs) will often be intended beneficiaries of electrification in remote rural areas, even the high risk subprojects will not be excluded from financing. Rather, the project will pay particular attention to IP issues through Social Assessment and development of Vulnerable Communities Development Plan

⁴ Significant adverse impacts on ecologically sensitive areas will be determined using international best practice and tools, as well as based on the outcomes of relevant studies conducted as part of subproject ESIA.

⁵ For the purposes of exclusion, large-scale resettlement is defined as physical displacement of a significant number of people / households. Physical displacement would mean relocation/ loss of shelter and assets resulting from the acquisition of land that requires the affected persons to move to another location.

(VCDP), as needed. Similarly, sub-project will involve land taking. While these will need to be classified as high risk, based on the screening, AEPC will not exclude them from financing (except in cases defined in the above E&S eligibility criteria), but rather recommend Social Assessment and development of Resettlement Action Plan (RAP), as needed. In these cases, AEPC will make an informed judgment on exclusion vs risk management.

Additionally, as part of their eligibility criteria, ESCOs, and PBs will be screened for their capacity and commitment to implement E&S risk management measures to ensure that they can play their respective role in the process. They will be assessed on the following criteria:

- (a) Capacity and commitment for carrying out environmental and social risk management measures/plans⁶ based on adequately completed E&S assessment studies.
- (b) Clean track record in terms of compliance with any relevant environmental and social regulations of Nepal (for example, absence of environmental or labor-related fines or other evidence of non-compliance in the past two years).

PBs will also be evaluated on their commitment and capacity to play their role in the projects' management of E&S risks and impacts.

(2) Environmental and Social Risk Categorization of Subprojects

Based on the environmental and social screening, subprojects will be categorized as High, Low, and Medium risk. AEPC will be responsible for the categorization decision and will communicate it to ESCOs, interconnection Subproject Owners, and PBs. Categorization is first established at the screening stage and later confirmed following E&S assessment process described below. Risk categories will be assigned as follows:

A proposed subproject will be classified as **High risk** if it is likely to have potentially significant adverse environmental and social impacts and displaces⁷ 50 or more families in the mountain region, 75 or more families in the hills, and 100 or more families in the Tarai plains due to involuntary land acquisition (in some cases, such high risk subprojects will not be eligible for financing based on E&S exclusion criteria listed under #1 above). Also, any subproject that involves impacts on Indigenous Peoples and/ or needs an EIA according to GoN regulations shall be classified as high risk. High risk subprojects, when they are eligible for financing, will be required to conduct ESIA and prepare Resettlement Action Plan (RAP) and/or Vulnerable Communities Development Plan (VCDP), where needed.

⁶ Determination of adequate capacity for ESCOs will include: (i) commitment to timely engagement of E&S risk management expertise; (ii) sufficient budget allocated to environmental and social assessment and monitoring.

⁷ This includes both Physical and economic displacement. 'Physical displacement' refers to loss of shelter and assets resulting from the acquisition of land associated with a project that requires the affected person(s) to move to another location. 'Economic displacement' refers to loss of income streams or means of livelihood resulting from land acquisition or obstructed access to resources (land, water, or forest) resulting from the construction or operation of a project or its associated facilities.

A subproject will be classified as **Medium risk** if it has less significant and site-specific impacts, and displaces less than 50 families in the mountain region, less than 75 families in the hills, and less than 100 families in the Terai plains due to involuntary land acquisition (unless such impacts are, in the judgement of AEPC, are exacerbated by other contributing factors). In most cases mitigation measures can be designed and implemented more readily. Medium risk subprojects are required to conduct a limited ESIA and prepare abbreviated RAP and/or Vulnerable Communities Development Plan (VCDP), if needed. A project can be classified as medium risk regardless of whether it needs IEE per GoN regulations and will conduct an ESIA per World Bank requirements.

A proposed subproject will be classified as **Low risk** if it is likely to have minimal or no adverse environmental and social impacts, and does not displace any family and none of affected person lose more than 10% of their productive assets. Beyond screening, no further environmental and social action is required for a Low risk projects. However, it is recommended that a brief Environmental and Social Management Plan (ESMP) shall be prepared.

(3) Determination of Assessment and Risk Management Instruments for Subprojects

AEPC will be responsible to review the screening report and recommend if the subproject requires EIA or IEE or EMP only based on the provision made on EPR, 1997. According to WB's Safeguards requirements, however, all subprojects are required to conduct either an ESIA (including an ESMP) or prepare an ESMP only (for interconnection subprojects). Thus, all subprojects are required to adopt which one is more stringent, to fulfill the requirement of both the GoN and WB.

(4) Environmental and Social Assessment

Assessment of E&S risks and impacts and preparation of E&S risk mitigation documents/plans involve establishing and maintaining a process for identifying the environmental and social risks and impacts of the sub-project. The type, scale, and location of the subproject guide the scope and level of effort devoted to the risks and impacts identification process. Assessment of E&S risks and impacts will be carried out as following for the two project components:

- a. E&S assessment studies and ESMP preparation for mini-grids will be carried out by ESCOs with support from AEPC, according to the Terms of Reference prepared based on the initial screening (examples are given in **Annex 8**).
- b. AEPC will lead preparation of ESMPs that will be adopted by interconnection subproject owners as a condition of financing. As ESMPs for specific interconnection subprojects may have similar E&S issues, a model ESMP has been prepared (**Annex 11**).

(5) Review and Clearance of Environmental and Social Instruments

Following preparation of E&S assessment and management instruments, and in accordance with subprojects' E&S categorization described above, the process will be as follows:

- a. AEPC will be responsible for review of all E&S assessment and management instruments (ESIAs, ESMPs, RAPs, VCDPs etc.) for quality and completeness. AEPC will also provide formal clearance to ESCOs in case of mini-grid subprojects categorized as medium or low risk. In case of high risk subprojects, AEPC will be responsible for obtaining prior review and clearance from the World Bank.
- b. AEPC will ensure that subproject owners agree on and adopt the ESMP as part of subprojects approval process.
- c. In both cases, AEPC shall ensure that PBs have all necessary information and documents pertaining to E&S assessment, and PBs shall ensure that no loans are provided unless instruments have been cleared/agreed upon and E&S risk management conditions are included in financing agreements.

(6) Environmental and Social Monitoring

To ensure the effective implementation of ESMF, the environmental and social safeguard compliance monitoring will be conducted internally based on the monitoring indicators, **Annex 10**. The safeguards staffs (E&S) of AEPC and ESCOs will be responsible to carry out monitoring during different stages of the project cycle i.e., construction and operational phases of subproject. ESCOs will be responsible to prepare quarterly progress report and submit it to the AEPC and AEPC will be responsible to prepare semi-annual monitoring reports and submit it to the World Bank. The World Bank will be responsible to conduct periodic review missions, which will include a review of safeguard implementation issues.

(7) Stakeholder Engagement and Grievance Redress Mechanism

Major objectives of stakeholder engagement are two-fold. First, it is to keep all stakeholders informed of the project activities, the potential beneficial and adverse impacts. Second, it is to ensure that stakeholders actively participate at all levels of the project/ subproject cycles. Mechanisms of stakeholder's engagement will include: (1) public meetings in the subprojects' influence area; (2) information/awareness campaigns through engaged locally formed Clubs and Groups and NGOs; (3) interviews/surveys in project affected households; (4) focus group discussions; (5) formation of committees and/or groups including stakeholders at various stages; (6) development of grievance redresses mechanism; (7) disclosure/dissemination of project information including decision making process and how the grievances of Affected Persons (APs) will be addressed. A Grievances Redress Mechanism (GRM) will be put in place wherein all project stakeholders are given a venue to lodge complaints regarding any aspect of the land acquisition, compensation, resettlement requirements and other project-related

issues. GRM will have four levels. Many grievances can be resolved by providing correct and complete information early in the subproject development process at ESCO level. If not resolved, it can be escalated to Project Safeguard Unit (E&S team of AEPC). Furthermore, complaints can be refereed to Grievance Redress Committee (GRC) within rural municipality/municipality and further to complainants will have be advised that they have uninhibited access to legal redress mechanism can be adapted through Nepal's judicial or appropriate administrative system.

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pk-C0fsf] kl/rfng ul/g]5

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k|lqmofsf] af/]df lglb{i6 ub{5 . o;df -c_ k|To]s pk-cfof]hgfsf nflu E&S hf]lvd
Go"lgs/Ofsf pkfox? ;lxt ;dfj]z ul/ tof/ kfl/Psf hf]lvd / c;/x?sf] 5gf]6 Pj+
d"Nofs+g ug}{ k|lqmof; -cf_ g|kfn ;/sf/sf] lgodsfg'g / ljZja}+ssf] gLlt cg';f/
nfu" ul/g'kg}{ jftfj/OfLo tyf ;fdflhs cfjZostfx?; -O_ ldgL lu|8 pk-cfof]hgfx?sf
nflu s]xL alxis/Of (Exclusion) sf ;"rsx? ;d]t ;dfj]z u/] agfOPsf] 5gf]6 dfkb08; -
O_ hf]lvd / c;/x?sf] d"Nofs+g tyf To;kl5sf] cg'udg ug}{ k|lsofsf] ;'lglZrt ug{ ;a}
k|d"v ;/f]sf/jfnf -AEPC, ESCO, ;fem]bf/ a}+s_ sf] e"ldsf / sfo{ l{hDd]jf/Lx?
;dfj]z ul/g]5g\ . ljz]if ul/ AEPC n] ;fem]bf/ a}+sx?;Fu s/f/ ;Demf}tfsf] ;DaGw
dfkm{t\ jftfj/OfLo tyf ;fdflhs k|fjwfgx? ESCO x?;Fu ul/g] sfg'gL ;Demf}tfd
;dfj]z x'g] s'/fsf] ;'lglZrt ug}{5 . o;sf cnfjf, ljQo nufgL ul/Psf pk-cfof]hgfx?df
lglb{i6 ;fdflhs hf]lvd x?sf] k|efjsf/L Joj:yfkgf] ;'lglZrtt ug{ ESMF df k'gjf; gLlt
9fFr (RPF) / hf]lvdhGo ;d'bfo ljsf; 9fFr (VCDF) kl; ;dfj]z ul/Psf] 5 . ESMF n]
lfdtf clej[l4 of]hgf / To;sf nflu rflxg] ah]6sf af/]df kl; ;Daf]wg u/]sf] 5 .

kl/of]hgfsf k|d"v ck]lft jftfj/OfLo tyf ;fdflhs hf]lvd / c;/x?

ESMF n] n3'÷;fgf hnljB't, ;f]o{ / ;f]o{/jfo' phf{ xfOla|8 ldgL lu|8 pk-
cfof]hgfx?sf] cfof]hgf rqmsf] ljleGg r/Of;Fu ;DalGwt ;+efljt jftfj/OfLo tyf
;fdflhs c;/x?sf] klxrfg u/]sf] 5 . clxn]sf] r/Ofdf pk-cfof]hgfx?sf] lglb{i6 :yfg /
To;;Fu ;DalGwt hf]lvd tyf c;/x?sf] af/]df yxf x'g] ;s]sf] 5g . To;}n], oxfF g|kfn

ldgL lu|8 kl/of]hgfsf ;+efljt pk-cfof]hgfx?sf] jftfj/OfLo tyf ;fdflhs hf]lvd
Joj:yfkg ug{ cfjZos Go"lgs/Ofsf pkfox?sf] af/]df lbOPsf ;'emfjx? ;;{tL{ ?kdf
/flvPsf 5g\ .

klxnf] sDkf]g]G6df kg{} k|fo: h;f] pk-cfof]hgfx?sf] jftfj/OfLo tyf ;fdflhs c;/x?
demf}nf lsl;dsf 5g\ . of] ;+efjgf klg 5 ls ;+/lft lf]qleq kg]{ gjLs/OfLo phf{ ldgL
lu|8sf s]xL pk-cfof]hgfx? bLuf] / :jR5t/ phf{ cfk"lt{sf dfWod klg aGg ;S5g\ .
sDkf]g]G6 ! / @ b'j} cGtu{t kg]{ pk-cfof]hgfx?;Fu ;DalGwt jftfj/OfLo tyf ;fdflhs
hf]lvdx?df lgdf{Of r/Ofdf >d / sfo{:ynsf] cj:yfsf ;jfnx?, ;fd'bflos ;jf:Yo / ;'/lffsf
;jfnx?, ef}lts, ;fF:s[lts ;Dkbfx?df kg{ ;Sg] ;+efljt c;/x? tyf cflbjf;L hgtfx?;Fu
;DalGwt ;jfnx? kb{5g\ .

sDkf]g]G6 @ df a[xt\ jftfj/OfLo tyf ;fdflhs d"Nofs+g cfjZos kg]{ lsl;dsf, uDeL/
tyf pNn]vgLo jftfj/OfLo tyf ;fdflhs c;/x? pTkGg u/fpg] ck]lff ul/Psf] 5]g . lsgeg]
;-;fgf pks/Of, kf6k'hf{ h8fg tyf k|;f/Of nfO{gsf ;Dk"Of{ sfo{x? ljB't u[x h:tf
ljBdfg ;+/rgf ePsf :yfgx?df sfof{Gjog x'g]5g\ . tyflk, jftfj/OfLo tyf ;fdflhs
5gf]6sf] k|f/lDes r/Ofdf AEPC åf/f ;DalGwt E&S hf]lvdx? klxrfg gul/P tfklg pk-
cfof]hgf dflnsx?n] ESMP df jOf]g ul/Psf cg';f/sf k|lts"n k|efj Go"lgs/Ofsf
pkfox? sfof{Gjog ug{' kg]{ x'G5 .

**jftfj/OfLo tyf ;fdflhs hf]lvd Joj:yfkgdf k|d"v ;/f]sf/jfnfx?sf] sfo{
lhDd]jf/L**

o; hl6n / ax':t/df sfof{Gjog x'g] kl/of]hgfsf nflu jftfj/OfLo tyf ;fdflhs hf]lvd /
c;/x?sf] Joj:yfkg ug{ AEPC, ;fem]bf/ ljlQo ;+;yf, ;fem]bf/ a}+s tyf cfof]hgf
k|fof]hs ;+;yfx?n] ljlQo nufgL ul/g] pk-cfof]hgfx?sf] k|sf/, bfo/f / k|s[l;Fu
d]n vfg] ul/ To;sf hf]lvd / c;/x?sf] klxrfg, Joj:yfkg / cg'udg ug{sf nflu kof{Kt
k4lt, k|lqmof / lfdtfsf] ljsf; ug{ tyf To;nfO{ sfod /fVg ;Sg' kb{5 . ESMF df g]kfn
ldgL lu|8 kl/of]hgfsf jftfj/OfLo tyf ;fdflhs klfx?sf] ;Daf]wgnfO{ ;'lg]Zrt ug{
jftfj/OfLo tyf ;fdflhs ;'/lfOfsf k|lqmofofsf k|d"v r/Ofx? k|:tfj ul/Psf 5g\ . -**tflnsf**
!_

tflnsf !M k|f|IDes jftfj/OfLo tyf ;fdflhs 5gf}6, ›t n]vfhf]vf -Due Diligence_ /
;'kl/]lIfOfsf k|d"v ;/f]sf/jfnf / ltgLx?sf] e"ldsf tyf sfo{ lhDd]jf/L

d"Vo sfo{x?	AEPC	ESCO x?, pk- cfof]hgf ;+rfnsx?	;fem]bf/ a}+sx?	ljZj a}+s
!=k f IDes jftfj/OfLo tyf ;fdflhs 5gf}6	jftfj/OfLo tyf ;fdflhs 5gf}6 ug]{ / pk- cfof]hgf of]Uo ePgePsf] af/] lgOf{o ug]}{ .	AEPC nfO{ pk- cfof]hgf / ltgsf ;+efljt jftfj/OfLo tyf ;fdflhs ;jfnx?sf af/] df cfjZos ;"rgfx? pknAw u/fpg] .	jftfj/OfLo tyf ;fdflhs hf]lvdx?sf af/] df /fd f];Fu a'lemPsf] 5 / ltgLx?nfO{ nufgL lgOf{o k lqmofdf kof{Kt Wofg lbOPsf] 5 eGg] s'/fsf] ;'lgIZrt ug]}{ .	pk-cfof]hgfsf] lj:t[t ;"lr / ltgLx?sf] jftfj/OfLo tyf ;fdflhs klfsf cfwf/df ul/g] jlu{s/Ofsf] ;dLlff ug]}{ / cfjZos ;Nnfx lbg] .
@=pk- cfof]hgfsf] jftfj/OfLo tyf ;fdflhs txsf] jlu{s/Of	pk- cfof]hgfx?sf] jftfj/OfLo tyf ;fdflhs txsf] jlu{s/Of lgwf{/Of ug]}{ - hf]lvd / c;/sf] d"Nofs+g kl5 lgSof}{n ug]}{ _	AEPC af6 txsf] jlu{s/Ofsf af/] df ul/Psf] lgOf{osf af/] df hfgsf/L lnP/ To;nfO{ k/Lof]hgf / COf sfuhkqdf ;dfj]z ug]}{ .	pk- cfof]hgfx?sf] jftfj/OfLo tyf ;fdflhs txsf] jlu{s/Of cg';f/ jftfj/OfLo tyf ;fdflhs ;'/lIfOf ?k/]vf agfpg] ESCO	;'kl/]lIfOf sfo{sf] ?kdf k lqmofsf] lg/LlIfOf ug]}{ .
#= jftfj/OfLo tyf ;fdflhs d"Nofs+g -jftfj/OfLo	;a} ESCO ldgL lu 8 pk- cfof]hgfx?sf] jftfj/OfLo tyf	g]kfn ;/sf/ / ljZja}+ssf] cfjZostf cg';f/ x'g] ul/ -ESCO	jftfj/OfLo tyf ;fdflhs d"Nofs+g tyf Joj:yfkgsf	of] k lqmofsf] Joj:yfkg ug} AEPC nfO{

d"Vo sfo{x?	AEPC	ESCO x?, pk-cfof]hgf ;+rfnsx?	;fem]bf/a}+sx?	ljZj a}+s
tyf ;fdflhs hf]lvd / c;/x?sf] klxrfg_	;fdflhs ;'/lfOfsf ;fwgx? -h:t} ESIA, ESMP, / cGo of]hgfx? RAP, VCDP, ;fGble{stf cg';f/_ sf] ;dLlff ug]{ cGt;/+of]lht -interconnection_ pk-cfof]hgfx?sf] ESMP tof/kfg]{ / ;f] pk-cfof]hgf ;+rfns tyf ;fem]bf/a}+sx?nfO{ pknAw u/fOPsf] ;'lglZrt ug]{ .	x?n]_ ESIA tof/ ug]{ . AEPC n] tof/kf/]sf ESMP x?sf] ;dLlff / cg';/Of ug]{ (ESCO / pk-cfof]hgf ;+rfns x?n]_ g]kfn ;/sf/sf lgsfox?af6 cfjZos cg'dlt / ;jLs[ltn]g] .	pkfox? ESCO x? jf AEPC n] tof/ kf/]sf] / ljQo nufgL ug{' cl3 g} ;jLs[t eP gePsf] ;'lglZrt ug]{ . -;/sf/L ;jLs[ltx? k fKt eP geP ;d]tsf]_ jftfj/OfLo tyf ;fdflhs pkfox? ;fem]bf/a}+ssf] ;du >"t n]vfhf]vf -due diligence_ k lqmofdf ;dflji6 eP gePsf] ;'lglZrt ug]{ . -sDkf]g]G6 P sf ;a} pk-cfof]hgfsf] COf sfuhkqsf] c+usf ?kdf_	cfjZos ;xof]u / ;Nnfx pknAw u/fpg] .

⁹ AEPC n] pk-cfof]hgf dflns / ;fem]bf/a}+sx?nfO{ cGt;/+of]lht pkcfof]hgfx?nfO{ jftfj/OfLo tyf ;fdflhs >"t n]vfhf]vf -Due Diligence_ sf nflu pk-COf pknAw u/fP/ ;xof]u ug]{5 .

d"Vo sfo{x?	AEPC	ESCO x?, pk-cfof]hgf ;+rfnsx?	;fem]bf/a)+sx?	ljZj a)+s
			ESCO / pk-cfof]hgf ;+rfnsx?;Fu ul/g] COf ;Demf}tfx?df jftfj/OfLo tyf ;fdflhs ;'/lfOfsf sfg'gL k fjwfgx? ;dflji6 ug]{ .	
\$= pk-cfof]hgfsf jftfj/OfLo / ;fdflhs ;'/lfOf b:tfj]hsf] ;dLlff / ;jLs[lt	sDkf]g]G6 P cGtu{t dWod tyf Go"ghf]lvd tx lgwf{/Of ul/Psf ldgL lu 8 pk-cfof]hgfx?sf nflu ESCO x?n] tof/ kf/]sf] jftfj/OfLo / ;fdflhs ;'/lfOf b:tfj]hsf] ;jLs[t ug]{ . pRr hf]lvd tx	;a} ldgL lu 8 pk-cfof]hgfx?sf] ;jLs[lt AEPC -jf AEPC dfkm{t\ ljZja)+saf6_ l:js[lt k fkt ePsf] s'/fsf] ;'lglZrttf ug]{ .		ESCO x?n] tof/ kf/]sf pRr hf]lvd tx lgwf{/Of ul/Psf ldgL lu 8 pk-cfof]hgfx?sf] jftfj/OfLo tyf ;fdflhs ;'/lfOf b:tfj]hx?nfO{ ;jLs[lt k bfg ug]{ . dWod jf Go"ghf]lvd ¹⁰ tx lgwf{/Of

¹⁰ ;Dk"Of{ cGt;/+of]hg pk-cfof]hgfx? dWod jf Go"ghf]lvdsf] x'g] ck]lff ul/Psf] 5 . AEPC n] cGt;/+of]hg pk-cfof]hgfx?nfO{ pRr hf]lvdsf] ?kdf tx lgwf{/Of u/]sf] cj:yfdf AEPC n] ljZja)+snfO{ ;"lrt ug{'k5{ / g]kfn ldgL lu|8 kl/of]hgf cGtu{tsf o:tf pk-cfof]hgfx?sf] ;xof]usf nflu k"j{ ;jLs[lt lng'k5{ .

d"Vo sfo{x?	AEPC	ESCO x?, pk-cfof]hgf ;+rfnsx?	;fem]bf/a}+sx?	ljZj a}+s
	lgwf{/Of ul/Psf pk- cfof]hgfsf b:tfj]hx? ;jLs[ltsf nflu ljZja}+sdf a'emfpg] . kl/of]hgf cGtu{t kg]{ AEPC / ;fem]bf/ a}s - PB_ x?sf] ;Demf}tf nufot ;a} ;Demf}tfx?df jftfj/OfLo / ;fdflhs ;'/lf0fsf kof{Kt k fjwfgx? ;dflji6 ul/Psf]] ;'lglZrttf ug]{			ul/Psf] pk- cfof]hgfx?sf] jftfj/OfLo tyf ;fdflhs ;'/lf0f b:tfj]hx? u'Of:t/Lotf / To;sf] kfngf eP gePsf] a}+ssf] ;'kl/]lf0fsf] c+usf] ?kdf ;dLlff ug]{ .
%=pk- cfof]hgfsf] ;'kl/]lf0f / sfo{;Dkfbg cg'udg	jftfj/OfLo tyf ;fdflhs cg'udg k lqmofsf] lg/Llf0f ug]{ / cfjZos k/]df aflx/L	ESMP sf] kfngf ug]{, pk-cfof]hgf txdf cg'udgsf sfo{x? ug]{, u/fpg] .	lj Qo nufgL ul/Psf pk- cfof]hgfx?sf] cg'udgdf ;xeflutf hgfpfg] .	;'kl/]lf0f / sfof{Gjog ;xof]usf ultljlwx? ug]{ .

d"Vo sfo{x?	AEPC	ESCO x?, pk-cfof]hgf ;+rfnsx?	;fem]bf/a)+sx?	ljZj a)+s
	ljz]if1nfO{ ;+nUg u/fpg] .			

jftfj/OfLo tyf ;fdflhs hf]lvd Joj:yfkg k|lqmof

-!_ jftfj/OfLo tyf ;fdflhs 5gf}6 (Screening_

5gf}6 k|lqmofn] k|:tfljt pk-cfof]hgfx?sf ;+efljt k|lts"n jftfj/OfLo / ;fdflhs c;/x? 5g\ ls 5}gg\ / s'g txsf] jftfj/OfLo / ;fdflhs d"Nofs+g cfjZos k5{ eGg] s'/fsf] lgwf{/Of ug{, ESCO / ;fem]bf/ a)+sx?nfO{ pk-cfof]hgf sfof{Gjog ug{' cl3 g} To;;Fu ;DalGwt jftfj/OfLo / ;fdflhs d'2fx? a'%ogdf ;xof]u ug]{5 / lgOf{o k|lqmofdf ;3fp k'of{pg]5 . g]kfn ;/sf/sf] jftfj/Of ;+/lfOf lgodfjnL, @)%\$ -EPR, !((&_ sf] cg';"lr ! / @ tyf cGo P]g sf'gx? -h:t}M jg P]g, /fli6«o lgs'~h tyf jGohGo' ;+/lfOf P]g cflb_ / ljZja}ssf ;+rfng gLlt -OP_ x? cg';f/sf ;+efljt c;/ / hf]lvdsf cfwf/df to ul/Psf dfkb08sf cfwf/df 5gf}6sf] sfd x'g]5 . gd"gf jftfj/OfLo tyf ;fdflhs 5gf}6 hfFr;"lr -Screening Checklist_ **cg';"lr % df /flvPsf] 5 .**

k|f/lDes jftfj/OfLo tyf ;fdflhs 5gf}6n] pk-cfof]hgfx? ljlQo nufgLsf] nflu of]Uo /x] g/x]sf] s'/f lgwf{/Of ug]{5 . jftfj/OfLo tyf ;fdflhs ?kdf pRr :tl/o hf]lvd /x]sf pk-cfof]hgfx?, h;sf] g]kfn ;/sf/sf] lgodfg';f/ cBfjlws cg'dlt tyf :jLs[lt k|fKt x'g ;s]sf] 5}gGf\ / lgDg lnltv cj:yfdf /x]sf pk-cfof]hgfx? klq ljlQo nufgLsf] nflu of]Uo x'g] 5}g .

- jftfj/OfLo b[li6sf]Ofn] ;+j]bgzLn lf]qdf pNn]vgLo k|lts"n c;/ kfg]{
- ;fF:s[lts ;Dkbfdf k|lts"n c;/ kfg]{
- ljjflbt lf]qsf ultjlwx?

o;sf cnfjf cflbjf;L hgtfdf pNn]vgLo c;/ kfg]{ pk-cfof]hgfx?nfO{ klq pRr hf]lvddf jlu{s/Of ul/g]5 . oBlk, ;du| cfof]hgfsf] k|s[ltsf sf/Ofn], h;af6 b"u{d u|fdLOf

lf]qdf ljB'tLs/Ofn] cflbjf;Lx? nfeflGjt x'g] ck]lff klq /flvPsf] cj:yfdf pRr hf]lvdsf pk-cfof]hgfx?nfO{ klq ljlQo nufgLsf nflu /f]lsg] 5}g . a?, ;fdflhs d"Nofs+g / VCDP tof/ kf/] cflbjf;Lx?;Fu ;DalGwt ;jfnx?sf af/]df cfjZostf cg';f/ ljz]if Wofg lbOg]5 . To;}ul/, pk-cfof]hgfn] hUuf lng'kg]{ x'g;S5 . 5gf}6sf cfwf/df AEPC n] cfjZostf cg';f/ ;fdflhs d"Nofs+g / k'gjf; sfo{ of]hgf -RAP_ agfpg klq l;kmfl/z ug]{5 .

To;sf cnfjf, of]Uotfsf] jlu{s/Ofsf ?kdf ESCO / ;fem]bf/ a}+sx?sf] ltgLx?sf] lfdtf / jftfj/OfLo tyf ;fdflhs hf]lvd Joj:yfkgsf pkfox? sfof{Gjog ug]{ k|lqmofdf ltgLx?n] v]Ng ;Sg] ;DalGwt e"lidsfsf] ;'lgIZrttsf nflu ul/g] k|lta4tfsf nflu 5gf}6 ul/g]5 .

5gf}6 k|ltj]bgx?sf] ;dLlff ug{ / jftfj/Of ;+/lfOf lgodfjnL -EPR, !((&_ sf k|fjwfgx?sf cfwf/df s'g} pk-cfof]hgfx?n] EIA jf IEE jf EMP dfq tof/ kf/] k'Ug] s'/fsf] l;kmfl/z ug{ AEPC lhDd]jf/ x'g]5 . tyflk ljZja}+ssf] ;'/lffTds pkfosf] cfjZostf -Safeguards Requirements_ cg';f/ ;a} pk-cfof]hgfx?sf] ESIA cWoog ug{'kg]{ x'G5 . o;}n], ;a} pk-cfof]hgfx?n] g]kfn ;/sf/ tyf ljZja}+s b'j}sf] cfjZostf k'/f ug{, To;dWo]sf] s8f dfkb08x? kfngf ug{' kg]{ x'G5 .

-@_ pk-cfof]hgfx?sf] jftfj/OfLo tyf ;fdflhs hf]lvd jlu{s/Ofsf] tx lgwf{/Of

jftfj/OfLo tyf ;fdflhs 5gf}6sf cfwf/df pk-cfof]hgfx?nfO{ pRr, dWod / Go"ghf]lvdsf ?kdf jlu{s/Of ul/g]5 . jlu{s/Ofsf af/]df lgOf{o lng / o; af/]df ESCO, pk-cfof]hgf ;+rfns tyf ;fem]bf/ a}+sx?;Fu ;dGjo ug{ AEPC lhDd]jf/ x'g]5 . jlu{s/Of lgwf{/Of, 5gf}6 k|lqmofsf] z'?jftL r/Ofdf ckgfOg]5 / kl5 jftfj/OfLo tyf ;fdflhs d"Nofs+g k|lqmofdf tn pNn]v ul/P adf]lhd ;'lgIZrt ul/g]5 .

hf]lvdsf txx? lgDgfg';f/ tf]lsg]5g\ .

- s'g} pk-cfof]hgfsf] pNn]vgLo ?kdf ;+efljt k|lts'n jftfj/OfLo / ;fdflhs c;/x? x'g]5g\ / cg}lR5s hUuf k|flKtsf sf/Ofn] lxdfno lf]qdf %) jf ;f] eGbf a9L kl/jf/, kxf8L lf]qdf &% jf ;f] eGbf a9L / t/fO{ lf]qdf !)) jf ;f] eGbf a9L kl/jf/ la:yflkt u/fpg' kg]{ ePdf To:tf k|:tfljt pk-cfof]hgfx?nfO{ **pRr hf]lvdsf** ?kdf jlu{s/Of ul/g]5, -oBlk o:tf pRr hf]lvdsf s]xL pk-cfof]hgfx?

dfly pNn]v ul/P cg';f/ ;"lr ! df k/]sf] jftfj/OfLo / ;fdflhs lgif]wsf] jlu{s/Of cg';f/ ljlQo nufgLsf nflu of]Uo 7xl/g] 5}gGf\ . g]kfn ;/sf/sf] lgodsfg'g cg';f/ EIA ul/g'kg]{ s'g} klg pk-cfof]hgfx? klg pRr hf]lvdsf] txd f jlu{s/Of ul/g]5 . pRr hf]lvdsf pk-cfof]hgfx?, ljlQo nufgLsf] nflu of]Uo ePsf] v08df ltgLx?sf] ESIA cWoog ug{' kg]{ x'G5 / cfjZostf cg';f/ k'gjf{; sfo{ of]hgf -RAP_ /÷jf hf]lvdhGo ;d'bfo ljsf; of]hgf -VCDP_ tof/ kfg{' kg]{ x'G5 .

- s'g} pk-cfof]hgfsf c;/x? sd pNn]vgLo / :yfg ljz]if x'G5g\ / k|foM h;f] cj:yfdf c;/ Go"lgs/Ofsf pkfox?sf] l;kmfl/z ug{ / sfof{Gjog ug{ ;xh} ;ls] lsl;dsf 5g\ eg] To:tf k|:tfljt pk-cfof]hgfx?nfO{ **dWod hf]lvdsf** ?kdf jlu{s/Of ul/g]5 . ;fy} cg}lR5s hUuf k|flKtsf sf/Ofn] lxdfno lf]qdf %) kl/jf/ eGbf sd, kxf8L lf]qdf &% kl/jf/ eGbf sd / t/fO{ lf]qdf !)) eGbf sd kl/jf/ la:yflkt u/fpg' kg]{ ePdf To:tf k|:tfljt pk-cfof]hgfx?nfO{ **dWod hf]lvdsf** ?kdf jlu{s/Of ul/g]5 . dWod hf]lvdsf pk-cfof]hgfx?df cfjZostf cg';f/ ;Lldt ESIA cWoog ug{'kg]{ / ;+llfKt k'gjf{; sfo{ of]hgf -RAP_ /÷jf hf]lvdhGo ;d'bfo ljsf; of]hgf -VCDP_ tof/ kfg{' kg]{ x'G5 . g]kfn ;/sf/sf] lgodsfg'g cg';f/ IEE cWoog ug{' kg]{ jf gkg]{ ePklg dWod hf]lvdsf pk-cfof]hgfsf ?kdf jlu{s/Of ug{ ;lsG5 .
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Abbreviations and Acronyms

A-B-C	Anchor, Business, and Community
ADB	Asian Development Bank
AEPC	Alternative Energy Promotion Centre
AP	Affected People/Person
AST	Above-ground Storage Tank
BOD	Biochemical Oxygen Demand
BoQ	Bill of Quantity
BPL	Below Poverty Line
CBO	Community Based Organizations
CC	Construction Contractor
CDC	Compensation Determination Committee
CITES	Convention on International Trade of Endangered Wild Fauna and Flora
CUG	Community Users' Group
D/S	Downstream
DAG	Disadvantaged Group
DCC	District Coordination Committee
DD	Detail Design
DPR	Detail Project Report
EA	Environmental Assessment
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ESAP	Environmental and Social Action Plan
E&S	Environmental and Social
E&SA	Environmental and Social Assessment
ESCO	Energy Service Company
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Programme
ESMF	Environmental and Social Management Framework

ESMP	Environmental and Social Management Plan
ESIA	Environmental and Social Impact Assessment
FGD	Focus Group Discussion
FI	Financial Intermediary
FM	Financial Management
GAP	Gender Action Plan
GDF	Gender Development Framework
GESI	Gender and Social Inclusion
GHG	Green House Gases
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoN	Government of Nepal
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HH	Household
IEE	Initial Environmental Examination
IEP	Independent Evaluation Panel
ILO	International Labour Organization
IP	Indigenous People
IPDP	Indigenous Peoples' Development Plan
IPP	Independent Power Producers
IRR	Internal Rate of Return
M	Municipality
M&E	Monitoring and Evaluation
MHP	Micro/Mini Hydropower Plant
MoEWI	Ministry of Energy, Water Resources and Irrigation
MoFE	Ministry of Forests and Environment
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization
NEA	Nepal Electricity Authority
NEFIN	Nepal Federation of Indigenous Nationalities

NPV	Net Present Value
NRREP	National Rural and Renewable Energy Programme
NTA	Nepal Telecommunications Authority
OC	Operation Contractor
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
OP	Operational Policy
PAD	Project Appraisal Document
PAP	Project Affected People
PB	Partner Bank
PDO	Project Development Objective
PFI	Partner Financial Institutions
PIU	Project Implementation Unit
POM	Project Operational Manual
PM	Project Manager
PPA	Power Purchase Agreement
PPE	Personal Protective Equipment
PPSD	Project Procurement Strategy for Development
PV	Photovoltaic
RAP	Resettlement Action Plan
RE	Renewable Energy
RET	Renewable Energy Technoogy
RM	Rural Municipality
RPF	Resettlement Policy Framework
SCF	Strategic Climate Fund
SHS	Solar Home System
SIA	Social Impact Assessment
SPAF	Severely Project Affected Family
SPAP	Severely Project Affected People
SPP	Small Power Producer
SREP	Scaling Up Renewable Energy Program

SWHS	Solar Wind Hybrid System
TA	Technical Assistance
ToR	Terms of Reference
TRC	Technical Review Committee
TYIP	Three Year Interim Plan
U/S	Upstream
UC	Users' Committee
ULAB	Used Lead Acid Batteries
UN	United Nations
VCDF	Vulnerable Community Development Framework
VCDP	Vulnerable Community Development Plan

Chapter 1: Project Overview

1.1 Introduction

1.1.1 Country Context

Nepal, a landlocked country with a per capita income of US\$730 per year, where 25 percent of the population survives on less than US\$1.25 per day, is facing an energy crisis of unprecedented proportions. Despite having rich hydropower resources of up to 82,000 MW, the current total installed capacity is about 1044 MW, including generation from the Nepal Electricity Authority (NEA) and Independent Power Producers (IPPs). Existing generation is not sufficient to meet the peak demand. The peak demand in 2017/18 was about 1,500 MW. Due to increased power imports from India, the supply situation in the country has improved in recent years. As such, NEA recently announced that it has abolished the declared load shedding; however, the unannounced power cuts still plague the country. In Nepal, it is estimated that more than 80 percent of the population has access to electricity. However, Nepal continues to suffer from the adverse impacts of inadequate and unreliable electricity supply, which remains a key obstacle for lifting more people out of poverty.

Off-grid communities are served by about 1700 community-owned Micro Hydropower Plants (MHPs) with total installed capacity of about 30 MW. Similarly and 600,000 Solar Home Systems (SHSs) have been installed by individual households for lighting purposes. The importance of decentralized energy systems must not be underestimated when about 25 percent of the population is reliant on off-grid electricity, and where grid extension remains difficult in the near future due to the difficult and remote terrain. Therefore, Nepal's energy sector priority is not only to maximize its on-grid energy production and delivery, but also at the same time to modernize its off-grid energy sector on which a large part of the population will depend for the medium term. Part of the effort to modernize the off-grid energy sector would have to include the recognition of off-grid electricity delivery as a service rather than a product.

1.1.2 Sectoral and Institutional Context

World Bank's support to the Government of Nepal (GoN) will assist in knowledge transfer, international experience sharing, and development of customized solutions for Nepal to pilot new approaches to address deficiencies in the current program design for off-grid electrification. If this intervention proves to be successful, it could help AEPC potentially transform the way in which it uses its larger pool of bilateral funding for mini-grid electrification and thereby achieve much greater development impact from higher consumption and productive end use of electricity.

The structure of the GoN's renewable energy subsidy program and incentives offered for off-grid electrification may be inadvertently contributing to the low consumption levels of electricity in off-grid areas. AEPC, which was established in 1996, is the implementing

agency of the Ministry of Energy, Water Resources and Irrigation (MoEWI) for rural and renewable energy solutions. AEPC has been implementing a subsidy-driven model that has subsidized renewable energy based rural electrification on the basis of ‘installed generation capacity’ and ‘number of households connected’.

The Renewable Energy Subsidy Policy of 2016 recognizes the need for public-private partnership in off-grid electrification and that the lack of mobilization of credit and high dependence on subsidy is hampering the deployment of renewable energy. The policy proposes the gradual replacement of subsidy with credit. The Renewable Energy Subsidy Policy of 2013 did not allow private developers or Energy Service Companies (ESCOs) to receive subsidies for mini-grid investments. However, the new Renewable Energy Subsidy Policy approved in May 2016 allows privately owned ESCOs to receive subsidies at about 50 percent capital cost for hydropower mini-grids and at about 70 percent for solar mini-grids. This is expected to facilitate the entry of ESCOs into the mini-grid energy services market. To access subsidies, the Renewable Energy Subsidy Policy of 2016 requires mini-grid projects to either mobilize 20 percent credit from commercial banks and financial institutions or reach financial closure within six months of approval by the AEPC. This requirement could impede ESCO participation, as historically financial institutions have been reluctant to lend to mini-grid projects on project finance basis..

1.2 Project Description

The proposed project consists of two components (A) Credit Facility to Support Renewable Energy Mini-grid Subprojects (approx. US\$ 5.61 Million) and (B) Technical Assistance to the Mini-grid sector, ESCOs and Project Management support (approx. US\$ 2 Million). Renewable Energy Mini-grid sub-projects include three types of Subprojects:

- i. New Micro/Mini Hydro and Solar & Solar/Wind Hybrid Mini Grid Subprojects
- ii. Up-gradation of existing Mini Grids
- iii. Interconnection of Mini Grids

Component A supports the RE mini-grid subprojects by mobilizing debt from partner banks, the financial intermediaries. Subprojects for deploying new micro hydro and solar hybrid mini-grids and for upgrading and interconnecting existing mini-grids will be supported. Subprojects meeting the eligibility criteria established for this project can apply for debt from the partner banks. It is expected to support more than fifteen subprojects over the period of four years.

The funds from this component will establish a credit facility that will incentivize financial intermediaries to invest in RE mini-grids and help in closing the financing gap. The credit facility will provide long term source of funds for partner banks to lend at a cost that is financially viable to the prospective subprojects. The model will crowd in the private sector in line with the government strategy to move away from reliance on excessive subsidies.

Funds will be extended to partner banks by AEPC in form loans whose amount and tenor matches the sub-loan disbursement and repayment plans from partner banks to the eligible subprojects. The partner banks will assume the credit risk related to project development and operations. A risk sharing mechanism will be instituted between AEPC and the PBs to protect the partner banks against principal loss due to external risks such as force majeure and other related risks, as defined in the agreement between AEPC and the partner banks. AEPC will monitor the portfolio performance of the credit facility.

Component B this component will provide required Technical Assistance (TA) to open-up the commercial mini-grid market. TA will finance sector experts to support the AEPC and PBs in appraising and strengthening project proposals from the ESCOs; and advisory support to ESCOs, as required, to develop bankable subprojects. The project will also provide technical support to participating local banks to help them develop capacity to assess the associated risks, conduct credit due-diligence, and monitor loan performance. This can also include cost sharing for lenders engineer to monitor the project during construction.

The TA will support promotional activities and capacity building workshops to connect various stakeholders (ESCOs, financiers, anchor customers), rural community mobilization, assistance to ESCOs in preparing Environmental and Social assessments and plans that meet World Bank's Safeguards Policies.

This component will support AEPC to institute and sustainably maintain the Project Implementation Unit (PIU). In particular, it will help in hiring key AEPC consultants in the PIU to ensure there is adequate capacity to implement AEPC's role in the project. This component will also support the preparation of the Project Operational Manual (POM), including a monitoring and evaluation framework, and other key documents such as Memorandum of Understanding (MoU), agreements, contracts among AEPC, ESCOs, and PBs. This component will finance capacity building of AEPC. In addition, procurement of goods for the AEPC, such as equipment and software necessary for the project design, implementation, supervision, monitoring, and evaluation, will be supported by this component.

1.2.1 Project Development Objective

The Project Development Objective (PDO) is to increase electricity delivery from renewable energy mini-grids in selected areas by mobilizing private Energy Service Companies (ESCOs).

1.2.2 Project Beneficiaries

1. The final project beneficiaries are residential, commercial, and industrial customers, which will gain energy access in rural areas, through renewable-energy-based mini-grid developed by ESCOs and whose use of electricity will replace consumption of diesel, kerosene, batteries as well as other energy sources.

Rural communities with MHP-based mini-grid and facing NEA imminent distribution system arrival will also be able to avoid abandoning the MHP and benefit from selling electricity to the NEA through interconnected MHPs.

2. The project beneficiaries include (a) the AEPC and commercial Partner Banks (PBs), who will get financing and/or risk-mitigation¹¹ support to mobilize credit to Energy Service Companies (ESCOs); (b) mini-grid developers which are private ESCOs, which will gain access to finance to build mini-grids; and (c) existing subproject owners, who will gain access to finance for the interconnection. The AEPC, commercial partner banks, and ESCOs, will also receive TA supports and capacity development opportunities.

1.3 Purpose of ESMF

The overall purpose of the ESMF is to guide AEPC in environmental and social management using various methodologies, instruments, procedures and responsibilities during the project cycle. The subproject developers and Partner Banks (PBs) should apply ESMF during subproject implementation to comply with national environmental and social regulations and the Bank's Environmental Assessment (OP/BP 4.01) Safeguard Policy, Involuntary Resettlement (OP 4.12), Indigenous Peoples (OP 4.10) and other safeguard policies that may apply based on the outcomes of the assessment.

The main objectives of ESMF are to:

- Analyze and summarize potential E&S risks and impacts that would be associated with subprojects and activities financed.
- Present the legal and institutional framework related to the environmental and social context in the energy sector that the project will support.
- Introduce the environmental and social due diligence process to present methodologies, instruments and procedures and responsibilities for environmental and social management.
- Specify approach to risk mitigation measures in various circumstances.

ESMF details (i) the process for screening and assessment of E&S risks and impacts for each subproject, including risk mitigation instruments to be prepared; (ii) applicable regulatory requirements and environmental and social policies, as per the Government of Nepal regulations and World Bank policies; (iii) selection criteria for rural model ESCO subprojects that incorporate some exclusion parameters; (iv) roles and responsibilities of all key stakeholders (AEPC, ESCOs, and partner banks) in ensuring due process for risk and impact assessment and subsequent monitoring. Specifically, through its contractual relationships with partner banks, AEPC will ensure E&S provisions are included in all legal agreements pertaining to the subprojects, including agreements between PBs and ESCOs and interconnection subproject owners.

¹¹ Risk-mitigation on mini-grid sub-loan portfolio for partner banks could be through allocation of credit risk between partner banks and AEPC.

Chapter 2: Identification of Potential Environmental and Social Risks and Impacts

Magnitude, extent or duration of the environmental and social impacts of a project depends upon the nature, size, physical and biological settings as well as socio-economic and cultural settings of the area where the project is going to be implemented. This chapter identifies the potential environmental and social impacts associated with micro/mini hydro, solar and solar/wind hybrid project at various stages of the project cycle. The exact locations and associated risks and impacts of subprojects to be financed under Nepal Mini-grid Project are not known at this stage. Therefore, the overall purpose of Environmental and Social Management Framework (ESMF) is to provide (i) general overview of the risks without site-specific details of each subproject; (ii) guidance on the E&S risk management in all subprojects (micro/mini hydro, solar and solar/wind hybrid mini-grids), which are supported by Nepal Mini-grid Project; (iii) outline the standards, guidelines, and procedures to address the E&S impacts associated with the implementation of each subproject.

For Component A, mini-grid construction using renewable-energy-based solutions such as micro/mini-hydro, solar and solar/wind hybrid systems may involve biodiversity impacts, as the mountain/hill areas of Nepal, such as the Annapurna Conservation Area, Langtang National Park, Manaslu, Upper Mustang, and Sagarmatha National Park, Rara National Park could be among the potential project locations. These locations are rich in biodiversity (protected area/sensitive natural habitats) and geologically fragile in terms of landslides and soil erosions. They may house critically endangered species (e.g. avian fauna) and represent critical habitats. Likewise, mini-grids may lead to some taking of land – albeit comparatively small - and thus carry some risk of physical or economic displacement. Additionally, subproject activity could generate significant impact on Indigenous Peoples.

Component A of the project, managed by AEPC, also involves provision of financial support for physical equipment needed for subprojects involving mini-grid upgrades and interconnections. This type of subprojects is not likely to result in significant adverse E&S impacts necessitating comprehensive E&S assessment, because all works (minor equipment installation and line connections) will be executed within existing facility area, such as in powerhouses. However, OP 4.01 and relevant safeguards policies would be triggered, if necessary, where E&S risks are identified through initial E&S screening done by AEPC.

Additionally, E&S risks associated with subprojects may involve influx of labor and labor working conditions issues during construction, potential impacts on physical cultural resources, Indigenous Peoples and other impacts of associated access roads (although not anticipated at this time). These aspects will be taken into account during ESIA preparation and mitigated through inclusion of relevant provisions in E&S Management Plans (ESMPs). These shall be assessed as part of the preparation of the

ESIAs for subprojects, which will be the responsibility of ESCOs (with review and oversight by AEPC).

In terms of micro/mini-hydro subprojects, the adverse impact occurs within or adjacent to the component site. In case of solar and solar/wind project very nominal adverse impact is anticipated on the existing environment which are temporary in nature. Land slide, soil erosion, safety hazards, construction disturbances, disposal of debris, and irritation from dust and noise in the subproject site are some of the impacts likely to occur during the construction stage with short-term negative impacts. These impacts can be mitigated to an acceptable level by implementation of recommended safeguards measures and environmental practices. Workers' health and safety will be taken care by adopting mitigation measures. Furthermore, it raises the revenue, local employment opportunity, enhance land value, extension of the rural electrification, infrastructure development, increase mobility during night, access to the information and modern world using TV and internet facilities and help student to optimize their timing during evening and general public to carry out other productive activities during evening or night time apart from their regular daytime activities.

The potential adverse and beneficial impacts of the micro/mini hydro, solar and solar/wind hybrid project on biophysical and socio-economic and cultural environment associated with pre-construction, construction and operation phases due to implementation of the project are listed under different headings as follows and briefly discussed in **Annex 3**.

2.1 Pre-construction Phase

The community will be informed about the project activities and likely impacts, and the mitigation measures. Environmental and social screening will be undertaken at an early stage of all subprojects, which will provide necessary information on the potential impacts likely to be encountered during implementation of the subprojects. During this stage, various stakeholders such as beneficiaries, farmers, representatives from rural municipalities/municipalities, indigenous communities, women, dalits, and other local key informants will be consulted, which will provide information on:

- beneficiary population living within various impact zones of the subproject based on distance;
- extent of land required and number of affected households due to loss of land, structure, livelihood, etc;
- impacts on Indigenous Peoples, poor and vulnerable groups including needs and priority for social and economic betterment;
- willingness of people for voluntary land donation;

2.2 Construction Phase

2.2.1 Biophysical Environment

- 1) Landscape disturbance
- 2) Land degradation and land stability (Land slide and soil erosion)

- 3) Change in land use pattern
- 4) Air pollution
- 5) Noise level
- 6) Water quality
- 7) Solid waste and muck disposal
- 8) Stockpiling of construction materials
- 9) Visual impact
- 10) Birds and bats mortality
- 11) Forest and vegetation
- 12) Hunting and poaching
- 13) Human wildlife conflicts and its mitigation measures during construction

2.2.2 Socio-economic and Cultural Environment

- 1) Change in demographic profile
- 2) Community and occupational health and safety
- 3) Health, hygiene and sanitation
- 4) Gender and vulnerable group
- 5) Employment opportunity
- 6) Labor influx and management
- 7) Impact on sites of cultural importance

2.3 Operation Phase

2.3.1 Biophysical Environment

- 1) Waste hazard
- 2) Deterioration of fish habitat

2.3.2 Socio-economic and Cultural Environment

- 1) Occupational health and safety
- 2) Community health and safety

Chapter 3: Applicable Environmental and Social Requirements

3.1 National Regulatory Framework

The Government of Nepal (GoN) has a well-established legal framework for environmental assessment of development projects. The most relevant national policies, acts and guidelines of the GoN concerning environmental management, which are relevant to the proposed project, are listed as follows (briefly discussed in **Annex 1**).

1. Constitution of Nepal
2. *Muluki Devani Sanhita Ain*, 2017
3. Fourteenth Plan 2016-2019
4. Hydropower Development Policy 2001
5. Rural Energy Policy 2006
6. Land Acquisition, Resettlement and Rehabilitation Policy 2015
7. National Environmental Impact Assessment Guideline 1993
8. Environment Protection Act 1997
9. Environment Protection Rule 1997
10. Electricity Act 1992
11. Water Resources Act 1992
12. Land Acquisition Act 1977
13. Land Revenue Act 1977
14. Labour Act, 2074
15. Local Governance Operation Act 2017
16. National Parks and Wildlife Conservation Act 1973
17. National Foundation for Upliftment of Aadibasi/Janjati Act, 2002
18. Forest Act 1993
19. Forest Rules 1995
20. Child Labor (Prohibition and Regulation) Act 2000
21. Ancient Monuments Preservation Act 1956
22. Buffer Zone Management Regulation 1996
23. Royalty and Benefit Sharing Mechanism

3.2 Environmental and Social Eligibility/Selection Criteria

3.2.1 E & S selection criteria for ESCOs and Interconnection Subproject Owners

- Capacity and commitment¹² for carrying out environmental and social risk management measures.
- Clean track record in terms of compliance with any relevant environmental and social regulations of Nepal (e.g. absence of environmental or labor-related fines or No other evidence of non-compliance in the past two years)¹³.

¹² Determination of adequate capacity for ESCOs will include: (i) commitment to timely engagement of environmental & social risk management expertise; (ii) sufficient budget allocated to environmental and social assessment and monitoring.

¹³ ESCOs are required to provide self-declaration letter.

3.2.2 E&S selection criteria for PBs

- Capacity and commitment¹⁴ for carrying out environmental and social risk management measures.

3.2.3 E&S selection/eligibility criteria for subprojects

- Third party E&S due diligence of the subprojects (in case of high risk category)
- Subprojects must have all relevant and up-to-date permits from the GoN (not eligible if not able to obtain required permits)
- Subprojects with significant adverse impacts on ecologically sensitive areas¹⁵, if deemed unacceptable by AEPC, will not be eligible
- Subprojects involving large-scale resettlement¹⁶ will not be eligible
- Subprojects with significant adverse impacts on cultural heritage will not be eligible
- Subprojects in disputed areas will not be eligible

3.3 International Conventions

3.3.1 International Convention on Biodiversity 1992

The Parliament of Nepal ratified the International Convention on Biodiversity in 1993 to become its party. The convention was enforced in Nepal on 21 February 1994. Article 14 of the Convention urges Parties to introduce appropriate procedures requiring IEE of the proposed project that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures. The convention also focuses on reducing trans-boundary impacts on biodiversity.

3.3.2 Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975

Nepal became party to Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1975 to control the trade of endangered wild flora and fauna to further endangering of their survival. The Convention urges Parties not to allow trade in specimen of species included in the CITES Appendices I, II, and III except in accordance with the provisions of the Convention.

Pursuant to Section 10 of the *National Park and Wildlife Conservation Act 1973*, the hunting of animal protected under Schedule 1 is prohibited throughout Nepal. Most of

¹⁴ Determination of capacity for PBs will include: (i) an existing systematic environmental and social screening process for loans/investments (even if not captured in a formal E&S policy or procedure); (ii) clearly designated focal point for E&S risk management.

¹⁵ Significant adverse impacts on ecologically sensitive areas will be determined using international best practice and tools, as well as based on the outcomes of relevant studies conducted as part of subproject the ESIA.

¹⁶ For the purposes of exclusion, large-scale resettlement is defined as physical displacement of a significant number of people / households. Physical displacement would mean relocation/ loss of shelter and assets resulting from the acquisition of land that requires the affected persons to move to another location.

these species are also listed in CITES appendices. Under this Act, it is illegal to collect, obtain or keep any part of a dead animal protected under Schedule 1 without a certificate, and such goods are prohibited for sale, purchase or disposal. Pursuant to Section 26, any person illegally killing, wounding, purchasing, selling or transferring a protected animal, or keeping as a trophy, selling or purchasing any part thereof, will incur a fine or imprisonment or both.

3.3.2 International convention related to IPs

Nepal is signatory of ILO Convention on Indigenous and Tribal Peoples, 1989 (No.169) which deals with the safeguard of indigenous people and their social interest. Similarly, United Nations Declaration on the Rights of Indigenous Peoples was adopted by the United Nations General Assembly during its 61st session on 13 September 2007. The non-binding declaration outlines the individual and collective rights of indigenous peoples, as well as their rights to identity, culture, language, employment, health, education and other issues. The UN describes it as setting an important standard for the treatment of indigenous peoples that will undoubtedly be a significant tool towards eliminating human right violation against the indigenous people and assisting them in combating discrimination and marginalization.

3.4 World Bank Safeguard Policies

The following World Bank safeguard policies are likely to be triggered by the proposed project.

3.4.1 OP/BP 4.01 - Environmental Assessment

Objective: The objective of this policy is to ensure that Bank financed projects are environmentally sound and sustainable.

Applicability: The environmental issues will be addressed adequately in advance. An integrated Environmental Screening and Environmental Assessment (EA) with Environmental and Social Management Plan (ESMP) will be developed to manage environmental risks and maximize environmental and social benefits wherever applicable.

3.4.2 OP/BP 4.04 - Natural Habitats

Objective: The policy recognizes that the conservation of natural habitats is essential for long-term sustainable development. The Bank, therefore, supports the protection, maintenance and rehabilitation of natural habitats in its project financing, as well as policy dialogue and analytical work. The Bank supports and expects the Borrowers to apply a precautionary approach to natural resources management to ensure environmentally sustainable development.

Applicability: This policy may be triggered by the Project due to activity requiring forest/

wildlife lands, locating close to the natural habitats with the potential to cause significant adverse impact or degradation of natural habitats whether directly (through construction) or indirectly (through human activities induced by the project).

3.4.3 OP/BP 4.36 - Forests

Objective: This policy focuses on the management, conservation, and sustainable development of forest ecosystems and resources. It applies to project that may have impacts on (a) health and quality of forests; (b) affect the rights and welfare of people and their level of dependence upon forests and projects that aim to bring about changes in the management, protection or utilization of natural forests or plantations, whether they are publicly, privately or community owned. The Bank does not support the significant conversion or degradation of critical forest areas or related critical natural habitats.

Applicability: Impact of construction activities on Forest areas required to be taken care of. The forest related issues, avoidance/ minimization of forest loss and its management should be integrated with EA study and ESMP.

3.4.4 OP/BP 4.11 - Physical Cultural Resources

Objective: This policy aims at assisting in the preservation of cultural property, historical, religious and unique natural value-this includes remains left by previous human inhabitants and unique environment features, as well as in the protection and enhancement of cultural properties encountered in Bank- financed project.

Applicability: This policy may be triggered by subprojects where cultural property, historical, religious and unique natural value and unique environment features may be affected due to project.

Safeguard Requirement: Application has to be prepared and submitted to Archaeological Department in case any impact is envisaged due to the project. The impact on such features should be integrated with ESIA study and included in ESMP.

3.4.5 OP/BP 4.10 - Indigenous Peoples

Objective: This policy aims to protect the dignity, right and cultural uniqueness of indigenous people to ensure that they have a voice in project design and implementation, do not suffer from development activities; that they receive social and economic benefits.

Applicability: This policy may be triggered if there are indigenous people in the project area; when potential adverse impacts on indigenous people are anticipated; and if indigenous people are among the intended beneficiaries.

Safeguard Requirement: Social assessment is carried out and integrated into Vulnerable Community Development Plan.

3.4.6 OP/BP 4.12 - Involuntary Resettlement

Objective: The objective of this policy is to avoid or minimize involuntary resettlement where feasible, exploring all viable alternative project designs. Furthermore, it intends to assist displaced person in improving their former living standards; community participation in planning and implementing resettlement; and to provide assistance to affected people, regardless of the legality of title of land.

Applicability: There will be need for limited land acquisition resulting in: relocation or loss of shelter, loss of assets or access to assets; loss of income sources or means of livelihood. This policy applies to all components of the project that result in involuntary resettlement, regardless of the source of financing including projects that are carried out, or planned to be carried out, contemporaneously with the project.

Safeguard Requirement: SIA standalone or as a part of larger study ESIA and Resettlement Action Plan in consultation with the community and project authorities.

3.4.7 OP/BP 7.50 - International Waterways

Objective: The objective of this policy is to avoid or minimize involuntary resettlement where feasible, exploring all viable alternative project designs. Furthermore, it intends to assist displaced person in improving their former living standards; community participation in planning and implementing resettlement; and to provide assistance to affected people, regardless of the legality of title of land.

Applicability: This policy applies to the following types of international waterways:

(a) any river, canal, lake, or similar body of water that forms a boundary between, or any river or body of surface water that flows through, two or more states, whether Bank members or not;

(b) any tributary or other body of surface water that is a component of any waterway described in (a) above.

Safeguard Requirement: While the policy applies, an exception from notification requirement under this policy has been obtained from the World Bank.

3.5 World Bank Group Environmental Health and Safety Guidelines

The following principles derived from the Environmental Health and Safety Guidelines of the World Bank will be applied to the project.

3.5.1 General Environmental Health and Safety Guidelines

The General Environmental Health and Safety Guidelines¹⁷ contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry

¹⁷http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

sectors. The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. These General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines, which provide guidance to users on EHS issues in specific industry sectors. The general EHS guidelines covers four different concerns; Environment, Occupational Health and Safety, Community Health and Safety, and Construction and Decommissioning.

3.5.2 Environmental Health and Safety Guidelines for Electric Power Transmission and Distribution

This guideline includes information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas. The guideline provides a summary of EHS issues associated with electric power transmission and distribution that occur during the construction and operation phases of a facility, along with recommendations for their management (**Annex 9**).

Chapter 4: Procedures for Environmental and Social Risk Management

4.1 Project administrative structure, management and implementation arrangements

4.1.1 Alternate Energy Promotion Centre

The AEPC will be the project implementing agency and host the PIU.

For Component A, the AEPC PIU will be responsible to select ESCOs and subprojects according to the criteria that will be agreed with the World Bank. ESCOs will conduct necessary studies and analysis of the project including the preparation of the business plans for funding consideration. The relevant support for studies to conduct DDs and E&S studies can be provided by AEPC as per the GoN subsidy policy. Upon completion and submission of studies, analysis, business plans etc, AEPC PIU and PBs will determine the whether the subprojects are eligible for the SREP funding.

For Component B, the AEPC will execute regulatory, technical, environmental and social, and financial studies that will be in compliance with regulation and technical standards. Subsequently, AEPC will mobilize its funding and where suitable, sub-loan from commercial banks to support cost of interconnections.

To provide mini-grid sub-loans with attractive terms to ESCOs, the SREP grant will be used as a seed fund and/or risk-mitigation instrument to mobilize sub-loans with a marginally commercial interest rate.

4.1.2 Partner Banks (PBs)

Under Component A, the sub-loans will be provided to ESCOs through Partner Banks (PBs). The role of PBs is envisaged to be that of financial intermediaries utilizing long-term source of funds made available from the AEPC to mini-grid subprojects. The credit risk of the PB's mini-grid sub-loan portfolio will be allocated between PBs and AEPC. PBs, therefore, should still pay specific attention to E&S risks as a factor of credit and reputational risk and be fully engaged in the process of E&S screening and assessment led by AEPC and ESCOs. Funds will be mobilized through AEPC and/or PBs to facilitate the interconnection of the existing mini-grid.

4.1.3 Energy Service Companies (ESCOs)

For component A, AEPC will support the identification, financing, implementation, and performance assessment of subprojects utilizing the A-B-C business model or other financially sustainable business models. ESCOs will receive training and advisory support and will then develop renewable energy based mini-grids in rural areas, for which DD, business proposals, and corresponding E&S studies and risk mitigation plans and measures will be prepared by them with support from AEPC.

4.1.4 Interconnection subproject owners

For component A, interconnection subproject owners, who will gain access to finance for the interconnection, must submit investment proposals to AEPC before seeking financing. Then, AEPC will coordinate and conduct technical due diligence on the proposal together with NEA and or with other mini-grids (for off-grid interconnection) to ensure its quality and function. NEA will approve the commercial agreement with the proposed interconnection. Commercial loans and risk sharing will be sought only after the approval of AEPC and NEA. Capacity building and training will be provided through component B to improve technical capacity of AEPC, NEA, PBs, rural communities, and potential ESCOs.

4.2 Roles and Responsibilities of AEPC, ESCOs, PBs, and other stakeholders for E&S risk management

Table 2 defines the roles and responsibilities of different administrative structure during the project cycle i.e., pre-construction, construction and operation phases.

Table 2: Summary of Roles and Responsibilities of Administrative Structures for E&S Risk Management in Nepal Mini-grid Project

Organizations	Roles and Responsibilities
Ministry of Energy, Water Resources and Irrigation	As AEPC's line ministry, MoEWI will provide oversight to AEPC. Mandated to formulate and implement environmental policies, plans and programs at national level. No direct responsibility in the project. It has the role of facilitation as and when needed on environmental and social safeguards.
AEPC/ ABC business model PIU	AEPC will be the project implementing agency and host the PIU. AEPC key responsibilities are: <ul style="list-style-type: none">- Lead E&S screening and scoping processes for subprojects proposed for implementation by ESCOs and interconnection subproject owners- Determine Subproject E&S risk category based on screening and scoping process (to be confirmed after risks and impacts assessment)- As part of overall assessment of ESCOs and interconnection subproject owners' proposals, as well as PBs, assess their capacity and commitment to implement E&S risk management measures commensurate with their responsibilities under ESMF- Review and approve ToR for ESIA submitted by ESCOs

Organizations	Roles and Responsibilities
	<ul style="list-style-type: none"> - Determine whether EIA or IEE are required as per GoN regulations; ensure ESCOs conduct proper required studies and obtain EIA or IEE clearances from GoN, where required - Ensure ESCOs conduct ESIA studies as per World Bank requirements - Prepare ESMPs for interconnections subprojects to be adopted and implemented by interconnection subproject owners - Review ESIA studies, ESMPs, other relevant documents and provide clearance as follows: <ul style="list-style-type: none"> o For medium and low risk mini-grid subprojects, clearance will be provided by AEPC to ESCOs (and no objection is sought from WB) o For high risk mini-grid subprojects, AEPC will review and submit the ESIA studies for clearance by WB and support ESCOs to get clearance from WB o For interconnection subprojects, AEPC will receive a no objection from WB on first three ESMPs prepared by AEPC and agreed with interconnection subproject owners. - Take part in public consultations and other activities related to E&S aspect as conducted by ESCOs. <p>AEPC will be responsible for an overall supervision, monitoring and evaluation of the activities and coordination between components of the project and will work as bridge between ESCOs, interconnection subproject owners, PBs, and WB.</p> <p>AEPC will also be responsible to verify that E&S covenants are reflected correctly and clear in all legal documents in the Nepal Mini-grid Project structure- such as the bidding documents, financing agreements for SREP loans or guarantees (between AEPC and PBs and ESCOs and PBs), in the BoQs and in the work contracts for</p>

Organizations	Roles and Responsibilities
World Bank	<p>subprojects.</p> <p>The World Bank will support AEPC to ensure effective implementation of E&S risk management measures for the project.</p> <p>In terms of subproject E&S instruments, WB's role will be as follows:</p> <ul style="list-style-type: none"> - For medium and low risk subprojects, WB will provide non-objection/concurrence on E&S instruments (ESIAs, ESMPs, RAPs/VCDPs, as required, of individual subprojects submitted by ESCOs through AEPC or prepared by AEPC for interconnection subproject owners). - For high risk subprojects, WB will provide prior review and clearance of the E&S instruments. <p>WB will also take part and support AEPC in gradually enhancing E&S capacity and systems of ESCOs, interconnection subproject owners, PBs.</p>
Energy Service Companies (ESCOs)	<p>ESCOs will be responsible for the preparation of IEE/EIA as may be required by GoN and ESIA in line with World Bank requirements (same ESIA document should satisfy both requirements) of the respective subproject and its implementation. ESCOs may hire consulting firms to conduct ESIA. However, it will be sole responsibility of ESCOs to implement ESMP effectively. ESCOs will be responsible for:</p> <ul style="list-style-type: none"> - Preparing E&S instruments for subprojects they plan to implement (ToR for E&S studies, ESIA reports, including ESMPs, RAPs, and VCDPs where necessary (retain qualified experts as needed) - Obtaining EIA or IEE clearance from GoN, where one is required - Implementing the ESMP, RAP and VCDP (where those plans are needed, as identified from ESIA), and as included by PBs in financing agreements for SREP loans - Conducting monitoring activities in line with ESMPs to ensure compliance

Organizations	Roles and Responsibilities
	<ul style="list-style-type: none"> - Monitoring compliance with RAPs and VCDP as applicable. - Preparing monitoring and progress report and submit to AEPC.
Interconnection subproject owners, who will interconnect their MHP projects to main grid.	Interconnection subproject owners will be responsible for complying with ESMPs as prepared by AEPC and included in financing agreements for SREP loans by PBs.
Partner Banks (PBs)	<p>PBs will take active part in the E&S screening, assessment, and monitoring cycle in order to better understand their risks. PBs will be specifically responsible for:</p> <ul style="list-style-type: none"> - Appointing a point of contact for E&S issues that will interact with AEPC, as needed - Ensuring that E&S risks are understood and factored into investment decision-making for subprojects - Ensuring that E&S screening and ESMP, RAP and VCDPs prepared are incorporated in the PB's overall due diligence process (E&S screening, E&S instrument prepared for subprojects, GoN clearances, risk category should all be included in the loan file) - Embed E&S legal covenants (including ESMP, RAP and VCDPs compliance) in SREP loan agreements with ESCOs and interconnection subproject owners - Take part in monitoring of the implementation of ESMPs during the project cycle.
Rural Municipality/Municipality/District Coordination Committee (RM/M/DCC)	<p>RM/M and DCC will be responsible for:</p> <ul style="list-style-type: none"> - Coordination and undertaking of social and economic development activities. - Coordinate with relevant local authorities for public land use, spoil disposal and relocation of infrastructure facilities. - Reporting claims by Project Affected Peoples (PAPs) to higher authorities.

Organizations	Roles and Responsibilities
	<ul style="list-style-type: none"> - Direct and indirect observation of effective implementation of ESMP, RAP and VCDPs by ESCOs. - Participation in environmental and social audit. - Register and redress grievances of PAPs and forward it to GRC if not redressed at local level.
Mini Grid Users Committee	<ul style="list-style-type: none"> - Ensure lawful distribution of electricity in the community. - Reporting claims by Project Affected Peoples (PAPs) to concerned authorities. - Facilitation and promotion of employment of vulnerable groups and Severely Project Affected Peoples (SPAPs). - Participation in environmental and social audit. - Register and redress grievances of PAPs and forward it to GRC if not redressed at Users' Committee level. - Monitoring of safeguard compliance.

4.3 Process flow for E&S due diligence of subprojects

The main objective of the E&S due diligence process is to review any potential environmental and social risks associated with the activities related to the subprojects. E&S due diligence involves the systematic identification, quantification and assessment of environmental and social risks associated with the proposed subprojects. Moreover, the process helps to identify the mitigation measures that will minimize any E&S risk identified during the assessment. The extent of E&S due diligence and detail will be based on the E&S risk category. The process is presented in **Figure 1**.

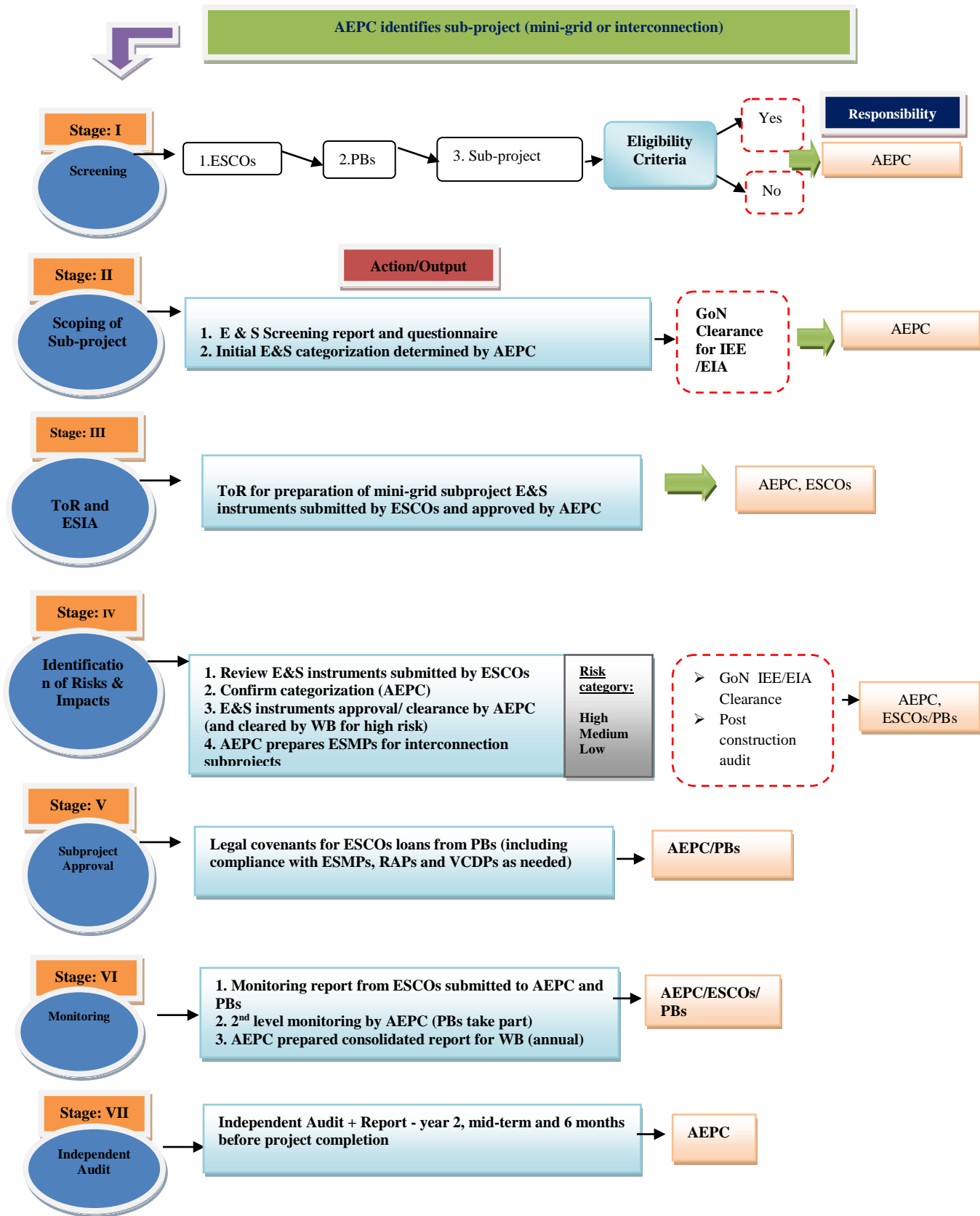


Figure 1: Flow Diagram of E&S Due Diligence Process for Subprojects

4.4 Consolidated overview of stages in project cycle, E&S due diligence process steps, and responsible of key stakeholders

Table 3 presents the summary of roles and responsibilities of AEPC, ESCOs and PBs in environmental and social due diligence process during different stages of the subproject cycle with description of activities and estimated time.

Table 3: Major Activities and Responsibilities during Different Project Stages for Conducting E&S Risk Management Activities

Stage in project cycle	Steps / Activities	Description	Responsibility	Estimated Time
Step 1: E&S Screening				
Identification and Pre- feasibility	Undertake Screening	Prepare a document containing environmental and social information covering potential environmental/social impacts, mitigation measures, evidence of public consultation etc Recommend to Prepare ESIA (WB requirement)	AEPC as implementing agency	3 weeks
Step 2: E&S scoping to identify type and scope of E&S assessment				
Feasibility studies	Scoping Exercise	Identify, by using checklists and based on preliminary field examination the necessity to conduct an IEE or an EIA, as per EPR 1997	ESCOs/ consulting firms facilitated by AEPC	3 to 4 weeks
		Produce Environmental/Social related document to competent authority for approval		
Step 3: Terms of Reference for ESIA Studies				
Feasibility studies	Preparation of Terms of Reference	Define the main Environmental/Social concerns and issues related to proposed subproject, which must be addressed by E&SA	AEPC	3 to 6 weeks
	Approval of ToR	Review, Comment and Approve Terms of Reference	MoEWI for IEE MoFE for EIA	
Step 4: Baseline Data Collection				
Detailed Design/ Assessment	Assigning the work	Conduct E&SA using consulting firm	ESCOs	4 weeks
	E&SA Team Formation	Form Team as per ToR	ESCOs	
	Prepare Work Plan	Establish a work plan that gives appropriate weight to all activities	ESCOs	
Step 5: Identify environmental and social impacts/ undertake E&S studies				
Desk Studies				
Detailed Design/ Assessment	Secondary Source of Information	Collect and review appropriate published data, such as maps, reports, etc	ESCOs in consultation with AEPC	2 weeks
	Initiation, Interaction and Consultation	Discuss the potential subproject and its potential environmental/social impacts with concerned stakeholders		

Stage in project cycle	Steps / Activities	Description	Responsibility	Estimated Time
	Preparation of Information Summary	Draft a summary of the information that is relevant to the project and its possible environmental/social impacts		
	Selection of methods and techniques	Determine the methods by which the field work for E&SA will be conducted		
	Improve Work Plan	Revise the work plan on basis of desk studies		
Field Work				
Detailed Design/ Assessment	Field Equipment	Collect and arrange field equipment required for E&SA studies	ESCOs	5 weeks
	Field Survey for Collection of Baseline Information	Walkover survey, interaction with local communities, and investigate the issues identified during desk study Collect baseline environmental information in terms of physical, biological, and socio-economic and cultural aspects		
Data Analysis and Interpretation				
Detailed Design/ Assessment	Identification of Environmental/Social Impacts	Establish what environmental/social impacts will occur as a result of interaction of environmental setting, subproject construction and operation activities	ESCOs	-
	Impact Prediction	Establish the extent of environmental/social consequences of the subproject construction and operation		
	Assessment of significance of impact	Judge whether the consequences are significant enough to require action to be taken		
	Mitigation Measures	Design Mitigation Measures: to avoid, reduce, minimize and compensate for adverse environmental and social impacts; and maximize beneficial impacts.		
	Environmental and Social Management Plan	Prepare ESMP covering monitoring and project management to ensure the implementation of mitigation measures.		4 weeks
	Public Consultation	Occurs at various stages in the assessment process to ensure quality, comprehensiveness and effectiveness, and that stakeholders' views are adequately addressed.	AEPC/ESCOs/WB	2-3 weeks

Stage in project cycle	Steps / Activities	Description	Responsibility	Estimated Time
Step 6: Develop Management & Mitigation Measures				
Detailed Design/ Assessment	Assessment of Environmental and social impacts, plan mitigation measures	To avoid, reduce and minimize adverse impacts and enhance beneficial impacts Prepare an ESMP matrix, work out cost of proposed actions, prepare and cost out RAP, prepare VCDP, other specific plans (e.g. Biodiversity Management Plan), as needed	ESCOs	
Step 7: Public Consultation and Participation				
Detailed Design/ Assessment	Public Notices Interviews with Key Informants Focal Group Discussion	To be conducted at various stages in the assessment process to ensure quality, comprehensiveness and effectiveness, and that stakeholders' views are adequately followed up A free, prior and informed consultation is carried out.	ESCOs	
Step 8: Prepare / finalize ESIA Report and corresponding risk management instruments (ESMP, RAP, VCDP, as needed)				
Detailed Design/ Assessment		Summarize all information obtained, analyzed and interpreted in a report form suggested by the approving authorities. The ESIA Report should contain a non-technical summary including methods used, results, interpretations and conclusion.	ESCOs	
Step 9: Review and Approval of the E&S instruments				
Project Appraisal/Approval	Review and Approval of E&SA Report	Check completeness, adequacy, credibility, facilitate the decision-making process; decide if project should proceed, or if further alternatives must be examined.	AEPC will review and comment. ESCO will forward to MoEWI/MoFE for review, comment and approval for IEE	6 weeks

Stage in project cycle	Steps / Activities	Description	Responsibility	Estimated Time
			Report. For EIA, ESCO will forward it for review, comment and approval to MoPE.	
		Approval of E&SA Report/Rejection	MoFE or MoEWI	
Design, Implementation	Implementation of ESMP, Monitoring	Determines compliance with ESMP	AEPC/ESCO/WB Line Ministry In terms of conservation area, the relevant authority should be a part of monitoring program	Entire construction and operation period
Step 10: Prepare Environmental and Social Action Plan (ESAP)				
Implementation Plan, Engineering Design & Construction of Works		ESAP is a short document that lists specific instruments and actions to take during engineering design, construction, and operational and maintenance stages to minimize or mitigate impacts based on findings of the ESIA, and to address cumulative/induced impacts, in line with E&S instruments (e.g. ESAP will state the instruments - ESMP, RAP, VCDP, stakeholder engagement plan – and determine by when they need to be prepared, for example, before design is finalized, before construction start etc.)	ESCOs	
Step 11: Environmental and Social Monitoring				
Implementation Plan, Engineering Design &		Determine compliance with ESAP and of impacts. Monitoring includes also impact monitoring (on the bio-physical and social environment, to be measured by		

Stage in project cycle	Steps / Activities	Description	Responsibility	Estimated Time
Construction of Works		objectively verifiable indicators as described in the ESAP). This section must define schedules and respective responsibilities for monitoring and supervision activities.		
Step 12: Environmental and Social Audit				
Post-Construction Activities & Audit	Auditing	Environmental/Social Audit: conducted by MoFE after two years of construction. Additional independent audit to be conducted by AEPC during implementation.	MoFE for ESIA Study	During Operation period

4.5 Description of key steps in E&S due diligence process

4.5.1 Screening

AEPC undertakes E&S screening of each proposed subproject to determine the appropriate extent and type of E&S assessment needed. E&S screening has to be carried out for all subprojects, both mini-grids and interconnections. The purpose of the screening process is to:

- Determine whether the proposed subprojects are likely to have potential negative environmental and social impacts and the type, magnitude and nature of such impacts;
- Determine eligibility of subprojects based on E&S screening criteria;
- Establish the level of environmental/social assessment required;
- Help the ESCOs, subproject owners, PBs to understand environmental and social issues related to the subprojects before they are considered for implementation; and
- Assist in decision-making process.

The screening process will involve review of the available E&S information about the sub-project and its surrounding areas. It would help identify issues to be verified during reconnaissance site visits and also provide a preliminary idea regarding the nature, extent, and timing of environmental and social issues that would need to be handled during the subsequent stages. It will also help to identify opportunities for avoidance and/or minimization early in the project cycle so that the design process can be informed appropriately. E&S screening checklist is presented in **Annex 5**.

The steps to be followed include the following:

- i. Obtain the information on the presence of environmentally sensitive areas from secondary sources and substantiate the information with preliminary site visit and observations.
- ii. Verify the extent of applicability of GoN, and World Bank policies in sub-project activities
- iii. Identify potential negative and positive impacts; provide clarity on which issues need to be investigated more comprehensively during preparation of Environmental & Social Impact Assessment that will be carried out during the detail design stage.
- iv. This should help with sequencing of subprojects, and factoring in timelines like those associated with regulatory clearance processes into project implementation.
- v. The process of preparing the E&S checklist and scoping will typically cover:
 - Describing the need for the subproject, i.e. the issues or problems to be addressed.
 - Describing the proposed subproject or options.
 - Identifying the potential environmental and social impacts of the subprojects or options.
 - Undertaking a preliminary evaluation of the potential environmental and social impacts of the subproject or options.
 - Consulting local officials on the subproject or options, and the potential impacts.

- Describing the preliminary consultation with relevant agencies and local community. The focus of these consultations would be informing the local community, reviewing the likely issues and problems.
- Selecting a preferred subproject option or short list of options. The appraisal of the available Pre-feasibility/Feasibility study reports should be included from an environmental and social perspective.
- Identifying the planning approvals, which are likely to be required from MoPE and other regulatory agencies.
- Determining the type and scope of assessment required.

4.5.2 Environmental and Social Risk Categorization

(a) **High risk:** A proposed project is classified as high risk if it is likely to have significant adverse environmental and/or social impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. Any subproject that needs an EIA according to GoN regulations shall be classified as high risk.

Actionably, certain high risk subprojects shall be excluded from financing under the project due to perceived low capacity of key stakeholders to implement corresponding risk management measures as follows (as per subproject E&S eligibility criteria):

- Subprojects with significant adverse impacts on ecologically sensitive areas¹⁸, if deemed unacceptable by AEPC, will not be eligible
- Subprojects involving large-scale resettlement¹⁹ will not be eligible
- Subprojects with significant adverse impacts on cultural heritage will not be eligible
- Subprojects in disputed areas will not be eligible

Moreover, a proposed subproject is classified as high risk that displaces²⁰ 50 or more families in the mountain region, 75 or more families in the hills, and 100 or more families in the Terai plains due to involuntary land acquisition. Further, it is recognized that many of the subprojects involving significant impacts on Indigenous Peoples shall be classified as high risk. However, due to the nature of the project, where IPs will often be intended beneficiaries of electrification in remote rural areas, these subprojects will not be excluded from financing despite relatively high risks. Rather, the project will pay particular attention to IP issues through development of VCDP, as needed.

(b) **Medium risk:** A proposed project is classified as medium risk if its potential adverse environmental or social impacts on human populations or environmentally important areas-including wetlands, forests, grasslands and other natural habitats-are less adverse than those of high risk projects. These impacts are site-specific, reversible; and in most cases mitigation measures can be designed more readily than for high risk projects. Moreover, a proposed subproject is classified as medium risk

¹⁸ Significant adverse impacts on ecologically sensitive areas will be determined using international best practice and tools, as well as based on the outcomes of relevant studies conducted as part of subproject the ESIA.

¹⁹ For the purposes of exclusion, large-scale resettlement is defined as physical displacement of a significant number of people / households. Physical displacement would mean relocation/ loss of shelter and assets resulting from the acquisition of land that requires the affected persons to move to another location.

²⁰ Physical and economic displacement

that displaces less than 50 families in the mountain region, less than 75 families in the hills, and less than 100 families in the Terai plains due to involuntary land acquisition (unless such impacts are, in the judgement of AEPC, are exacerbated by other contributing factors). A project can be classified as medium risk regardless of whether it needs IEE as per GoN regulations.

(c) **Low risk:** A proposed subproject is classified as low risk if it is likely to have minimal or no adverse environmental and social impacts. Moreover, a proposed subproject does not displace any family and none of affected person loses more than 10% of their productive assets.

4.5.3 Determination of required level of E&S assessment

High risk subprojects

A proposed subproject is classified as high risk if it is likely to have significantly adverse environmental and social impacts. Such subprojects will be required to prepare E&S instruments based on studies carried out by third-party specialized firms/consultants in line with the requirements of GoN and World Bank. In addition to ESIA and corresponding ESMP, it is likely that preparation of RAPs and VCDPs will be required, if relevant risks and impacts are identified during E&S screening. Other plans may also be required, as determined by E&S studies (e.g. biodiversity management plan if a subproject is located within a protected area). Stakeholder engagement activities will be required. EIA clearances shall also be obtained.

Medium risk subprojects

Environment Protection Rules 1997, Schedule 1 lists the possible subprojects that require undertaking IEE level study, which will be required in many cases. From social perspective, where subprojects may involve small-scale displacement as a result of physical displacement due to involuntarily land taking, an RAP shall be prepared. Where there are impacts on IPs or other vulnerable communities, VCDP shall be required. Stakeholder engagement activities will be required for all subprojects where there are affected communities. A project can be classified as medium risk regardless of whether it needs IEE per GoN regulations and will conduct an abbreviated/ focused ESIA per World Bank requirements.

Low risk subprojects

The proposed subproject is classified as low risk if it is likely to have minimal or no adverse environmental and social impacts. Beyond screening, no further environmental or social action is required. For the subprojects which fall under low risk, but not fall under threshold criteria of EPR 1997 shall not require undergoing any environmental/social assessments or preparation of respective documents as per provision of GoN. However, minimal environmental and impacts can still be expected from low risk projects, it is recommended that a brief Environmental and Social Management Plan (ESMP) shall be prepared for subprojects. Stakeholder engagement activities will be required where there are affected communities.

4.5.4 Description of key E&S assessment and management instruments

The following documents shall be prepared based on the categorization of subproject.

Environmental and Social Impact Assessment (ESIA) – ESIA will be carried out by ESCOs, who may hire consulting firms to conduct the assessment. AEPC will provide technical assistance to carry out screening and scoping, modification of the ToR as necessary depending on results of scoping, collection and analysis of primary and secondary data, and consultations with stakeholders in order to identify and assess qualitatively and quantitatively, the potential and adverse environmental and social impacts be they direct, indirect, induced and cumulative including impacts on critical natural habitat. The assessment will identify necessary measures to first avoid, or otherwise reduce, mitigate and/or manage and/or compensate for such negative impacts and enhance positive effects, in accordance with Government of Nepal’s requirements and the World Bank triggered safeguard policies.

Environmental and Social Management Plans (ESMP) – ESMP will be included in ESIA report, which will contain all the required mitigation and monitoring measures (including indicators to measure performance) to be implemented during construction, operation and maintenance phases. The ESMP will specify the institutional responsibilities for carrying out each measure or action, as well as management arrangements, timelines, budget, and required capacity building measures for their implementation. The ESMP will contain sub-plans as appropriate to cover specific issues. These plans will quantify the required environmental flow through various studies and analysis which will address the river’s extreme low flows, high flow pulses, small floods, and large floods and restore sediment deposition, addressing the life-cycle needs of fish/aquatic life as well as wildlife, if relevant and addressing the river-based livelihoods of communities.

Resettlement Action Plan (RAP) – RAP will identify all impacts of known land acquisition and resettlement, requirements of complying with GoN and World Bank requirements and policies when land acquisition occurs, and the entitlement policy and matrix, and the detailed plan to implement these measures and entitlements prior to the land being acquired. The RAP will contain, inter alia, an inventory survey of physical impacts, census survey of affected populations, review of relevant legal policies, entitlement plans, livelihood restoration and development measures and the grievance redress and monitoring mechanism. If impacts on the entire affected population are minor²¹ or less than 200 people are displaced, an abbreviated resettlement plan will be prepared.

Vulnerable Community Development Plan (VCDP) – It is anticipated that subproject areas will be inhabited by several indigenous communities classified and officially recognized by the GoN, the VCDP will contain measures to avoid or minimize adverse impacts and maximize positive impacts on these communities.

4.5.5 Legal Covenants for E&S Compliance

Environmental and Social Safeguard and Mitigation Measures must be included in the following documents. Moreover, mitigation measures should be integrated in the design of the project itself. They need to adhere to the Environmental Code of Practice. Such approach will enhance the mitigation measures in terms of specific mitigation design, cost estimation of the mitigation measures, and specific

²¹ Impacts are considered ‘minor’ if the affected people are not physically displaced and less than 10 percent of their productive assets are lost.

implementation criteria. Integration of mitigation measures in the design phase will also help in strengthening the benefits and sustainability of the project.

E&S conditions in SREP loan agreements between PBs and ESCOs/subproject owners

Legal covenants should include at least the following commitments:

- Design, construct, operate, maintain and monitor the subprojects in compliance with the specified applicable E&S requirements.
- Implement the environmental and social mitigation measures specified in the Environmental and Social Action Plan (ESAP) with time-bound targets, including all conditions stipulated in the ESMP and other relevant plans that shall be prepared by project sponsor based on the process of identification of E&S risks and impacts pursuant provisions of the World Bank safeguard policies. To that extent, the project sponsor will also ensure that adequate E&S covenants are included in their bidding and legal documentation with contractors and suppliers, as needed.
- Use all reasonable efforts to ensure the environmental and social performance of the subproject is in compliance with the applicable E&S requirements during implementation, including E&S monitoring.
- The project sponsor has not received nor is aware of any existing or threatened complaint, order, directive, claim, citation or notice from any authority under applicable national laws and local requirements.
- Within 3 days after its occurrence, notify the PFI of any social, labor, health and safety, security or environmental incident, accident or circumstance having, or which could reasonably be expected to have, any material impact on the implementation or operation of the subproject in compliance with the applicable E&S requirements.
- Provide periodic (at least annual) E&S performance reporting to AEPC and PB according to an agreed template within a specified timeframe.

Project Work Contracts

The project contractor should be bound by the parameters of contractual clauses identified in the environmental and social assessment pertaining to specific mitigation measures in the contract. It needs to be ensured that the contractor is aware and understand the respective contractual clauses and obligations. The final acceptance of the completed works should not occur until the environmental clauses have been satisfactorily implemented.

Bill of Quantities (BoQ)

The tender instruction to bidders should explicitly mention the site-specific mitigation measures to be performed, the materials to be used, the specified and excluded sites for material retrieval, labor camp specifications, arrangements, labor influx management and waste management and disposal areas, as well other site-specific environmental requirements. Such a definition would clearly exhibit the cost requirement to undertake mitigation measures, which otherwise might be lost as the bidders in an attempt to be more competitive may not include the price realistic enough to fund mitigation measures and other protection measures.

4.5.6 Supervision and Monitoring

The purpose of supervision is to make sure that specific mitigation parameters identified in the environmental and social assessment and as bound by the contract is satisfactorily implemented. Likewise, monitoring is necessary such that the mitigation measures are actually put into practice.

4.5.7 Management of Subproject Contractors

Role of ESCOs/contractors will be to ensure compliance with ESMP, if any sub contractors will be hired. There should be legal contract between contractors and subcontractors to adhere to ESMP. Zero tolerance for child/forced labor, gender based violence, community H&S, equal wages, labor camp standards for contractors/subcontractors should be well defined.

4.5.8 Subproject Monitoring

Monitoring is a major part of the ESMF to ensure its goals and objectives are adequately met. The environmental and social safeguards implementation will be monitored internally. The safeguards staffs (E&S) within AEPC and ESCOs will monitor the project site in the initial, construction, post construction and operational phase of project to ensure that all environmental and social issues related to each subprojects are well addressed and comply with the requirements mentioned in ESMF. ESCOs will prepare quarterly progress reports and submit them to AEPC. AEPC will prepare semi-annual monitoring reports and submit to the World Bank. The reports will cover ESMP implementation, focusing on compliance and any needed corrective actions. Public consultation will be conducted as necessary during construction. The World Bank will conduct periodic review missions, which will include a review of safeguards implementation issues. The environmental and social compliance monitoring indicators are presented in **Annex 10**.

4.5.9 Compliance Audit

Periodic audits of compliance of ESCOs and subproject owners with ESMPs and national law are needed to ensure adequate implementation of the mitigation measures for the E&S risks described above. The exact criteria used for the audit will be based on the content of the ESMP that will be prepared by AEPC as a result of E&S impact assessment process.

An E&S compliance audit shall be done through an external independent agency in accordance with these Terms of Reference. The audit shall be conducted by a qualified E&S auditor/inspector/firm with in-depth technical knowledge of the electricity transmission sector.

The objectives of E&S compliance audit will be to evaluate project activities, specially taking into account of E&S regulatory frameworks, World Bank operational policies for safeguards, and environmental health and safety measures. Specifically, the objectives of the audit are:

- i. To ensure compliance with the World Bank and GoN E&S requirements as set out in the ESMF;

- ii. To assess progress by AEPC and key stakeholders in implementing the ESMF;
- iii. Provide expert opinion supported by field observations on the effectiveness of the measures that have been implemented;
- iv. Identify mitigation or monitoring measures that don't achieve desired results and need to be modified or replaced;
- v. To advise on the financial implications related to implementation of E&S mitigation measures in terms of additional capacity strengthening that may be needed to facilitate necessary improvements;
- vi. Recommend revision/update or additions to the ESMF, if needed.
- vii. Recommend measures that will ensure compliance with best practices required for ISO 14001, ISO18001 and ISO 9001 certification.
- viii. Monitor the implementation of the measures/actions in (vii) above

Chapter 5: Resettlement Policy Framework

5.1 Introduction

The proposed Project, “Nepal: Business Models for Private Sector-led Mini-grid Energy Access Project” supports construction of Mini-grid based renewable energy systems in off-grid areas for Alternative Energy Promotion Centre (AEPCC). It includes installation of up to 3MW of aggregated micro/mini hydro-electric power plants and up to 2MW of aggregated mini-grid based solar and/or solar/wind hybrid systems, in selected rural communities. The project will also support subproject involving mini-grid connection which may entail equipment installation and line connections. The project construction may lead to taking of land. Thus, OP/BP 4.12 (WB policy on Involuntary Resettlement) is triggered. However, significant social impacts from the project interventions on land acquisition and resettlement is not expected.

The rationale for this framework is originated from the fact that specific subproject sites and activities are yet to be identified to understand the exact nature and scale of their impacts. Thus this Resettlement Policy Framework (RPF) has been developed to guide detailed resettlement planning to address land acquisition and resettlement impacts. This framework establishes the involuntary resettlement and compensation principles, organizational arrangements and design criteria to be applied to meet the needs of the people who may be affected by the project activities resulting due to land acquisition, loss of shelter, assets or livelihoods, and/or loss of access to economic resources. The RPF is prepared to the standards of the GoN as specified in relevant legislation and the policy of the World Bank, Operational Policies (OP) 4.12.

5.1.1 Scope of Land Acquisition

The subprojects are not expected to have major impact of land acquisition and resettlement under any component. However, the micro/mini-hydro mini-grid power project (MHP) and Solar Wind Hybrid System (SWHS) components may involve certain cases of involuntary resettlement/land acquisition for construction of the power houses and transmission lines respectively. When there is a need of land acquisition for MHP and SWHS, ESCOs in consultation with the concerned Community User Groups (CUGs) will identify and obtain the required land with the endorsement of the Rural Municipality (RM)/ Municipality or relevant government institution. If there is any dispute or discrepancy in land use, those locations will be avoided. ESCOs are responsible for coordinating all aspects of land transactions with the support of CUGs. Therefore, ESCOs will establish CUGs to implement and manage each subproject in coordination and with support from the Executing Agency (EA).

5.2 Objective

The objective of the RPF is to ensure that adequate measures are designed and implemented to make sure that affected people through loss of assets could improve or at least restore their living standards. Possible impacts may include loss of land (homestead; agriculture; community land), loss of structures (residential; commercial;

community), loss of livelihood, loss of standing crops/trees, loss of access to common property resources and facilities.

The following key principles will be followed:

- a) Involuntary land acquisition and resettlement impact will be avoided or minimized through careful planning and design of the subproject;
- b) For any unavoidable involuntary land acquisition and resettlement, APs will be provided compensation at replacement cost and/or assistance so that they will be as well-off as without the subproject;
- c) APs will be fully informed and consulted during project design and implementation, particularly on land acquisition and compensation options;
- d) An absence of formal legal title to land will not be a bar to compensation for house, structures, and trees/crops, and attention will be paid to vulnerable groups and appropriate assistance will be provided to help them improve their status;
- e) Land compensation and resettlement assistance will be completed before award of civil works contracts, while other rehabilitation activities will continue during subproject construction; and
- f) Land acquisition and resettlement will be considered a part of the subproject and costs related to resettlement will be included in the project cost.

5.3 Legal and Policy Framework related to Involuntary Resettlement and Land Acquisition

A comparative analysis of the national and WB policies on involuntary resettlement/land acquisition identified gaps and limitations of the national legal and policy framework (see **Annex 1 for detail**).

The main gaps and limitations of the national legal and policy framework are:

- a) National law makes provision for compensation to the titled landholder only and, by default, omits all other PAP, including non-registered tenant farmers, landless farmers, squatters, agricultural labourers, shopkeepers, artisan groups and *Dalits*.
- b) National law does not make any provision for landless, encroachers or squatters regarding to the entitlement for compensation. There is no provision for rehabilitation assistance for such vulnerable groups.
- c) When GoN requires assets, national law does not specify about the provision of mandatory replacement cost.
- d) The *Land Acquisition Act, 1977* does not emphasize transparency and stakeholders' participation for various decisions that directly affect the long-term wellbeing of PAPs.

- e) Lack of consideration of the apparent time gap between notification of acquisition and the payment of compensation is another limitation of the existing legal framework.

Followings are the policy recommendations to fill up the identified gaps and limitations are:

- a) A project affected person needs to be defined as a person or household whose livelihood or living standard is adversely affected through loss of land, housing and other assets, income, or access to services as a consequence of the implementation of the project, causing a change in land use.
- b) Entitlements should be established for each category of loss covering both physical loss and economic loss.
- c) Special attention should be given to protect the interest of vulnerable groups. With a census date as cut-off date, no fraudulent encroachments after this date should be considered eligible for entitlements of compensation. Non-land assets should be compensated at replacement value and their relocation and transportation cost must be assisted. Support for vulnerable groups should be provided to improve their livelihood.
- d) Practical provisions must be made for the compensation of all the lost assets to be made at replacement cost without depreciation or reductions for salvage materials. Efforts must be made to assess the real replacement costs of land to the extent possible.
- e) There must be legal provision of PAPs and local representatives of Rural municipalities/Municipalities for participation in settling the resettlement issues related to compensation, relocation and rehabilitation.

5.4 Planning Steps and Methods

5.4.1 Screening Exercise

Every proposed site will be subjected to social screening process before it is selected for inclusion in the project. The social screening process will be undertaken in the subproject area to determine the magnitude of adverse impact and prospective losses, identify vulnerable groups, and ascertain losses other than land acquisition. It will also suggest the level of social assessment required.

5.4.2 Social Impact Assessment (SIA)

If the social screening findings show adverse social impacts, the subproject will undertake a fresh SIA incorporating a socio-economic survey of affected persons and their families. The SIA combined with Socio-economic survey based on 15-20% sample households of subproject area, will gather relevant information about PAPs (Project Affected Persons), including: (i) demographic characteristics (ii) an inventory affected assets, facilities and resources, (iii) landownership, usage and productivity

(iv) socio-economic status of PAPs and assessment of their risks including income (v) social and gender issues including prevalence of indigenous people (vi) stakeholders and their activities (vii) people's interest and expectations including their attitude towards the project, and (viii) impact minimization/ mitigation measures based on community consultations. The SIA will help in determining the magnitude of displacement, prospective losses, better targeting of vulnerable groups, ascertaining magnitude of the resettlement and costs, preparing and implementing resettlement and other plans as required.

The SIA will identify measures to avoid/minimize/mitigate involuntary resettlement risks. Vulnerability assessment of PAPs will be part of SIA and a list of vulnerable PAPs will be prepared and finalized in consultation with local community. The SIA will also assess options for any relocation, opportunities for income restoration/economic rehabilitation, and any need of special assistance for vulnerable groups. It will also solicit PAPs willingness to donate their land. Based on this information, the eligibility criteria and entitlement for compensation/assistance will be established and appropriate Resettlement Action Plans (RAP) will be prepared.

5.4.3 Resettlement Action Plan (RAP)

The Resettlement Action Plan (RAP) is a major planning document, which is based on their information gathered from census survey of affected people and inventory of lost assets. The content of full RAP should include a statement of involuntary resettlement objective and strategy, with (i) organization responsibilities, (ii) community participation and disclosure arrangements; (iii) finding of the socio-economic survey ; (iv) legal framework, including eligibility criteria and entitlement matrix; (v) mechanisms for resolution of conflicts and appeals procedures; (vi) compensation and resettlement measures; (vii) inventory, valuation of, and compensation for, lost assets; (viii) land ownership, tenure, acquisition, and transfer; (ix) access to training, employment, and credit; (x) shelter, infrastructure and social services; (xi) environmental protection and management; (xii) monitoring and evaluation; (xiii) a detailed cost estimate with budget provisions; and (xiv) an implementation schedule, showing how activities will be scheduled with time-bound actions in coordination with the civil works. The RAP should establish an eligibility cut-off date.

If the impacts are minor²² and fewer than 200 people are displaced, an Abbreviated RAP (ARAP) will be prepared. ARAP covers the following minimum elements:

- A census survey of displaced persons and valuation of assets.
- Description of compensation and other resettlement assistance to be provided.
- Consultation with displaced people about acceptable alternatives.
- Institutional responsibility for implementation and procedures for grievance redress.
- Arrangements for monitoring and implementation.
- A timetable and budget.

²² Impacts are considered 'minor' if the affected people are not physically displaced and less than 10 percent of their productive assets are lost.

5.4.4 Broad principles of Involuntary Resettlement policy

The Policy aims to resettle and rehabilitate the affected persons on account of its sub projects in a manner that they do not suffer from adverse impacts and shall improve or at the minimum retain their previous standard of living, earning capacity and production levels. It is also an effort of the project that the resettlement shall minimize dependency and be sustainable socially, economically and institutionally. Special attention will be paid for the improvement of living standards of marginalized and vulnerable groups.

The following key principles will be followed in RAP preparation and implementation:

- Acquisition of land will be minimized attempting to avoid any direct impact on homestead land, residential structure that may lead to temporary and/or permanent physical displacement.
- Minimize the use of productive land with a preference to purchase lower productive land,
- When possible, resettlement plans should be conceived as development opportunities, so that those affected benefit from project activities.
- Lack of legal rights does not bar displaced persons in peaceful possession from compensation or alternative forms of assistance.
- Compensation rate refers to amount to be paid in full to the individual or collective owner of the lost asset, without deduction for any purpose.
- Compensation of the affected homestead and associated structures will be provided at current market price.
- When cultivated land is acquired, it is often preferable to arrange for land-for-land replacement. In some cases, as when only small proportions of income are earned through agriculture, alternative measures such as payment of cash or provision of employment are acceptable if preferred by the persons losing agricultural land.
- Replacement of house plots, sites for relocating businesses, or redistributed agricultural land should be of equivalent use value to the land that was lost.
- Transition periods should be minimized. Compensation should be paid prior to the time of impact, so that new houses can be constructed, fixed assets can be removed or replaced, and other necessary measures can be undertaken before displacement begins.
- Displaced persons are consulted during the planning process, so their preferences regarding resettlement arrangements are considered; resettlement plans are disclosed in a publicly accessible manner.
- The previous level of community infrastructure and services and access to resources will be maintained or improved after resettlement.
- Physical works will not commence on any portion of land before compensation and assistance to the affected population have been provided in accordance with the policy framework.
- The borrower is responsible for meeting costs associated with land acquisition and resettlement, including contingencies.
- Resettlement plan includes adequate institutional arrangement to ensure effective implementation of resettlement measures.

- Resettlement plan includes arrangements for internal and external monitoring of resettlement implementation.
- Resettlement plan includes procedures by which displaced persons can pursue grievances.

5.4.5 Definitions

The following definitions are used in the documents

Cut-off date for eligibility to entitlement: The cut-off date for eligibility to compensation and assistance would be the date of issuing the preliminary notice under the *Land Acquisition Act 2034*. In cases where people lack title, the cut-off-date shall be the date of start of the Census survey undertaken by the project authority.

Project Affected Person: Affected Persons are those who stand to lose all or part of their physical and non-physical assets including homes, productive land, community resources, commercial properties; livelihood; and socio-cultural network.

Project Displaced person: A displaced person is a person who is compelled to change his/her place of residence and/or work place or place of business, due to the project.

Marginally Affected Households: Households losing less than 10.0% of their total land.

Severely Affected Households: Households losing more than 10% of their total land. This includes two sub-categories: i) Households losing more than 10% to 50% of their land and ii) Households losing more than 50% of their land. The households losing residential structures are also included under this category.

Vulnerable Households: Women headed households, single women headed households, household heads with disabilities/old age, infected with chronic disease and HIV/AIDS, and Dalit households affected by the project are categorized under this category.

Affected Family: A family whose primary place of residence or other property or source of livelihood is adversely affected by the acquisition of land for a project or involuntary displacement for any other reason

Wage Earner: A person who is working with a commercial establishment or working as a labour in an agriculture land, which is being affected by the project.

Encroacher: A person, who has trespassed Government land, adjacent to his/her own land or asset, to which he/she is not entitled, and deriving his/her livelihood prior to the cut-off date.

Squatter: Squatter is a person who is landless and has settled on publicly owned land without permission and has been occupying publicly owned building without authority prior to the cut-off date.

Vulnerable Person: The vulnerable person includes both socially as well as economically disadvantaged persons such as janjatis, dalits, disabled/handicapped, woman headed households, destitute, orphans, widows, unmarried girls, abandoned women or persons above sixty years of age; who are not provided or cannot immediately be provided with alternative livelihood, small and marginal farmers, and landless wage earners.

Entitled Person: person adversely impacted by the project and is entitled to some kind of assistance as per the project entitlement framework

Titleholders (THs): Persons who possess legal documents in support of claims made towards ownership of structure or land are titleholder.

Replacement Cost: With regard to land and structures, “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 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 structures or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors’ fees, plus the cost of any registration and transfer taxes.

5.5 Entitlement and Assistance

The project will affect property owners and occupants, their dependents and community groups through acquisition of private and community assets. The Entitlement Policy accordingly specifies compensation and/or rehabilitation measures for two units of entitlement; individuals (i.e. affected individuals and their households) and groups. Entitlements for each type of APs are based on the types and levels of losses. Details on the entitlement framework by type of loss and entitlement unit are shown in **Table 4**.

Table 4: Entitlement Matrix

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
Agricultural, Residential, Commercial, Pasture and Forestry Land			
Loss of Private Land under any form of tenure	Titleholder	<ul style="list-style-type: none"> • Provide compensation at full replacement cost, or • Provide full title to land of equal area and productivity acceptable to owner in the vicinity. • If land is not available elsewhere, then provide cash compensation at full replacement cost based on current market rate. • In case of vulnerable groups preference should be to replace land for land • Resettlement assistance in lieu of compensation for land occupied (land, other assets, employment) at least restore their livelihoods and standards of living to pre-displacement levels. • In the case of farmland, the AP will be entitled for the cultivation disruption allowance equal to one-year production. • If remaining land becomes unviable as a result of land acquisition, land owner will have an 	<ul style="list-style-type: none"> • A List of available <i>ailani</i> land in each affected RM/M is required. • A list of affected and entitled persons and the area of land loss is required. • Notice to vacate will be served at least 35 days prior to acquisition date. • If any owner having significant impact receives cash compensation for farmland and purchases replacement farmland within 1 year from the date of receiving compensation, all related land registration fees, taxes and duties will be borne by the project. • Case-wise compensation will be either by cash or cheque, depending on the owner's preferences. • To ensure fair compensation, determination of rates will be established not more than one year

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
		option to relinquish unviable remaining portion of land and receive similar benefits to those losing all their land parcel(s).	<p>prior to property acquisition.</p> <ul style="list-style-type: none"> Land registration in the name of both land owner and spouse (in case of land for land compensation) In case of cash compensation, deposited into a joint account in the name of both land owner and spouse.
Loss of Tenancy Land	Landowners Tenants	<ul style="list-style-type: none"> Both the landlord & the tenant will be entitled for 50 percent of land compensation amount each (As per 2058 B.S. amendment in Land Reform Act) . Non-registered tenant/renter/lease holder does not qualify for compensation for land losses; however they will be entitled to compensation for crops. Any upfront cost for the tenancy agreement will be reimbursed. 	<ul style="list-style-type: none"> Where a renter/leaseholder has a share cropping arrangement, the compensation payable should be apportioned according to the arrangement. An advance prior notice will be provided to landlord and tenant
Loss of Guthi (Trust) Land	Entitled Person/ institutions and tenant in accordance with the <i>Guthi Corporation Act 2033</i> .	As per <i>Guthi Corporation Act, 2033</i>	
Temporary Loss of Private Land	Titleholder Tenants and landlord (As both are the owner of equal (i.e. 50 %) share, hence treated as private land holder.	<ul style="list-style-type: none"> Compensation for crop, land productivity and other property losses for the duration of temporary occupation. Compensation for other disturbances & damages caused to property. 	<ul style="list-style-type: none"> Advance notice for crop harvesting The owner/entitled party will sign a temporary occupation contract specifying:

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
		<ul style="list-style-type: none"> • Or, ESCOs/Developers to negotiate a contract agreement on the rental rate with the owner for temporary acquisition of land. • Project and the ESCOs/Developers to ensure that persons other than the owner affected as a result of temporary acquisition are compensated for the temporary period. • Land should be returned to the owner at the end of temporary acquisition period, restored to its original condition or improved as agreed with owner. 	<ul style="list-style-type: none"> ○ Period of occupancy, ○ The terms and conditions for calculation of production losses, ○ The frequency of compensation payment, and ○ Annual inflation adjustment ○ Land protection and rehabilitation measures. • Advance notice to vacate the land before civil works start • Compensation for any losses crops/structures, perhaps reflected in the contract.
Land donations	Voluntary donation is accepted only if : <ul style="list-style-type: none"> • AP is direct project beneficiary and is fully consulted and informed about rights; • AP doesn't fall below poverty line after land donation; 	<ul style="list-style-type: none"> • No compensation for the donated land, but entitled for compensation of other assets such as house, structure, trees, crops, allowances, etc. • Transfer of landownership by negotiation • Free of any transfer costs, registration fees or charges 	<ul style="list-style-type: none"> • Verify the requirements of the donation • Carry out due diligence on the owners and users of land donated: identify rightful owner(s); any competing claims of ownership or use; structures and assets on the land; any encumbrances on the land.

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
	<ul style="list-style-type: none"> All adult family members have agreed to donate²³; AP is freely willing to donate (with an agreement, including a "no coercion" verified by a third party); and Other alternatives not viable Impact limited to less than 10% of landholding and minor assets Land is free from disputes regarding ownership or tenure 	<ul style="list-style-type: none"> Preferential employment in project construction 	<ul style="list-style-type: none"> Ensure appropriate consultation and disclosure Establish informed consent of the person donating land Sign written commitment; local witness(es) or third party verification to the commitment letter
Trees and Crops			
Loss of Trees & Crops (Perennial/ Non-perennial)	Owner of affected trees, fruits and crops	<ul style="list-style-type: none"> Advance notice to harvest crops Net value of existing crops where harvesting is not possible. The crops, which live, in short time will be paid in accordance with one-year output value. The crops which have lived for several years will be compensated at market value on the basis of loss of future production, based 	<ul style="list-style-type: none"> Inventory of the tree and plant species list List of owner, non-perennial crops and the area (if applicable) of cultivation should be prepared The APs will get notice 2 months in advance regarding crop harvesting. Crops grown after the issue of the

²³ All adult members of the affected family should be consulted as far as possible so as to avoid litigations and claims by family members who were absent during the process.

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
		on 5 years annual net production for fruit & fodder trees & 3 years annual net production for timber/ fuel wood trees & other perennial crops.	<p>notice will not be compensated.</p> <ul style="list-style-type: none"> The work schedule has to be adjusted considering the crop seasons for avoiding crop damage. Crop/trees/bamboo market values will be determined by the CDCs in consultation with District agriculture and forestry office. Where a tenant/renter/lessee & landowner have a share cropping arrangement, the compensation payable should be apportioned according to the arrangement. Materials may be salvaged with no deduction from compensation
Structures and Other basic facilities			
Loss of Privately owned structures (residential, commercial and other structure)	Titleholder /non-titleholder	<ul style="list-style-type: none"> Compensation for full or partial loss of structures at full replacement cost of materials and labor according to structure type, with no deduction for depreciation. Resettlement assistance (rental, dislocation and transportation allowances) for residential and commercial structures. 	<ul style="list-style-type: none"> Replacement cost at market value of structures will be determined by the CDC in consultation with local experts and compensation prices will be finalized with participation of AP representatives and CUG. Other structures include: toilet,

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
		<ul style="list-style-type: none"> Households losing residential structures entitled to receive additional training or benefits for the households losing more than 10% of their land. 	<p>sheds, walls, fences, water mills, workshop etc.</p> <ul style="list-style-type: none"> Materials may be salvaged with no deduction from compensation. Notice to vacate at least 35 days prior to acquisition. Renter/ lessee holder will not be entitled for compensation of structures. However if the structures are made by them, they will be entitled to compensation or will be according to the lessee agreement
Community and Cultural Assets/ Facilities			
Loss of land and structures	Local community user's group	<ul style="list-style-type: none"> Restoration of affected structures by the project leaving such facilities in a better condition than they were before; or cash compensation at full replacement cost. Restoration of access to community resources. The land revenue office in the district and concerned RM/Municipality will be requested to assist communities for land replacement identifying the area nearby. 	<ul style="list-style-type: none"> The land revenue office in the district and concerned Rural Municipality (RM)/Municipality will be requested to assist communities for land replacement identifying the area nearby.

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
Loss of community forests and other natural resources due to construction	Forest user's group/Other Concerned Groups	<ul style="list-style-type: none"> Mitigation measures should be initiated to control erosion caused by tree cutting, and to stabilize and rehabilitate the slopes with suitable bioengineering works and vegetation. Community forestland lost due to construction activities should be replaced and reforested. Advance notice to harvest resources from affected community forest areas. Compensation for trees to the FUG. 	<ul style="list-style-type: none"> List of plant and tree species lost and an assessment for maintaining that kind of vegetation. Compensation for trees calculated on the basis of type, age, and productive value of affected trees in consultation with concerned forest office and FUG. To minimize damage, the concerned forest office will be requested for necessary action.
Loss of time and travel expense	All PAPs	<ul style="list-style-type: none"> Program facilitates transportation in official process Payment on the same day as other compensation 	
Rehabilitation Assistance			
Displacement of household	Titleholders Tenants	<ul style="list-style-type: none"> Housing displacement allowance for loss of own residential accommodation House rent allowance Transportation allowance 	<ul style="list-style-type: none"> Displaced households will receive a house rent allowance for 6 months Allowances will be paid at the time of serving the notice to vacate.
Loss of income	Severely Project Affected Families (SPAF)	<ul style="list-style-type: none"> One time financial assistance in case of loss; or 	<ul style="list-style-type: none"> List of SPAF should be prepared in consultation with CUG & Civil Society and may include:

Type of loss	Entitlement Unit	Description of Entitlement/Compensation policy	Implementation issues/procedures
	One member of each vulnerable group below poverty line.	<ul style="list-style-type: none"> • Skill training and income generation support • Preferential access to project construction employment opportunities • Priority should be given to vulnerable group and affected households for skilled/unskilled employment. 	<ul style="list-style-type: none"> - PAFs losing more than 10 percent of their productive assets - PAFs losing residential and commercial structures - PAFs losing source of livelihood - Ethnic, occupational caste people. - Having aged people as household head and having disabled family members in the households. - Female headed poor households. - Poorest of the poor landless households.
Damages caused during Construction – temporary losses			
Any kind of private and public properties	All categories of entitled persons	<ul style="list-style-type: none"> • Extreme care should be taken by ESCOs/Developers to avoid damaging public and private property unnecessarily. • Where damages do occur to public or private property as a result of construction works, the affected parties shall be compensated immediately for damages to crops and trees, damaged land, structure and infrastructure shall be restored immediately to their former conditions. • Compensation at market price for the loss of income, damaged crops, trees etc. 	

5.5.1 Carrying Out the Valuation of Affected Assets

All assets that will be affected, as identified by the survey teams, will be properly recorded and verified in the presence of the concerned persons. The detailed survey asset information will be computerized to monitor the reestablishment of APs. Compensation Determination Committee (CDC) will undertake the valuation of affected assets.

Each asset will be enumerated and inscribed on a register. Values for each types of asset will be pre-printed, shown to the affected person, and set against the type and number of such losses that the individual will sustain. The total compensation for that category of loss will be explained to the APs, and the total of all losses shown as well. The valuers must ensure that the APs will fully understand the compensation calculation, and that the entire process is explained in local dialect, as applicable. The inventory and evaluation sheet will then be signed and a copy given on the spot to the affected person. At that time, a copy of the grievance procedure (described in Chapter 8) explaining the rights of the APs to forward claims will also be given to the APs.

When valuating affected assets, the CDC will take account of rates in the open local market and information gathered during Resettlement Action Plan (RAP) preparation to ensure that compensation is at replacement value. Compensation rate for all types of losses will be prepared. The established price list for land and other assets will be used for compensation of property acquisition. During the course of project implementation, the rate will be continuously reviewed and updated on an annual basis by the CDC. The respective data will be piled up in an updated data bank administered by the PIU (E&S team) of AEPC.

The methods of valuation for verifying the replacement for each type of losses, which will be carried out by the CDC and resettlement committee, are, but not limited to, the following:

Land:

- Recent land use rights transfer on land
- Determine whether the established rates are sufficient or not to purchase the same quality and quantity of land.

Structures:

Evaluate whether the compensation for the structures will enable APs to rebuild their affected structures by consulting landowners, based in an inventory of

- (i) Types of structures, size, stories, rooms, land area, materials used and the cost of various materials.
- (ii) Whether hired labour will be used or not.

5.5.2 Crops and Trees

Information will be collected to establish the average market price for these items. Current market prices will be determined in the same and adjoining districts for different types of crops and plants in consultation with District Agriculture Office and the District Forestry Office.

The final valuation shall be based on the principle that the project-affected families shall be compensated in a way to guarantee that their living standard is at least the same as before, if not better. Accordingly, the assessment of compensation for affected assets will be based on the principle of current market price at replacement value. The prices per square meter for different category of structures will be based on the total affected area of a structure, and not the usable area. As matter of principle, all compensation should be equivalent or higher than the prevailing market price.

5.6 Implementation Schedule for the Resettlement Action Plan

The AEPC will ensure that funds are delivered on time to the CDC and the implementing ESCOs/ Developers and partner NGOs for timely preparation and implementation of the RAP, as applicable. Civil works contracts will not be awarded unless required compensation payment has been completed. However, a social preparation initiative including income rehabilitation measures may continue and be completed even after civil works has begun.

The envisaged Nepal Mini-grid Project is expected to commence in early 2018. In all subprojects under the project where voluntary/involuntary land acquisition is involved, it is mandatory to prepare RAP.

Civil works contracts for each subproject will only be awarded after completion of all compensation payments and title transfer activities of both voluntary and involuntary contribution of land.

5.7 Consultation and Information Disclosure Mechanism for the RAP

Effective public consultation will be required from the earliest stages of the project to ensure that affected households in the subproject areas are informed, consulted and mobilized to participate in the proposed subproject and collective decisions are made. Sub-project specific RAPs, in consistent with this framework will be prepared. Once RAPs are prepared they will require to be disclosed AEPC's website. Further, summary of RAPs in Nepali language will be made available to the concerned communities, local level NGOs and the others concerned in the subproject sites.

Chapter 6: Vulnerable Community Development Framework

6.1 Introduction

The project will be operating in areas where the overwhelming majority of the beneficiaries may be underserved, vulnerable, and marginalized. It is expected that there would be Indigenous Peoples (IP) communities present in the proposed subproject areas under consideration by the AEPC. The World Bank's OP 4.10 (Indigenous Peoples) is therefore triggered. Given that the subproject sites are not known at the moment, Vulnerable Community Development Framework (VCDF) has been prepared in line with domestic and World Bank policies to guide the preparation of Vulnerable Community Development Plans (VCDP) to ensure negative impacts on these communities are reduced and positive benefits are enhanced.

The VCDP Framework will be applicable to all subprojects under the Nepal Mini-grid Project which may possibly affect vulnerable communities. It will take the following categories of people into particular account:

- Indigenous Peoples community
- Poorest of the poor, irrespective of class, caste, gender and ethnicity (based on the local wealth ranking)
- Female headed poor households
- Marginal land holders
- All *Dalit* and ethnic minorities/ indigenous groups as categorized by GoN being vulnerable

6.2 Policy Objective

This framework for preparing a VCDP is based on the development strategies of GoN as well as the World Bank operational policies on OP 4.10. The principle objectives are as follows:

- Ensure that the project engages in free, prior, and informed consultation with affected communities, leading to broader community support for the project, with particular attention to indigenous peoples;
- to ensure that the project benefits are accessible to all vulnerable communities living in subproject areas;
- to ensure that any kind of adverse impacts on vulnerable people are avoided to the extent possible, if unavoidable, ensure that the adverse impacts are minimized and mitigated;
- to ensure the vulnerable communities' participation in the entire process of preparation, implementation and monitoring of the subproject activities;
- to minimize further social and economic imbalances within communities; and

6.3 Potential Vulnerable Communities in Nepal

Nepal is a culturally and ethnically diverse country, populated by numerous castes and ethnic groups. The original inhabitants of the country are migrants of various ethnic groups and the migration process can be traced back to two thousand years. The Parvatiyas ('people of the mountains'), whose culture and language has dominated the Nepalese state, migrated into Nepal from the west and south over several centuries. The Tibeto-Burman-speaking peoples, the largest linguistic grouping in the Nepal hills following the Parvatiyas, which consist of ethnic groups such as the Tamang, Gurung and Sherpa, migrated at different times from regions across the Himalayas. The Newars, another Tibeto-Burman-speaking group, have been living in the Kathmandu Valley for over two millennia. Other Tibeto-Burman groups, such as the Limbu, Rai, Sunuwar and Chepang, are considered as migrated from the east. Most of these ethnic groups were there before the Khasas, the linguistic ancestors of the Parvatiyas. The Terai plains have been occupied by groups such as the Tharu for over two millennia, while others, such as Maithili speakers of the eastern Terai, arrived later.

Various groups are often classified in terms of the hierarchical caste-structured groups (Jats) and the more egalitarian ethnic groups (Janajatis), as well as by ecological zone (hill/mountain and Terai plains). The anthropologist, Dahal, for instance, classifies the various caste/ethnic groups as follows:

- Caste-Origin Hindu Groups, with a further subdivision between Caste-Origin Hill Hindu Groups and Caste-Origin Terai Hindu Groups;
- Janajati, ethnic groups/nationalities officially defined as groups who have their own mother tongue and traditional culture and who do not fall under the conventional four-fold Varna of Hindu or Hindu hierarchical caste structure; with a further subdivision between Mountain/ Hill Janajati and Terai Janajati;
- Newar (officially classified as a Janajati group but whom Dahal and others consider as a special case);
- Muslim cultural groups; and
- Other religious and social groups such as Sikh/Punjabi, Bengali and Jain.

Most of the *Janajati*, *Adhibasi*, *Dalit* and generally women fall under the category of vulnerable persons in Nepal. This is also reflected in the Government's Tenth Plan, which recognizes women, disabled, ethnic minorities and Dalit groups as the prominent poor and marginalized groups. Women in all social groups and regions have been proven as more disadvantaged than their male counterpart and even among women, widows, separated divorced and female headed households are particularly disadvantaged.

Therefore, in Nepalese context, vulnerable community could be the communities living in a remote location who are commonly landless, marginal farmers living below subsistence level and often *ex-kamaiyas* (bonded labourers). Moreover, these groups have no or limited access to public resources, and they almost never participate in national planning, policy, and do not participate in decision making processes or in development initiatives. As a result, their risk of falling below the income poverty line is extraordinarily high.

In Nepal, the term indigenous people (*Adhibasi*) equates with ethnic groups

(*Janajati*). The Constitution of Nepal recognizes indigenous people as *Janajatis* or Nationalities. The National Foundation for Upliftment/Development of *Adhibasi/Janajati* has defined indigenous people as ‘those ethnic groups or communities who have their own mother tongue and traditional customs, distinct cultural identity, distinct social structure and written or oral history of their own’. Following this definition, the same source identified 59 groups in Nepal as ethnic indigenous groups or nationalities.

Table 5: Classification of Vulnerable Groups/Janajati in Nepal

Endangered Groups	Bankariya, Kusunda, Kushbadia, Raute, Surel, Hayu, Raji, Kisan, Lepcha, Meche (10 groups)
Highly Marginalized Groups	Santhal, Jhangad, Chepang, Thami, Majhi, Bote, Dhanuk (Rajbansi), Lhomi (Singsawa), Thudamba, Siyar (Chumba), Baramu, Danuwar (12 groups)
Marginalized Groups	Sunuwar, Tharu, Tamang, Bhujel, Kumal, Rajbansi (Koch), Gangai, Dhimal, Bhote, Darai, Tajpuria, Pahari, Dhokpya (Topkegola), Dolpo, Free, Magal, Larke (Nupriba), Lhopa, Dura, Walung (20 groups)
Disadvantaged Groups	Jirel, Tangbe (Tangbetani), Hyolmo, Limbu, Yakkha, Rai, Chhantyal, Magar, Chhairotan, Tingaunle Thakali, Bahragaunle, Byansi, Gurung, Marphali Thakali, Sherpa. (15 groups)
Advanced Groups	Newar, Thakali (2 groups)

Source: Nepal Federation of Indigenous Nationalities (NEFIN) 2004

As depicted in **Table 5**, the Nepal Federation of Indigenous Nationalities (NEFIN) 2004 has classified the *Adhibasi* indigenous groups in Nepal into five different categories, (i) endangered, ii) highly marginalized, iii) marginalized, iv) disadvantaged and v) advantaged groups. The first and second category of the ethnic groups seems more delicate from the involuntary resettlement point of view in Nepal. *Adhibasi/Janajati* among themselves are a diverse group who do not all come under one economic system.

Small farmers, landless, *ex-Kamay*s, squatters and encroachers due to their limited access to the economic resources and livelihood are equally classified as highly vulnerable group which is at permanent risk of facing severe poverty in Nepal. Elderly people, children and the individuals, less able to care themselves within the communities are also persons who are any time prone to vulnerability. Depending on the local conditions, up to 10% of these groups may suffer from different forms of disability. This group of population is also highly vulnerable to any kind of adverse effects that may originate directly or indirectly from the subprojects interventions. Therefore, they should be given due attention during implementation of the project.

6.4 Legal Framework and Policies focusing on vulnerable groups

Nepal does not have a separate plan and policy on vulnerable and indigenous people. In absence of comprehensive and inclusive national policy & regulations for development projects, safeguard related issues in Nepal are being addressed through

project specific guidelines prepared in accordance with donors' safeguard policies. Additionally, the provisions articulated in the various legal policies and acts are taken as a basis for assessment. The Constitution of Nepal, National Foundation for Upliftment/Development of Indigenous Nationalities Act 2002, Local Level Operation 2017, Forest Act 1993 and Forest Regulation 1995, and periodic Plans have placed significant emphasis on delivering basic services to the disadvantaged and indigenous people, occupational castes, women, disabled and other vulnerable groups. (See **Annex 1** for detail)

6.5 Preparation of VCDP for the Subprojects

A social screening will be carried out to determine whether IPs and VCs will be affected by the activities as part of the environmental and social screening for the project investments carried out at the subproject identification stage.

If social screening indicates presence of Indigenous Peoples in the subproject area then Social assessment will be carried out. A socio-economic survey, focused group discussion and social mapping etc. will be undertaken in the subproject area to determine the magnitude of impact and prospective losses, identify vulnerable groups, ascertain losses other than land acquisition such as temporary impacts, severity of impacts etc. Information will be collected from separate group meetings within the vulnerable communities. A free, prior and informed consultation will be carried with Indigenous Peoples. The significance of impacts of subproject on vulnerable community will be determined by assessing (i) the magnitude of impact in terms of (a) customary rights of use and access to land and natural resources; (b) socio-economic status; (c) cultural and communal integrity; (d) health, education, livelihood, and social security status; and (ii) the level of vulnerability of the affected group.

VCDP will be prepared based on the findings from Social Assessment. The VCDP shall include mitigation measures of potential negative impacts through modification of subproject design and development assistance to enhance distribution of subproject benefits. The subproject shall ensure that their rights will not be violated and that they will be compensated for the use of any part of their land or property in a manner that is socially and culturally acceptable to them, if land acquisition or structural losses involve in vulnerable communities. The subprojects shall follow the compensation measures prescribed in RPF.

6.6 Concerns relating to Vulnerable Communities

There are number of constraining factors as important for enabling the indigenous people and other vulnerable groups to participate in the project and to derive benefits compare to other groups. These comprise of: (i) limited exposure to emerging market; (ii) limited access to institutional credit, farm inputs and agricultural extension services; (iii) lack or poor leadership quality and lack or inadequate representation/participation in decision-making; and (v) lack of consultation with them on developmental issues. Poverty, illiteracy, landlessness/ low amount of the land holding, limited access to the available agricultural extension services (such as

the improved seeds, fertilizers and improved farm practices, etc) have also been the constraining factors of their participation in the overall development process.

The project would focus on issues that are directly related to their involvement in project activities and accessing to project benefits. The main objective of the vulnerable community development strategy would be, therefore, to ensure that the vulnerable people are actively involved with the project activities and they have access to project benefits at par with the rest of the community. The strategy also aims at minimizing any negative impacts like creating further causes of social and economic imbalances between communities.

6.7 Vulnerable Community Development Strategies

In order to address the concerns of vulnerable groups in the project area and enhance project benefits to these communities, Table 6 lists some of the strategies that could be adopted during project design and implementation.

Table 6: Possible Strategies and Activities for the Development of Vulnerable Communities

Social Issue	Strategies	Proposed activities
Social inequity within and between different groups	Facilitate intra-social group interaction to lessen the effect of rigid class, gender and caste hierarchies	<p>Initiate special effort to reach the poor including men and women from disadvantaged ethnic groups and castes through a social mobilization process</p> <p>Organize awareness raising campaigns by involving all types of Indigenous and Dalit people for public awareness to share development benefits equitably.</p> <p>Create social space for all to have their say in the decision making process, and in benefit sharing.</p>
Lack of inclusion and equitable participation in planning and implementation of development projects	<p>Encourage the participation of these groups in CUG and traditional decisionmaking structures.</p> <p>Incorporate a mechanism for regular consultation with vulnerable groups</p> <p>Increase awareness regarding the negative consequences of discriminatory rules.</p> <p>Ensure that Dalits, small landholders and the poor are granted employment opportunities on a preferential basis</p> <p>Ensure there is no discrimination on employment opportunities</p>	<p>Include a social mobilization component in the project design to ensure the inclusion and participation</p> <p>Engage the vulnerable groups in a process of free, prior, and informed consultation throughout the project cycle</p> <p>Work with the CUG to adopt a quota system and ensure adequate representation of these groups in the CUG.</p> <p>Provide leadership trainings to members of the CUG.</p> <p>Work with CUGs and these groups to change discriminatory rules.</p> <p>Reserve certain number or percentage of employment opportunities to these groups during the construction period.</p>

Social Issue	Strategies	Proposed activities
	and wages on the basis of gender.	<p>Offer relevant trainings for semi-skilled jobs.</p> <p>Work with the contractors to ensure wages are equivalent to the amount of work conducted and not pre-determined by gender, caste or ethnicity</p> <p>When project requires contribution in kind from members, those from the vulnerable communities should be provided a certain percentage of their daily wage, based on participatory well-being ranking to identify the poor households in the catchment area so that they too can contribute their labor in the project.</p>
Lack of awareness on potential livelihood improvement measures/skill training based on local resources	Awareness raising/training on local resources and their commercialization through promoting indigenous skills and knowledge	<p>Design specific programs on technical and vocation training to the groups based on traditional indigenous skills, knowledge and local resources</p> <p>Linkage development with market and financing institutions</p>
Limited networking and wider communities/groups and local development organisations/service providers	<p>Explore market opportunities for products and services that are produced using skills/trainings</p> <p>Provide trainings on marketing, financial literacy</p> <p>Provide employment opportunities to locals (IPs, poor, women) where possible.</p>	<p>Assist to find and use local resources and products as substitute of imported materials.</p> <p>Create linkage with other line agencies/ financial institutions/micro finance intermediaries/saving credit cooperatives for long term credit support.</p>

6.8 Consultation and Information Disclosure Mechanism for the VCDP

Effective public consultation will be required from the earliest stages of the project to ensure that vulnerable households in the subproject areas are informed, consulted and mobilized to participate in the proposed subproject and culturally appropriate and collective decisions are made. Subproject specific VCDPs, in consistent with this framework will be prepared. Once VCDPs are prepared they will be required to disclose through AEPC's website. The VCDP will also be made available at both central and district level project offices. Further, summary of VCDPs in Nepali language will be made available to the concerned communities, local level NGOs and the others concerned at the subproject sites.

6.9 VCDP Budget

Each subproject VCDP will have, as applicable, its own budget. A detailed budget will be prepared by the ESCOs/developers taking into account of all activities associated with the formulation and implementation of the VCDP. The budget will include cost associated with recommended program activities, human resource cost,

monitoring and other associated cost. Such budgets will be an integral part of the project cost, to be included in the cost item for Environmental and Social Management costs.

The budget will be made available during project implementation. The EA will ensure that adequate budget is available to implement VCDP. The EA will also ensure that funds are delivered on time to the Implementing Agency and the partner NGOs for timely implementation of the programs as planned in the VCDP.

6.10 Benefit-sharing Mechanism

Benefit-sharing is an increasingly used mechanism in investment projects particularly hydropower projects to build local support and promote local area development. Usually, directed at community members in closest proximity to the development, arrangement for the equitable sharing of benefits can offer scope for local communities and all other stakeholders to avoid conflicts and focus on creating synergies to maximize local development opportunities. As a long-term arrangement, benefit sharing can facilitate local development. Therefore, this Nepal Mini-grid project aims to introduce various forms of benefit-sharing schemes in consultation with local communities that best fits in the project area.

6.10.1 Planning local benefit sharing mechanism

Designing an effective local benefit sharing mechanism is critical. A fair process must accompany the design and delivery of a benefit sharing program for it to be well received. Stakeholder engagement is essential in initiating and designing benefit sharing programs.

A well designed benefit sharing program should (a) have clear objectives; (b) carefully define the target population; (c) include benefit sharing mechanisms; and (d) identify responsible agencies. Generally, it has to be consistent with social and environmental impact assessments and management plans.

Following steps are suggested in planning benefit sharing measures:

- a) Assess differential impacts of the project on local communities
- b) Carry out consultations with stakeholders
- c) Design the objectives of benefit sharing programs
- d) Determine the beneficiaries of benefit sharing programs
- e) Design the types and mechanisms of benefit sharing
- f) Set up the implementation arrangements

Benefit-sharing Action Plan will cover, but not be limited to, consultations with local stakeholders, in particular with local indigenous communities and other vulnerable groups, over their expectations from the development project. For this purpose, the Benefit Sharing Committee will be formed for each subproject and will lead the planning process for benefit sharing mechanism. The committee will be represented by the following members:

- a) ESCO for the subproject
- b) Chairperson of the relevant Rural Municipality/Municipality

- c) Chairperson of the Community Users Group

6.10.2 Mechanisms of Benefit Sharing

In terms of temporal scale, benefit sharing can be categorized as either short-term or long-term. Short term benefit sharing may start during the project design and construction period and can span several years. Such forms of benefit sharing include investments to maximize local employment in the construction work force and local supply of goods and services to the project, as well as investments in infrastructure and public services such as roads and clinics. Such services are primarily intended for the project, but they are open to local communities.

Long-term benefit sharing refers to the benefit sharing arrangements that commence after the project becomes operational, and can normally last over the economic life of the project. These arrangements mainly include (a) monetary benefit sharing, and (b) non-monetary benefit sharing. Monetary benefit sharing means sharing part of the monetary flows generated by the operation of the projects with local communities. It includes, but not limited to, the following mechanisms:

- Direct payments/revenue sharing
- Preferential electricity rates
- Payments for environmental or ecosystem services
- Community development fund
- Equity sharing

Non-monetary benefit sharing refers to the approaches adopted by the project entity for ensuring that local communities benefit from construction and operation of the project in non-monetary. A project can share benefits with local communities not necessarily in monetary terms, such as improved infrastructure, support for health and education programs, improved access to fisheries and forests, and legal title to land. Non-monetary benefits can be as valuable to local communities as the monetary benefits. However, it is important that non-monetary benefit sharing programs are integrated in and/or complement local or regional development strategies and plans. Examples of non-monetary benefit sharing mechanisms include:

- facilitate access to natural resources
- Invest in associated infrastructure and public service investment
- Employment creation

Table 7: Benefit Sharing Mechanisms

Mechanisms	Key features
Environmental Enhancement	<ul style="list-style-type: none">• Strengthen the community's awareness of the environment• Reforestation and vegetation of community forest• Conservation of water sources• Watershed management
Community Development and Local Infrastructure	<ul style="list-style-type: none">• Improve infrastructure• Support for health and education programs• Improved access

Livelihood: Employment and Trainings	<ul style="list-style-type: none"> • Employment (During construction and post construction) • Training (Agricultural, Farming and Livestock), particular focus on energy based livelihood. • Engage local service providers, procure goods from local suppliers
Equity Investment	<ul style="list-style-type: none"> • Investment on share (Not only for cost sharing but for risk sharing as well) • Local communities may have more voice in the project design and operation of the project.
Preferential Electricity rates	<ul style="list-style-type: none"> • Negotiated treaty between local government, community and generation company
Community Development Fund	<ul style="list-style-type: none"> • ESCOs transfer revenue/funds to community • Development fund established based on agreements • Local community involved in its management and governance

6.11 Social Indicators to Monitor the Effectiveness of the Proposed RAPs and VCDPs

Table 8 presents the basic indicators that are recommended under this framework for monitoring the success/failure of the resettlement activities and the development programs for vulnerable groups.

Table 8: Framework for Monitoring Social Issues Related to Resettlement and Vulnerable Groups

Type	Indicator	Variables
Process monitoring indicators	PAP involvement in ongoing project works, Consultation, Participation, and Grievance Resolution	<ul style="list-style-type: none"> • Number of CUG formed • Number of local workers employed through NGO/CBO mobilization and facilitation initiatives • Number of persons belong to vulnerable groups being employed • Number of women being employed • Number of consultation / participation programs involving stakeholders • Grievances by type and resolution • Number of field visits by ESCOs and AEPC. • Number of CBOs (Users' Committee) and labour groups participating • Number of PAPs who know their entitlements • Number of PAPs receiving compensation • Number of vulnerable people's household supported
	Procedures in Operation	<ul style="list-style-type: none"> • Census and CDC asset verification/quantification procedures in place • Effectiveness of compensation delivery system • Number of land transfers • Coordination between Project Implementation Unit and line agencies • Number of households/PAPs to be resettled because of displacement. • Status of livelihood restoration activities. • Number of targeted beneficiaries provided support with employment, microcredit disbursed, number of income generating activities etc.)
	Acquisition of Land	<ul style="list-style-type: none"> • Area of cultivated land acquired • Area of other private land acquired • Area of communal/government land acquired • Compliance of established norms in land acquisition • Number of disputes resolved related to land acquisition
	Structures	<ul style="list-style-type: none"> • Number, type and size of private structures acquired • Number, type and size of community structures acquired • Number, type and size of government structures acquired

Type	Indicator	Variables
Output Indicator - Monitoring indicators	Trees and Crops	<ul style="list-style-type: none"> Number and type of private crops and trees acquired Number and type of government/community crops and trees acquired Crops destroyed by area, type and number of owners
	Compensation and Rehabilitation	<ul style="list-style-type: none"> Number of households affected (land, buildings, trees, crops) Number of owners compensated by type of loss Amount compensated by type and owner Number and amount of allowances paid Number of owners requesting assistance for purchase of replacement land Number of replacement land purchases effected Number of delivery of entitlements Number of use of entitlements by APs Suitability of entitlements to APs as per RAP objectives Number of poor and vulnerable APs requesting assistance to allocate land and provide lease/temporary rights Number of assistance made related to poor and vulnerable APs
	Re-establishment of community resources	<ul style="list-style-type: none"> Number of community buildings/facilities repaired/ replaced Number of saplings supplied by type Number of trees planted
Outcome/ Impact Indicator - evaluation indicators	Household Earning Capacity	<ul style="list-style-type: none"> Employment status of economically active members Landholding area cultivated, production volume by crop Types and value of livestock raised Selling of cultivation land Numbers of vulnerable groups received livelihood opportunities Number of APs received employment opportunities to restore pre-project income levels and maintain their original living standards.
	Changes to Status of Women	<ul style="list-style-type: none"> Participation in users' committees, disaggregated data Participation in training programs, disaggregated data Participation and types of saving/ credit facilities Participation in construction employment contracts and payment

Type	Indicator	Variables
		<ul style="list-style-type: none"> • Participation in commercial enterprises • Change in ownership over assets • Change in status in decision making • Change in the mobility and participation in public affairs and user groups (if formed).
	Changes to Status of Children	<ul style="list-style-type: none"> • School attendance rates (male/female) • (illegal) participation in construction
	Settlement and Population	<ul style="list-style-type: none"> • Growth in number and size of settlements • Growth in market areas near the vicinity of project area • Influx of illegal settlers/encroachers after electricity intervention • Increase in public facilities
	Multiplier effect	<ul style="list-style-type: none"> • Changes in the economic activities, enterprises and functions of the market • Changes in the employment status of the population • Changes in the economic and social infrastructures • Changes in the pattern of consumption and provision of electricity

Chapter 7: Gender Development Framework (GDF)

The framework for gender development outlines the specific issues linking with corresponding strategies and activities which will be given due consideration in the project. This will ensure women's participation in the project cycle in order to benefit from project activities.

7.1 Need for GDF

Although women are identified as vulnerable groups and will be included amongst the potential beneficiaries under the VCDF, this alone does not suffice to address the deep rooted social, cultural and economic issues of women. Regardless of caste and ethnicities, women in general, suffer more than their male counterparts on various grounds warranting special treatment or mitigation measures in order to minimize project's adverse impacts and enhance positive impacts to sustain better livelihood. The gender analysis for mini grid projects of AEPC and private companies involving as service providers was useful in generating some of the issues and concerns of the women in the project areas. Thus, based on the available information from GESI analysis, a generic GDF serving as a guideline for the preparation of Gender Action Plan (GAP) during implementation of subproject has been prepared.

7.2 Process to Follow

Focus on gender leads to benefits that go beyond the good project performance. Women have primary roles in the collection, transport, use, and management of fuel, fodder, water and other household activities and yet are hardly involved in decision making in the mini-grid sector. Gender should be addressed through an approach that is participatory and responsive to the needs of the poor and marginalized women of the society. The participation of beneficiaries and focus on poverty reduction are two other key determinants of the effectiveness and sustainability of any project. Any project must address the constraints on women's participation in project design, implementation and monitoring and evaluation. The project must also focus on the linkage between gender and poverty, by identifying, for example, households headed by females and those households' special needs. An adaptive, learning, and process-oriented approach works better than a blue print approach. Project beneficiaries are likely to have a stronger sense of ownership when the project gives them enough time, design flexibility, and authority to take corrective action. In this way, they find it easier to incorporate their earlier learning and negotiate with project staff and service providers. Therefore, a mechanism must be built into the project to allow such two-way interactions between the beneficiaries and the service providers. The major tools that could be used to identify and deal with gender issues in the project cycle are: gender analysis, project design, and policy dialogue. Gender analysis should be an integral part of the initial social assessment at the screening stage itself. The issues identified can be scaled up during the feasibility and detailed analysis can be carried out during the DPR stage. The project designs should be gender responsive based on the gender analysis, and should be included in the DPR. The findings and recommendations from the gender analysis during project planning and feedback

from beneficiaries during implementation must be discussed thoroughly to determine the need for further action. The gender checklists listed below are the key action points that furnish required information and provide guidelines to design gender responsive project:

- Identify key gender and women's participation issues.
- Identify the role of gender in the project objectives.
- Prepare Terms of Reference (ToR) for the GESI and Social Safeguards of the client
- Conduct gender analysis as part of overall Social Assessment.
- Draw up a socio-economic profile of key stakeholder groups in the target population and disaggregate data by gender.
- Examine gender differences in knowledge, attitudes, practices, roles, status, wellbeing, constraints, needs, and priorities, and the factors that affect those differences.
- Assess men's and women's capacity to participate and the factors affecting that capacity.
- Assess the potential gender-differentiated impact of the project and options to maximize benefits and minimize adverse effects.
- Identify government agencies and Nongovernmental Organizations (NGOs), Community-Based Organizations (CBOs), and women's groups that can be used during project implementation and assess their capacity.
- Review the gender related policies and laws, as necessary.
- Identify information gaps related to the above issues.
- Involve men and women in project design.
- Incorporate gender findings in the project design.
- Ensure that gender concerns are addressed in the relevant sections (including project objectives, scope, poverty and social measures, cost estimates, institutional arrangements, social appendix, and consultant's ToR for implementation and M & E support).
- List out major gender actions.
- Develop gender-disaggregated indicators and monitoring plan.

7.3 GoN Policies on Gender Mainstreaming

The Government of Nepal (GoN), since the early 1990s, has been making significantly increasing commitments to gender equity, equality and the empowerment of women in its policies, plans and programs. The GoN introduced a Gender Approach to Development (GAD) in 1990, to enable women and men to participate equally in public and private life and realize their full potential in development. The Tenth Plan (2002-2007) as a Poverty Reduction Strategy Paper (PRSP) identified gender and inclusion as its main strategies for reducing poverty. 'Social inclusion and targeted programs' was one of the four major pillars of the Tenth Plan/PRSP. The Plan, instead of relying only on targeted programs, tried to address gender and caste related issues by mainstreaming all of the four pillars of PRSP along with envisaged strategies to achieve gender equality and empowerment of women. The Three Year Interim Plan (TYIP) (2008-2010), which emphasizes post conflict reconstruction, rehabilitation and reconciliation, continued the long-term goal of poverty reduction through gender mainstreaming and social inclusion. Similarly,

Nepal is signatory to many international human rights related conventions and declarations, which call for the elimination of all forms of gender based discrimination, 36 including those in access to education, health and other services. The Convention on the Elimination of all forms of Discrimination against Women (CEDAW), signed by the GoN in 1991, commits Nepal to constitutional and legal equality, particularly in the fields of education, health, citizenship, property and employment. It also guarantees freedom from all kinds of violence and sexual exploitation. Thus, GoN, in its national level policies and plans, has duly emphasized the importance of women in all spheres ranging from household to community and national level. Realizing the increased potentiality of women in the socio-economic and political sectors, the government has increasingly provided more space for increased participation of women. In addition, GoN has established the National Women Commission, a national level well empowered body to look after the issues of women and take protective and defensive measures to address the issues and problems encountered by the women at all levels and in any forms viz domestic violence, women's right to properties and representation in the key positions with fair proportions.

7.4 Gender Equity and Social Inclusion (GESI) Policy of AEPC

AEPC is recognized as an effective, efficient and GESI proactive institution for the promotion and development of RE sector. The main objectives of GESI policy of AEPC are-- improve living standard of rural women and men, increase employment of women and men as well as productivity, reduce dependency on traditional energy and attain sustainable development through integrating the alternative energy with the socio-economic activities of women and men in the rural communities. The target areas for GESI interventions are policy level, program level and beneficiary's level. The strategic intervention areas and target for each level will be different but all will contribute from their own level to achieve goal/ objectives of the program. AEPC's GESI mainstreaming approach includes:

- Affirmative action and positive discrimination to the targeted groups
- Subsidy and credit facilities for the targeted groups
- Social mobilization with reflect methodology to assess needs of targeted groups and enabling their demand dynamics
- Frequent critical analysis on demand and supply of the target groups
- Work with like minded and right holders organizations
- Coordinate and collaborate with local bodies, line agencies, social leaders and media
- GESI capacity building of the stakeholders and partners at all levels
- Create platform for GESI responsive RET knowledge building, sharing and learning
- Piloting action research adopting right based approach to reach poor women and men, and women belonging to Janjati, Dalit, Madhesi, Muslim and Other Backward Communities (OBCs).
- Revising and devising from the lessons learned and up-scaling of the good practices.
- Promotion of technology end use for employment and income generation of targeted groups.

- Promote GESI responsive RET policy, strategy, periodic plan, rules and regulations, program and budget
- Institutionalize GESI disaggregated (quantitative and qualitative) database system, regular monitoring mechanism/reporting, review/evaluation
- Establish monitoring framework to manage disaggregated database at all level
- Strengthening of AEPC as GESI responsive institution
- Promotion of RET through different modes and means to extend access to rural women and men, and women and men from poor and DAG
- Collaborate for Research and development (R&D) to design and promote gender friendly RET
- Establishment of knowledge management system for GESI responsive RET knowledge

7.5 Gender Inclusive Design and Preparation of GAP

A gender action plan has been developed and will be implemented aiming to ensure the participation of women, poor, dalit, caste/ethnicity and excluded groups of APs in planning, operational and implementation processes and promote equal access to resources and benefit. Based on the GESI analysis and the gaps identified the strategies and activities have been proposed for implementation. The plan also outlines the responsibilities and time line for each activity to be carried out. The activities proposed are also linked to other strategies being developed by the project such as benefit sharing. The GESI Action Plan (AP) will be monitored and reported on a quarterly basis and included in the project progress reports. The GESI Action Plan implementation will also be monitored during project implementation review missions.

7.6 Establishing Community Participation Mechanism

- Develop a participation strategy for men and women during project implementation and M &E.
- Avoid overly high expectation of women's participation and develop a practical schedule, as women often have time and financial constraints. The strategy should incorporate the following:

Planning: Conduct women specific consultation to take their views and suggestions on the design. Any mechanism established during project design such as grievance redress mechanism should have adequate representation from women.

Construction: Ensure work conditions that are conducive to women's participation (e.g., gender-equal wage rates, construction season, toilet and child-care facilities).

Monitoring and Evaluation (M & E): Develop a feedback mechanism in which both male and female have a voice. Identify organizations that could facilitate women's participation during implementation and M & E.

Providing Training Options

- Identify ways to link up with income-generation, literacy, and other activities to support an integrated approach to poverty reduction and women empowerment
- Support a decentralized structure to allow linkages between the communities and local level government.
- Include financial and technical capacity building for relevant local government bodies to enable them to effectively support women groups.

Staffing, Scheduling, Procurement and Budgeting

- Hire female project staff (PIU and ESCOs).
- Consider seasonal labor demand in scheduling civil works.
- If appropriate, set a minimum percentage of female laborers and prohibit the use of child laborers in the civil works contract.
- Ensure adequate and flexible budgeting to allow a “learning” approach (e.g., training budget, consulting service budget for women’s organizations).

Monitoring and Evaluation

- Develop M & E arrangements: (i) internal M & E by project staff; (ii) external M & E by NGOs or consultants, as necessary; and (iii) participatory monitoring by beneficiary men and women, and iv) Review mission by WB
- Disaggregate all relevant indicators by gender such as number of women gaining access to credit, increase in women’s income, and career prospects for project trained women.

Documentation

- Document the gender-responsive design features in the DPR and include covenants in the loan agreement to ensure gender-sensitive project design mechanisms to be complied by the executing agency

A Gender Action Plan suggested for the project is presented in **Table 9**.

Table 9: GESI Action Plan

Gender Issues	Strategy	Proposed Activities	Responsibility	Timeline
Lack of awareness	Awareness campaign about the project for the communities focusing on the vulnerable groups including women and socially excluded groups.	Formation of users' groups comprising of women and proportionate participation of socially excluded people. Share information about the project benefits in Nepali language (if possible in local	ESCOs (to be verified by AEPC)	Project preparation phase of each sub project.

Gender Issues	Strategy	Proposed Activities	Responsibility	Timeline
		<p>language). Information/ awareness campaigns through coordinating with locally formed Clubs and Groups and NGOs.</p> <p>Ensure representation of women and socially excluded people in the grievance redress committee, benefit sharing scheme committees as well as in other committees formed under the project.</p>		
Excluded from Opportunities and low level of participation in decision making process because of social/cultural restriction	<p>Gender sensitization to all stakeholders including project entities.</p> <p>Gender inclusive consultation and social mobilization</p> <p>Ensure increased participation of women and people of all socially excluded groups during meetings of pre construction phase, project implementation and monitoring.</p>	<p>Carry out consultation, focus group discussion, interviews, meetings and interaction program with and orientation especially to women in the project area.</p> <p>If needed, separate women only FGDs, will also be carried out.</p>	ESCOs (to be verified by AEPC)	Throughout the subproject period
Disparity in	Accord priority employment to	Inform women and disadvantaged	ESCOs & AEPC	Project preparation

Gender Issues	Strategy	Proposed Activities	Responsibility	Timeline
Wages	<p>women and people of vulnerable groups in construction activities under the project.</p> <p>Promote equal wages for equal work</p>	<p>groups regarding proposed construction works.</p> <p>Identify women and vulnerable people interested to work; assess their skills and involve them as per their capabilities.</p> <p>Monitor women's wage rate and do the needful to ensure wage equality for similar nature of works.</p> <p>Prepare clause to be included in work contract documents of ESOCs to prevent discrimination in employment on the basis of sex, caste, religion and ethnicity as per the mandate of labor law.</p>		phase to end of sub-project.
Lack of trained women in mini grid sector	Promote need based technical, administrative and support services.	<p>Conduct training on newly introduced technologies and its health and safety usages</p> <p>Skill training to women in vocational fields and to establish enterprises/business after electrifying the sub project area (in coordination with PIU unit and RERL of AEPC).</p>	AEPC and ESCOs	

Gender Issues	Strategy	Proposed Activities	Responsibility	Timeline
Less women owned ESCOs	Affirmative action for ESCOs	<p>Women led ESCOs will be given high priority during selection process.</p> <p>Credit facilities to women owned ESCOs.</p> <p>ESCOs will give priority to provide electricity to run business/enterprises owned and led by women.</p>	ESCOs	Project preparation phase to end of each sub project.
Human resource in project implementing team	GESI inclusive approach	<p>Representation of women/female in PIU team.</p> <p>GESI balance staff while recruiting human resources for Nepal mini-grid project.</p>	AEPC	Project preparation phase.

Chapter 8: Stakeholder Engagement Strategy

8.1 Stakeholder Engagement

Major objectives of stakeholder engagement are two fold. First, it is to keep all stakeholders informed of the project activities, the potential beneficial and adverse impacts. Second, it is to ensure that stakeholders actively participate in all levels of the project cycles, come up with mitigation plans to minimize the potential negative impacts of the project, and are well trained and equipped to take over the responsibilities of operation and management once the project phases out. These will ultimately contribute towards narrowing down the gaps between the project officials and beneficiaries, and help create a conducive-environment to mitigate the adverse social and environmental issues through optimal cooperation from the project beneficiaries themselves.

Stakeholder engagement strategy outlines engagement through the project development phases and recommends a set of stakeholders' engagement activities to be carried out throughout the project development phases.

Mechanisms of stakeholder's engagement will include:

- 1) Public meetings in the project influence area
- 2) Information/ awareness campaigns through engaged locally formed Clubs, Groups and NGOs
- 3) Interviews/surveys in project affected households
- 4) Focus group discussions,
- 5) Formation of committees and/or groups including stakeholders at various stages of the project.
- 6) Development of grievance redresses mechanism in the Project premises.
- 7) Disclosure/ dissemination of project information including decision making process and how the grievances of APs will be addressed.

The information dissemination will be effected through electronic and print media, during public consultation, and direct discussion with the affected families and institutions.

8.2 Stakeholder Analysis and Mapping

It is important to engage stakeholders in meaningful and productive ways, and the developer's willingness and ability to work with them. Through Stakeholder mapping, different types of stakeholders would be identified. Stakeholders may be identified in terms of one or several of the following categories:

- Affected local individuals, communities or households,
- Project beneficiaries
- Government agencies and their representatives at various levels (center, district, local), from concerned ministries and departments,

- Elected officials of concerned RMs, municipalities, DCCs or constituencies,
- Concerned business people and entrepreneurs,
- Concerned NGOs, CBOs and user groups,
- Political party representatives and local parliamentarians,
- Local influential from the affected areas, such as informal or traditional community heads, school teachers, healers, social and religious leaders, and other notable women and men,
- Health workers,
- Social workers and marginal group workers (such associations or organizations dedicated to the upliftment of the poor, the landless, women, children and other vulnerable groups), and
- The project developers/proponents, themselves.

8.3 Information disclosure

Most often a development project, including its socio-economic and environmental setting, fails due to lack of information or misinformation. For the success of a given program the management must share all the information obtained about the proposed activities and their expected results with the affected and interested public. In collaboration with different local authority, CBOs, NGOs and other groups, the project need to disclose its all the relevant information to APs in the various stages of project cycle. Agencies working for environmental and social aspects should also be informed at both local and national level about the ongoing and planed activities, to identify jointly appropriate protective or corrective measures.

ABC model subprojects will adopt the following approaches to make information accessible to all the concerned stakeholders throughout the project cycle.

- **Mass Media:** Local media like newspaper, FMs/radio and TV will be used to broadcast any information regarding to project.
- **Meeting/Workshops:** Meetings and workshops will be held to disseminate the information.
- **Distribution of project document:** Project related information materials in Nepali version will be distributed prior to each construction work in the proposed projects to local officials, CUG, AP and other concerned. Such information includes entitlement frameworks various periodic information sheets on compensation entitlements, project time frames etc.

An information centre will be established during implementation stage to disseminate all the documents related to the project activities. Based on the policy on public information disclosure, AEPC and other relevant stakeholders will unveil the information through its website.

During ESIA study, two rounds of consultation meetings will be conducted, including consultations for obtaining the informed views of the affected people and local Non-governmental Organizations (NGOs).

1. Hold consultative workshops at the site.
2. Hold consultations after preparing draft ESIA report (during Public

Hearing) with local communities.

All plans prepared (RAP, VCDP, ESMPs) will be disclosed at relevant local authorities (for instance, District Coordination Committee, Rural Municipality/Municipality, Ward Office etc.) and made available in Nepali/local language to the community and other stakeholders.

8.4 Process for meaningful consultation

Consultation is a two-way process of dialogue between the project authority and its stakeholders. The project-affected communities should be continually consulted by the Project Management to identify upcoming needs, constraints, priorities and what kind of social and environmental corrective measures need to be pursued during the different phases of the project. The mechanism of meaningful consultation will include:

- Engagement with stakeholder early in the development process
- Well targeted and inclusive
- Free, prior and informed consultation with the Indigenous Peoples
- Public Meeting in subproject area
- Appropriate timing and venue of consultation for different groups
- Use of local language, sign languages and local facilitators including females
- Information dissemination in collaboration with local NGOs and CBOs
- Focused group discussion
- Formation of committees and groups including stakeholders at various stages of the project.
- Social mapping
- Consultation will be continued throughout the project life.

In terms of this ESMF disclosure and consultation with stakeholders, the consultation workshop was organized on November 9, 2017 at the Hotel Yak and Yeti. Invitation was sent 2 weeks prior to participants enclosing the first draft. Draft ESMF was also disclosed on AEPC website and the information was published (both in English and Nepali) in National newspapers. The detail of the workshop proceedings is presented in **Annex 7**. In addition to this, the ESMF was circulated internally amongst the AEPC staffs and conducted consultation meeting on November 3, 2017 at AEPC Meeting Hall.

8.5 Involvement in Project Monitoring

Monitoring is a major part of the ESMF to ensure its goals and objectives are adequately met. The social and environmental safeguard implementation will be monitored internally. The team comprises of the representatives of stakeholders and ESCOs will monitor the project site in the initial, construction, post construction and operational phase of project to ensure that all environmental and social issues related to each subprojects are well addressed and comply with the requirements mentioned in ESMF. In addition to it, as per the project need, an independent third party monitoring will be carried out. The ESCOs will prepare quarterly progress reports and submit them to the AEPC. The AEPC will prepare semi-annual monitoring reports

and submit to WB and these reports will be made available to all the stakeholders from the information centre established in subproject area.

8.6 Reporting to Stakeholders

Once consultations have taken place, stakeholders will want to know which of their suggestions have been taken on board, what risk or impact mitigation measures will be put in place to address their concerns, and how project impacts are being monitored. Thus, ESCOs will prepare the report to keep track of many commitments made to various stakeholders at various times and for communicating progress made against these commitments on regular basis. The report prepared by ESCOs will be further submitted to AEPC on quarterly basis and AEPC will prepare reports semi annually and submit to World Bank. All reports prepared during the implementation of subproject will be made accessible to concerned stakeholders.

8.7 Grievance Redress Mechanism

An accessible and responsive complaint management process is important part of any stakeholder engagement strategy. A Grievances Redress Mechanism will be put in place wherein all project stakeholders are given a venue to lodge complaints regarding any aspect of the land acquisition, compensation, resettlement requirements and other project-related issues. The complaints can be made verbally or in written form. The APs will have access to all level of grievances redress procedure. Special project grievance mechanisms such as on site provision of complain hearings allows project affected persons to get fair treatment on time. The CUG will be formed in each subproject area, which is responsible for handling initial grievance of project influenced people. APs will be exempt from all administrative fees incurred, pursuant to the grievance redressal procedures except for cases filed in court. Under the project following procedures/stages will be taken to ensure the timely and effective handling of grievances.

First Level of GRM: Many grievances can be resolved by providing correct and complete information early in the subproject development process. The CUG formed in each sub-project area and ESCOs/Developers will be responsible to listen and provide information to APs and resolve their issues. The ESCOs/Developers may seek the assistance of the project safeguards specialists to help resolve the issue. The ESCOs/Developers records the: (i) the name of person (s), (ii) date of the received complaint, (iii) nature of the complaint, (iv) location, and (v) how the complaint was resolved (if resolved). They will try to resolve the received grievances within 10 days. If it is not resolved at the local level, they will forward it to the Project Safeguard Unit.

Second Level of GRM: If the grievance remains unresolved, the ESCOs/Developers and CUG forwards the complaint to the Project Safeguard Unit (E&S team of AEPC). The person (filing the grievance) will be notified by the ESCOs/Developers and CUG that his/her grievance has been forwarded to the Project Safeguard Unit. The EA will answer queries and find resolution for grievances regarding various issues including social, or livelihood impacts and environmental impacts. The project safeguard specialist will undertake the corrective measure/s in the field within 7 days of the decision.

Third Level of GRM: If the grievance remains unresolved, it will be referred to Grievance Redress Committee (GRC). The GRC will be headed by the PM, with other members made up of the chairperson of the subproject rural municipality, Ward Secretary, representative of APs and Chairperson of CUGs. The AP will be given the opportunity to present his/her concern and GRC will suggest corrective measures within 10 days. The project safeguard specialist will work as secretary of the GRC and will be responsible for processing and placing all papers before the GRC, recording decisions, issuing minutes of the meetings, and taking follow-up action to see that formal orders are issued and the decisions are carried out.

Fourth level of GRM: If all of the above resolution methods fail, a legal redress mechanism can be adapted through Nepal's judicial or appropriate administrative system

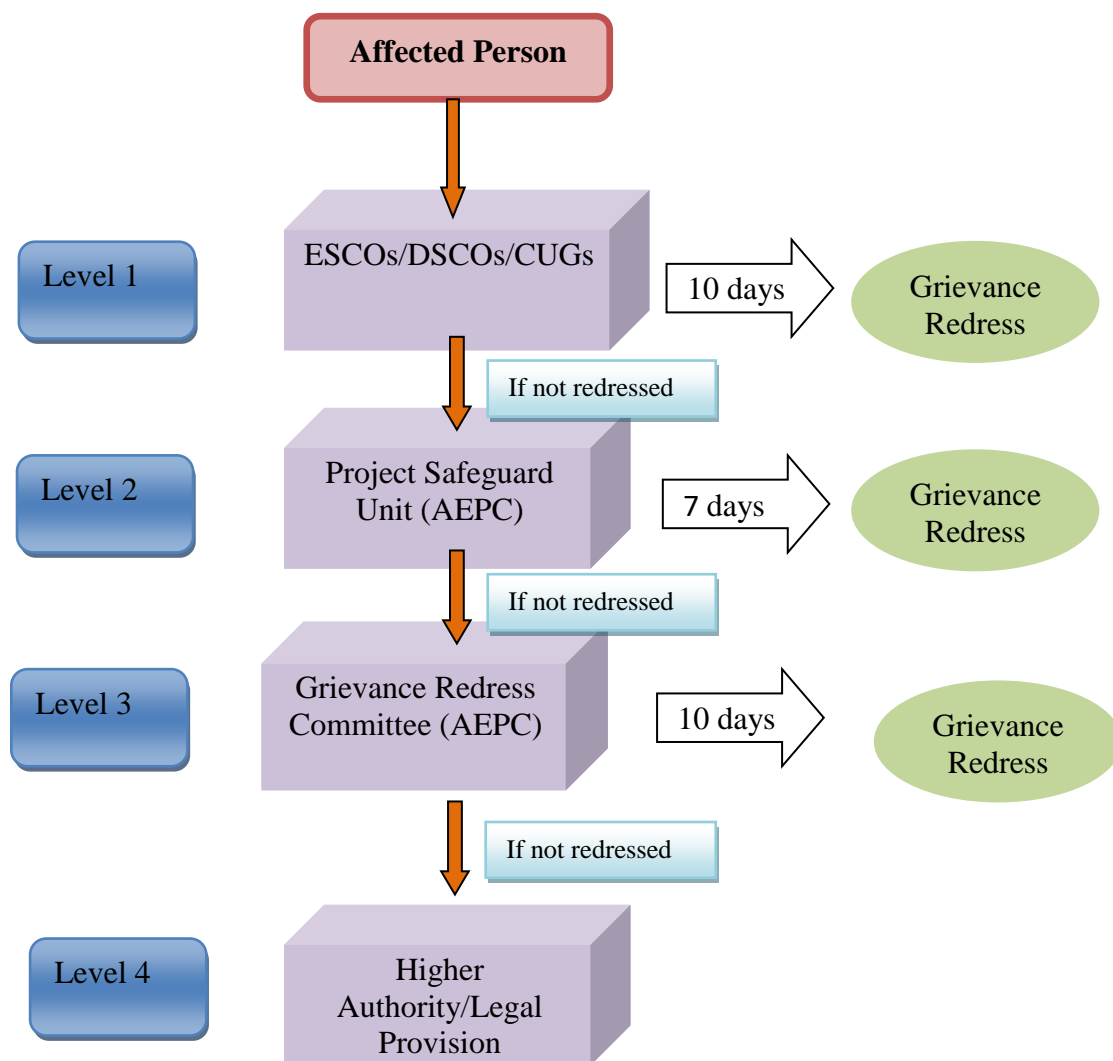


Figure 2: Flow diagram of Grievance Redress Mechanism

Chapter 9: Capacity Assessment and Capacity Building Measures

For the management of environmental and social safeguards issues, capacities need to be built in two aspects. Firstly, capacities should be built considering the overall institutional development of AEPC in addressing environmental and social issues. Secondly, subproject specific capacities (i.e. capacity of subproject developer/ESCOs and PBs to address specific environmental and social safeguard issues) that are useful in implementation of subprojects.

At present, AEPC do not have specific human resource for environment and social safeguards management of ABC project. The human resources of WB supported Biogas component and ADB supported SASEC project are involved in ESMF preparation and subproject selection activities. In addition, the consultation with potential ESCOs and Partner Banks (PB) reveals that only few of them have specific human resources for implementation of ESMF during subproject preparation and implementation phase. They have to take service of consulting firms to carry out environmental and social assessment.

The key issues that require to be addressed are: 1) limited resources (technical and financial), and 2) lack of experts to address environmental and social issues. At the initial phase of the implementation of the project, AEPC is required to appoint Environmental Safeguard Expert and Social Safeguard Expert. Technical Review Committee (TRC) formed for the evaluation of subprojects should have representation of Environmental and Social Safeguard Specialist and play active role in the evaluation of subproject in terms of E&S safeguard issues.

The Environmental Safeguard Expert and Social Safeguard Expert at the AEPC should be provided with capacity building training, which might include: i) screening of subprojects; (ii) safeguard plan preparation and appraisal; (iii) plan monitoring; and (iv) reporting. Moreover, it is essential to train ESCOs and the employees of subproject, who will be based on the subproject site, on E&S safeguard issues. They should be well versed on GoN's and World Bank's environmental and social safeguards obligations, their significance and benefits. Training programs should be focused on improving knowledge and ability to deliver environmental and social support across project at all implementation levels.

Chapter 10: Estimated Budget

The tentative budget breakdown for the project is presented in **Table 10**.

Table 10: Tentative Budget

Project Components	Cost Estimation (NRs. In thousand), for 27 subprojects	Remarks
a) Environmental and Social Screening	2,160	80,000 for each subproject, for transportation & lodging
b) Implementation of ESIA and mitigation plan	5,400	200,000 for each subproject
c) Disclosures and dissemination of environmental safeguard documents	540	20,000 for each subproject, including notice in national newspaper
d) Supervision, Monitoring and Reporting	2,160	80,000 for each subproject
e) Compensation for RPF/VCDF	5,400	200,000 for each subproject
a) Environmental Safeguard Expert (Remuneration)	5,400	200,000 for each subproject
b) Social Safeguard Expert (Remuneration)	5,400	200,000 for each subproject
c) Technical Review Committee (Remuneration for TRC members)	2,160	20,000 for each subproject
d) Safeguard capacity building/training– Staffs (AEPC, ESCOs, PBs, Management of transmission line RoW issues (community based))	2,700	100,000 for each subproject
Total	31,320	

Annexes

Annex 1: Legal Framework and Comparative Gap between National and World Bank Policies

A. Comparison of GoN and World Bank Policies Gaps

Category	Government of Nepal (GoN) Policy	World Bank (WB) Policy	Gaps between GoN & WB policy	Recommendations to Bridge the Gaps
A. Environment (Natural Habitat , & Forest including terrestrial and aquatic) (OP/BP-4.01, 4.04 & 4.36)	<p>Development Project falling under EPR criteria should be subjected to IEE/EIA, Schedule 1&2 pertaining to Rule-3. (for example operation of electricity generation up to 50 MW requires IEE. However any proposal irrespective of the capacity is to be implemented in the following areas requires EIA:</p> <ul style="list-style-type: none"> • Historical, cultural and archeological sites; • Environmentally weak and wet areas; • National Parks, wild life sanctuaries and conservation areas; • Semi-arid, mountainous 	<ul style="list-style-type: none"> • Environment Assessment shall be carried out for identifying potential risks and adverse impacts, along with mitigation measures; • Detail Environmental Management Plan (EMP) shall be prepared to address all the policies triggered related with natural habitat and physical, cultural resources. The EMP shall adequately address the relevant issues. 	<ul style="list-style-type: none"> • Activities listed in EPR Schedule 1 requires an IEE, and those listed in Schedule 2 requires EIA. The Schedule 1 and 2 are based on activity type, threshold/size, as well as location. The Potential risks associated with the project are omitted in GoN policy. • Hence, Environmental & Social (E&S) Screening exercise shall be carried out to assess the potential risk associated with the project before selection of the project proposal. 	<ul style="list-style-type: none"> • Detailed E&S Screening shall be carried out followed by detailed ESMP in parallel with the Detail Engineering Design to bridge the gap between WB and GoN requirements/approach. The ESMP aims to address all the adverse environmental impacts arise during execution and operation of the project. • The ESMP so prepared shall be made integral part of bidding document so that the Contractor shall adhere to the provisions prescribed in the ESMP during execution of the

	<p>and Himalayan regions;</p> <ul style="list-style-type: none"> • Flood prone and dangerous areas; • Residential, school and hospital areas; and • Areas with main sources of public water supply. <p>This approach often ignores potential risks and impacts and risks are site specific and depending on site condition.</p> <ul style="list-style-type: none"> • Forest regulation requires permission from related authorities (Conservation Authorities, DFO, CFUG etc.) for any intervention in forested area. • National Park and Wildlife Conservation (NPWC) Act, demands permission from Ministry of Forests and Environment (MoFE). 			project.
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B. Physical-Cultural Resources (OP/BP- 4.11)	The EPR Rule 28 & 30 states that physical and cultural resources shall not be disturbed or damaged without the prior approval of concerned authority.	Same as above	“Chance find’ is not covered by the EPR requirements	Same as above with the addition of "Chance Find" provisions and requirements.
C. Involuntary Resettlement and Loss of Land/Structure Crop/Income Source (OP/BP-4.12)	<ul style="list-style-type: none"> • Clause 3 of the Land Acquisition Act states that any asset that is required for public purposes shall be acquired by providing compensation. • Compensation Fixation Committee shall establish the Compensation rates. • Guthi Corporation Act, 2033 (1976). Section 42 of this Act states that Guthi land (religious trust land) acquired for the purpose of the development shall be replaced with other land, than compensated in cash 	<ul style="list-style-type: none"> • Full compensation at replacement cost for lost assets shall be provided according to asset types and location. • Resettlement and Rehabilitation assistance to affected people shall be provided by the project to enable them to improve their living standard. • As per OP 4.12 community assets needs to be replaced in consultation with the community. • As per OP 4.12, all those who are affected needs to be assisted including 	<ul style="list-style-type: none"> • The Land Acquisition Act of Nepal only has a provision for cash compensation based on degree of loss. It does not take into account vulnerability of the affected person upon losing the land. 	<ul style="list-style-type: none"> • The project shall be required to prepare vulnerability assessment and mitigation plan for the affected people that have a impacts on their livelihood after losing the land. The project shall assist those who have impacts on their livelihood due to land acquisition by the project including tenants. • The community assets need to be replaced following the Build Back Better Philosophy. • Pragmatic livelihood assistance program shall be designed by the project

	<ul style="list-style-type: none"> • The LRA 1964 establishes the tiller's right on the land, which s/he is tilling. It additionally specifies the compensation entitlements rights of registered tenants on the sold land by the owner. • Compensation shall be provided for loss of crop damaged and income source. 	<p>tenants and sharecroppers.</p> <ul style="list-style-type: none"> • Full compensation for loss of land/crop/asset/income source shall be provided. 		
D. Indigenous People & Community (IP&C) (OP/BP-4.10)	<ul style="list-style-type: none"> • The GoN encourages to include and consider IP&C's concerns in each and every development and infrastructure programs and formulate a plan or mechanism to incorporate income generation program targeted to IP&C. • NFDIN Act 2002, Local Self-Governance Act, 	<ul style="list-style-type: none"> • The WB policy ensures Free, Prior, and Informed Consultation (FPIC) with the affected indigenous people to obtain broad community support for the project. • Detail Social Impact Assessment (SIA) shall be carried out to identity potential impacts and prepare plans to ensure that indigenous peoples 	<ul style="list-style-type: none"> • The GoN encourages development programs to incorporate income generation schemes for IP&C, the provision of FPIC and broad consent from the IP&C is absent. Nonetheless, the GoN has ratified ILO 169 and United Nations Declaration of Rights of Indigenous People (UNDRIP). • The GoN is in the process 	<ul style="list-style-type: none"> • The Project shall carry out FPIC with the indigenous community and other vulnerable communities to obtain broad consent on the project. • Project shall prepare Vulnerable Community Development Plan (VCDP) based on community need assessment.

	1999 and Tenth Plan (2007-10) and Three Year Interim Plan (2011-13)	receive social and economic benefits that are culturally appropriate.	<p>of preparing National Action Plan to implement the international commitments.</p> <ul style="list-style-type: none"> • GoN does not have a standalone policy on Indigenous Peoples and other vulnerable communities which otherwise would have been put significant emphasis on delivering basic services to the disadvantaged and indigenous people, Dalits, women, disabled and other vulnerable groups. The Policy, Acts and Plans shall facilitate to embrace the Adivasi/Janajati and other disadvantaged groups in the main stream of development process by: <ul style="list-style-type: none"> • creating an environment for social inclusion; • participation of disadvantaged groups in policy and decision making; 	
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			<ul style="list-style-type: none"> • developing special programs for disadvantaged groups; • positive discrimination or providing equal opportunity in education, employment, etc.; • protection of their culture, language and knowledge; • proportional representation in development process; and • making the country's entire economic framework socially inclusive. 	
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Comparison of GoN and World Bank Policies on Entitlement for Land Acquisition, Gaps and Recommendations

Type of Impact	Entitlement Unit	GoN Policy	World Bank Policy	Recommendation
A. Land				
Loss of private Land	Families, households (HHs)	Cash compensation rates established by a Compensation Fixing Committee (CFC), consisting of: (i) Chief	Compensation at full replacement cost. For agriculture land pre-project or pre-displacement, whichever is higher, market value of land of equal productive	Cash compensation equivalent to the amount as per Land Acquisition Act; and Resettlement allowance in cash equivalent to the difference between compensation as per the Land

Type of Impact	Entitlement Unit	GoN Policy	World Bank Policy	Recommendation
		District Officer; (ii) Revenue Board Land Administrator; and, (iii) a DCC representative.	potential within the same vicinity.	Acquisition Act and full replacement value as per current values in the same vicinity, plus value of all land transaction fees and charges.
Loss of untitled land	Non-title holder		Resettlement assistance in lieu of compensation for land occupied (land, cash and other assets employment) at least to restore their livelihoods and standards of living to pre-displacement levels.	Resettlement assistance to those most vulnerable to restore pre-displacement level livelihoods. Vulnerable groups may include but not be limited to ethnic minority groups present in the Terai and Hill districts as categorized by GoN, women headed households, the most poor (based on poverty line and the local wealth ratings), the disabled, the elderly and landless/kamaiya families.
Structures				
Loss of private Land	Families structure owners	Cash compensation determined by Compensation Fixing Committee (CFC) on the current value of structures, in accordance with the Land Acquisition Act and Land Acquisition Regulations.	Compensation at full replacement cost. For structures, the market cost of the materials and labour to build a replacement structure of a similar quality or better than the affected structure.	Cash compensation in accordance to the Land Acquisition Act. To ensure compensation is at replacement cost, additional resettlement assistance in cash equivalent to cover depreciation over and above compensation amounts provided.
Physical-		Clause 28 of EPR states	Environmental assessment has to	ESMP shall address such issues

Type of Impact	Entitlement Unit	GoN Policy	World Bank Policy	Recommendation
Cultural Resources		that physical and cultural resources shall not be disturbed or damaged without the prior approval of concerned authority.	be carried out in case such resources are found to be affected by the subproject.	following GoN and WB policy.
Economic Assets				
Income losses for affected HH	Families, households		Compensation at full replacement cost.	<ul style="list-style-type: none"> • Compensate and replace lost assets at their replacement cost. Compensation for perennial crops and trees calculated as annual net product value multiplied by number of years for new crop to start producing. • Compensation in cash for lost standing crop.
Income				
Local HHs	Affected person, families, households		Measure to assist affected people in improving their former living standards, income earning capacity, and production levels, or at least restoring them.	Rehabilitation assistance for lost or severed livelihoods.
Local Communities	Affected communities/families		Measures to assist impacted communities to re-establish or re-develop lost community resources.	Compensation for re-establishing or re-constructing lost community resources such as religious and cultural structures.
	Loss of Crops and	Compensation shall be	Full compensation shall be	Livelihood assistance shall be

Type of Impact	Entitlement Unit	GoN Policy	World Bank Policy	Recommendation
	Income Source	provided for loss of crop damage/income source.	provided	provided for business losses (if any, land or access required during implementation shall be fully compensated.
Indigenous Community				
		<p>The Fourteenth plan encourages each development program to incorporate infrastructure and income generation program targeted to indigenous community.</p> <p>NFDIN Act 2002, Local Self- Governance Act, 1999 and Fourteenth Plan (2073/74-2075/76)</p>	<p>Ensures Free, Prior, and Informed Consultation (FPIC) with the affected indigenous people to obtain broad community support to the project. Social Assessment will be carried out to identify potential effect and prepare plan to ensure that indigenous peoples receive social and economic benefits that are culturally appropriate.</p> <p>Nepal does not have a standalone policy on Indigenous Peoples and other vulnerable communities. These acts have been placed significant emphasis on delivering basic services to the disadvantaged and indigenous people, Dalits, women, disabled and other vulnerable groups</p> <p>These acts and plans include</p>	<p>Project will carry out free prior informed consultations with the indigenous community and other vulnerable communities to obtain broad consent for the project. Project will prepare Vulnerable Community Development Plan (VCDP) based on community needs of indigenous as well as other vulnerable communities.</p>

Type of Impact	Entitlement Unit	GoN Policy	World Bank Policy	Recommendation
			<p>policies for the development of Adivasi/Janajati and other disadvantaged groups:</p> <ul style="list-style-type: none"> • creating an environment for social inclusion; participation of disadvantaged groups in policy and decision making; • Developing special programs for disadvantaged groups; positive discrimination or reservation in education, employment, etc.; protection of their culture, language and knowledge; proportional representation in development process. 	

National Regulatory Framework

The Government of Nepal (GoN) has a well-established legal framework for environmental assessment of development projects. The most relevant national policies, acts and guidelines of the GoN concerning environmental safeguards, which are relevant to the proposed project, are discussed below.

1. Constitution of Nepal

The Constitution of Nepal is the main document that secures the right of people. It guarantees the fundamental rights of all citizens of Nepal, including the enjoyment of rights, privileges and immunities with regard to life, liberty and property. Article 30 of the Constitution of Nepal has provision, that 1) Every citizen shall have the right to live in a clean and healthy environment. 2) The victim shall have a right to obtain compensation, in accordance with law, for any injury caused from environmental pollution or degradation. 3) This Article shall not be deemed to prevent the making of necessary legal provisions for a proper balance between the environment and development, in development works of the nation.

Further, Article 51(g) policies relating to protection, promotion and use of natural resources, inter alia, includes proclamation to protect, promote and make environmental friendly and sustainable use of forests, wildlife, birds, vegetation and biodiversity, by mitigating possible risks to environment from industrial and physical development, while raising awareness of general public about environment cleanliness, to maintain the forest area in necessary lands for ecological balance, to adopt appropriate measures to abolish or mitigate existing or possible adverse environmental impacts on the nature, environment or biological diversity, to pursue the principles of environmentally sustainable development such as the principles of polluters pays, of precaution in environmental protection and of prior informed consent.

2. Muluki Dewani Sanhita Ain 2017

The *Dewani Sanhita Ain 2017* has provision of water right, which includes citizens' rights to irrigation water. The national code states that any action that submerges private land with a dam or reduces supply to it with the redirection of water implicitly requires the acceptance of such an action by the affected persons. The Code states that 'water shall not be made available to others until the requirements of the person who constructed an irrigation channel at his own expense with his own physical labor are first met.' The code also acknowledges existing rights to water as follows: 'A new irrigation channel may be constructed at a point higher than the existing one only if the amount of water available to the field irrigated by the old channel is not reduced'.

3. Fourteenth Plan 2016-2019

The recent three years plan has emphasized on reducing dependence on conventional energy and emphasizing promotion of renewable energy. While talking about environment protection, the plan considered environmental management as an integral component of development related projects.

4. Environment Protection Act 1997

The *Environment Protection Act 1997* has provisions to institutionalize the integration of environmental aspects in development projects including energy sector, and empowers the

Ministry of Population and Environment (MoPE) to approve EIA report. In terms of IEE level study, the line Ministries, which is the Ministry of Energy (MoEn) for the proposed subprojects, is authorized to approve the Final IEE Report.

Realizing the interrelationship between development and the environment, the EPA shows concerns for minimizing the impacts of environmental degradation and its effect on people, animal, and plant species and their physical surroundings. The Act obliges the proponent to undertake IEE and EIA of proposal, plans or projects, which may cause changes in existing environmental condition and authorizes the MoPE to clear all EIA and line ministries for IEE study. It empowers the ministry to prohibit the use of any matter, fuel, equipment or plant, which has adverse impacts on the environment. The Act has provisions to compensate affected persons influenced from polluting activities and polluters or liable persons for environmental and private property damage are responsible to provide compensation. The Act empowers GoN to provide additional incentives to any industry, occupation, technology or process, which has positive impacts on environmental conservation. Moreover, it has provision to establish an Environmental Protection Fund to be used for environmental protection, pollution control and heritage conservation, and provides authority to the government to declare specific areas as environmentally protected area.

5. Environment Protection Rule 1997

The *Environment Protection Rule 1997* has been enforced in the process of implementing EPA 1997 effectively. EPR has provisions on the process to be adopted during the preparation and approval of projects that requires EIA and IEE, which includes preparation of scoping document, Terms of Reference (ToR), requirement of information dissemination, public consultation and hearing, and environmental monitoring and auditing. The EPR has provisions to conduct public consultation prior to the preparation of scoping document and ToR and to carry out public hearing prior to the approval of EIA Report.

The EPR empowers line Ministry to monitor the environmental activities including mitigation measures and the MoPE for environmental auditing. For IEE, the line Ministry is authorized to approve the Final IEE Report. The EPR also lists the types of development activities that require IEE or EIA. Moreover, EPR provides an outline of content of Terms of Reference, IEE and EIA Report. Schedule 1 and 2 of Rule 3 of EPR 1997 details out proposal requiring IEE and EIA level of studies respectively.

6. National Environmental Impact Assessment Guideline 1993

National Environmental Impact Assessment Guideline, 1993 is the first formal guideline on environmental study in Nepal. The *Environment Protection Act 1997* and the *Environment Protection Rules 1997* are the legal documents, which have made the environmental protection as the legal requirement in implementation of the development projects.

In the IEE process, Terms of Reference for the Study will have to be endorsed by the concern ministry. With respect to Mini-hydro subprojects, the concerned ministry is Ministry of Energy and for Solar and Solar/Wind subprojects, the concern ministry is MoPE. IEE study will have to be carried out with the active participation of the stakeholders of the subprojects which are project affected people and the local institutions. The peoples participation have been ensured

not only by taking out 15 days public notice in the national daily newspaper but also making the deed of public appraisal (muchulka) of the notice in the project area and the collection of recommendations from the local bodies (RMs/municipalities).

In terms of the subprojects that requires EIA level of study, the scope of work of the EIA study is determined with the active participation of the stakeholders, which include the project affected people. Publication of public notice in the national daily newspaper and collection of issues and suggestions ensures the participation of the stakeholders in the scoping exercise. Based on the scoping exercise, Terms of Reference for the EIA study is prepared and endorsed from the Ministry of Population and Environment. Endorsement of ToR is done through review committee that comprises number of reputed environmentalists.

The EIA study will address four major environmental issues - physical, biological, socio-economic and cultural. It suggests to identify the environmental parameters under these four environments, predict and evaluate the impacts due to the project implementation at the different phases such as pre-construction, construction and operation. Each of the identified adverse impact will have to be mitigated or compensated whereas the possible and practical benefit enhancement measures will have to be proposed for the beneficial impacts. Environmental Management Plan (EMP) is developed to ensure the implementation of the proposed mitigation measures, which includes the implementation mechanism of the proposed mitigation measures and environmental monitoring plan, responsibilities and cost.

7. Electricity Act 1992

Any person or corporate body who wants to conduct survey and generation, transmission or distribution of electricity over 1000 kW is required to obtain a license under Section 3 of the *Electricity Act 1992*. Majority of subprojects will not be larger than 1000 kW, thus applications will not be required for them. However, certain information must be provided to the prescribed officer for the subprojects having capacity from 100-1000 kW before generating, transmitting or distributing hydroelectricity. Under Section 3 of the Electricity Regulation 1993 the following particulars must be provided: (i) detailed description of the project; (ii) map of the project (showing main structure/s); (iii) source of water and quantity of water to be utilized; (iv) area where electricity is to be distributed and estimated number of consumers to be benefited; (v) whether the water resource to be utilized has already been utilized by another or not, if so, particulars of the same; and (vi) other necessary particulars.

The Electricity Act of 1992 has provision of land procurement for the development projects that involves electricity generation. The Act states that the licensee may submit an application to GoN to purchase the land or house of any person if it is required for the generation, transmission or distribution of electricity. Upon the receipt of such an application, GoN may make the land or house, so requisitioned, available to any corporate body under the prevailing laws.

8. Water Resources Act 1992

The *Water Resources Act 1992* has provision of timely legal arrangements for determining the beneficial uses of water resources, preventing environmental and other hazardous effects and keeping water resources free of pollution. The Act states that no person is entitled to utilize water resources without a license except in the case of drinking and other domestic uses and irrigation.

A person or a corporate body that desires to conduct a survey of, or to utilize, water resources has to submit an application, along with an environmental study report and other prescribed particulars to the prescribed officer or authority.

Clause 7 of the Act sets out the priority uses of water - the use of water for drinking and domestic use, irrigation or agriculture, then the use of water for hydropower. Power generation from water takes priority over the use of water for cottage industries, industrial enterprises, mining, navigation and recreation. Clause 9 describes conditions for the use of water for hydroelectric purpose. Clause 20 stipulates that while utilizing water resources, it shall be done in such a manner that “no substantial adverse effect be made on environment by means of soil erosion, flood, landslide or similar other cause”.

The Water Resources Act of 1992 also addresses the issue of land acquisition and compensation. The Act states that GoN may acquire land and develop water resources for the purpose of extensive public use.

9. Land Acquisition Act 1977

The *Land Acquisition Act 1977* authorizes the Government of Nepal to acquire any land in any place for any public purpose as long as compensation is provided for. The government may decide to acquire land for an institution upon its request to construct residential quarters for its staff, to operate a project or to construct a godown for the storage of any commodity. According to the act, public purposes include functions undertaken in the interest of or, for the benefit or use of, the general public as well as functions to be undertaken by GoN.

With respect to the resettlement policy framework, the following legal provisions outlined in the Land Acquisition Act are relevant:

- The acquisition and compensation of privately owned assets are undertaken according to a formal procedure, consisting of (a) initial procedures, (b) a preliminary investigation process, (c) acquisition notification, (d) compensation notification, and (e) appeal procedures.
- Compensation Determination Committees are established (at district level) to ascertain compensation rates for land and other assets.
- Compensation must be paid (a) for damages caused as a result of investigations during the preliminary investigation process, and (b) for land and assets permanently acquired by the project (including, standing crops, trees and houses).
- Compensation must take depreciation for salvage materials into account.
- Compensation must be in cash (lump sum), although titleholders who have lost all of their landholdings may be given replacement land, if available.
- Compensation will be made to the person who has the right to claim for the compensation; to be entitled to compensation for land, a person must submit an official land registration certificate at the time of compensation.
- Titleholders are required to submit compensation claims or complaints within a specified period after the land acquisition notice had been issued by the Local Authority (Chief District Officer). Compensation for land is paid after determination of rates and verification of the list of entitled applicants by the CFC.
- Two separate rates of compensation can be paid i) to titleholders who lose all their land,

and ii) to titleholders who lose only some part of their land.

- In determining the compensation amount, the committee has to consider relevant periodic guidelines of GoN and the loss suffered by persons due to acquisition of land, shift of residence or place of business to another place.
- While determining the compensation amount, the CFC has to consider price of the land prevailing at the time of notification of land acquisition, price of standing crops and structure, and damage incurred by persons being compelled to shift their residence or place of business due to land acquisition.

10. Land Revenue Act 1977

Land acquisition for the project involves change of ownership of land. Article 8 of this act states that registration, change in ownership, termination of ownership right, and maintenance of land records is done by Local Land Revenue office. Similarly article 16 affirms, if land revenue is not paid by the concerned owner for long period of time, the revenue can be collected through auction of the parcel of land for which revenue has been due. In any case, the details of land acquisition and ownership transfer involved during acquisition and payment of compensation are directly or indirectly guided by this act.

11. Labour Act, 2017

The Labor Act 2074 (2017) has set out the duties of employer towards workers which include making appropriate safety and health arrangement, arrangements ensuring no adverse effect on workers from use, operation, storage or transport of chemical, physical or biological liquids, disseminating necessary notice, information and training related to safety and health arrangements. On top of this, the act has made provisions of medical and accidental insurance, defined the working hours, enumeration and leave etc. for employee.

12. Land Acquisition, Resettlement and Rehabilitation Policy for Infrastructure Development Project, 2015

This policy intends to improve social and economic status of project affected families by providing fair and adequate compensation, appropriate resettlement and rehabilitation assistances/allowances while acquiring land for infrastructure development projects and projects of public interests. It has also categorized the project as High Risk, Medium Risk and Low Risk based on magnitude of development project impact. Similarly, it also envisaged about land acquisition process such as Voluntary Land Donation, Direct Negotiation, Land development Programme and Expropriation, if land couldn't be acquired through any of these approaches, the required land will be acquired by providing compensation and other benefits as per the provisions of the prevailing land acquisition act.

13. Local Governance Operation Act, 2017

The *Local Self Governance Operation Act 2017* empowers the local levels for the conservation of soil, forest and other natural resources and implements environmental conservation activities. The Act provides the local levels (current Municipalities and Rural Municipalities) a legal mandate to formulate and implement programs related to protection of environment and bio-diversity.

14. National Parks and Wildlife Conservation Act 1973

The *National Parks and Wildlife Conservation Act 1973* deals with the conservation and management of wildlife and habitat. Any subproject proposed in national parks has to comply with the provision made in this Act. The Act restricts entry into national parks without prior permission of the concerned authority. Article 5 of the Act prohibits hunting of animals or birds, building or occupying houses, shelters or structures, occupying, clearing or planting or growing in any part, cutting, felling, removing or overshadowing any tree and removing any quarry or any other activities in national parks. Under the *National Parks and Wildlife Conservation Regulation 1974*, permission is required for entry into designated national parks. Section 22 of the Regulation deals with the permission required to prepare an inventory of plants and animals in national parks and wildlife conservation areas. Under Section 6 of the Wildlife Reserve Regulation, 1977, entry, construction of houses or sheds, clearance of forest and forest products, quarrying and overnight stay in a reserve area is prohibited unless authorized in writing by the relevant GoN authority. Section 11 of the Regulation restricts surveys and research works in these areas without prior written approval. All vehicles and persons passing through reserve areas are subject to security check.

15. National Foundation for Upliftment of Aadibasi/Janjati Act 2002

This act is made to provide for the establishment and operation of National Foundation for upliftment of *Aadibasi/Janjati* for social, economic and cultural development and for their equal participation in the mainstream of national development. The act has further defined the *Aadibasi/Janjati* in section 2 clause a as “a tribe or community as mentioned in the Schedule having its own mother language and traditional rites and customs, distinct cultural identity, distinct social structure and written or unwritten history”. The act also intends to formulate, implement or cause to be implemented the programme necessary for promotion and preservation of the language, script, literature, history, arts, culture, traditional skill and technology of the *Aadibasi/Janjati*.

16. Forest Act 1993

This Act requires decision makers to take account of all forest values, including environmental services and biodiversity, not just the production of timber and other commodities. It includes several provisions to ensure development, conservation, management, and sustainable use of forest resources based on appropriate planning.

17. Forest Rules 1995

These rules elaborate legal measures for the conservation of forests and wildlife. Tree cutting clearance is required from the Department of Forest. Expenses incurred for cutting trees and transportation is to be borne by the infrastructure developer.

18. Child Labor (Prohibition and Regulation) Act 2000

The Child Labor (Prohibition and Regulation) Act 2000 is the main legal document to prohibit the engagement of children in laborious activities and to make necessary provisions with regard to their health, security, services and facilities while engaging them in other activities.

Under the Section 3 of the Act, child having not attained the age of 14 years is strictly prohibited to be engaged as a labourer. Similarly under Section 4, engagement of child in works as a laborer

against his/her will by way of persuasion, misrepresentation or by subjecting him/her to any influence or fear or threat or coercion or by any other means is prohibited. Under Section 6, in case any Enterprise has to engage a child in works, an approval has to be obtained from the concerned Labour Office or any authority or official prescribed by that office and from the father, mother or guardian of the child.

19. Ancient Monuments Preservation Act 1956

According to the *Ancient Monuments Preservation Act 1956* (5th amendment 2052), "Ancient Monument" means temple, monument, house, abbey, cupola, monastery, stupa, bihar etc which have their importance above one hundred year, from the point of view of history, arts, science, architectonics or art of masonry, and this word shall also mean the site of the monument as well as the human settlement or place, and remnant of ancient human settlement, relics of ancient monument, cave etc having specific value from the national or international point of view irrespective of the fact that such settlements or places are adjoining with each other or are separate in the same area.

20. Buffer Zone Management Regulation 1996

The *Buffer Zone Management Regulation, 1996* has mandatory requirement to have permission of Warden to carry out following activities within a buffer zone area:

- Occupying any land without legal ownership or cutting trees, clear forest or cultivate forestland
- Any activity damaging forest resources or setting fire in the forest
- Excavating stone, earth, sand or mine or removing minerals, earth or other such materials
- Using any harmful poison or explosive substances into the river, stream or source of water flowing in the buffer zone, and
- Hunting illegally and any act damaging to the wildlife.

21. Hydropower Development Policy, 2001

Provisions of the Hydropower Development Policy, 2001 that relate to MHP include (i) generating "at low cost by utilizing the water resources available in the country"; (ii) the extension of "reliable and qualitative electric service throughout Nepal at a reasonable price"; (iii) "electrification of remote rural areas shall be encouraged by operating small and micro hydropower projects at the local level"; and (iv) "support for the development of rural economy by extending the rural electrification". The Policy requires the mitigation of adverse environmental impacts likely to result from the operation of hydropower projects. This includes a key provision that requires the release of an environmental flow from each diversion weir, essentially to maintain the sustainability of aquatic ecosystems and other river uses, set out as: "Provision shall be made to release such quantum of water which is higher of either at least ten per cent of the minimum monthly average discharge of the river/stream or the minimum required quantum as identified in the environmental impact assessment study report."

22. Rural Energy Policy, 2006

The main rationale of formulating Rural Energy Policy is to create conducive environment that will self motivate and mobilize local institutions, rural energy user groups, non- government organizations, cooperatives and private sector organization for the development and expansion of rural energy resources. The government will act as facilitator and promoter for involving private

sector and non-governmental organizations to be involved in rural energy development for development and expansion of new technologies. It has also envisioned subsidy provision for promotion of such renewable energy technologies.

Legal Framework and Policies Focusing on Vulnerable Groups

Nepal does not have a standalone plan and policy on vulnerable and indigenous people. However the groups potential to vulnerability such as children, elderly citizens, disabled, landless and small farmers, women, *Dalits* and marginalized, aboriginal and ethnic groups etc. are covered under different headings in the Tenth Plan, which has been reiterated in 14th national plan (FY 2073/74 – 2075/76) too.

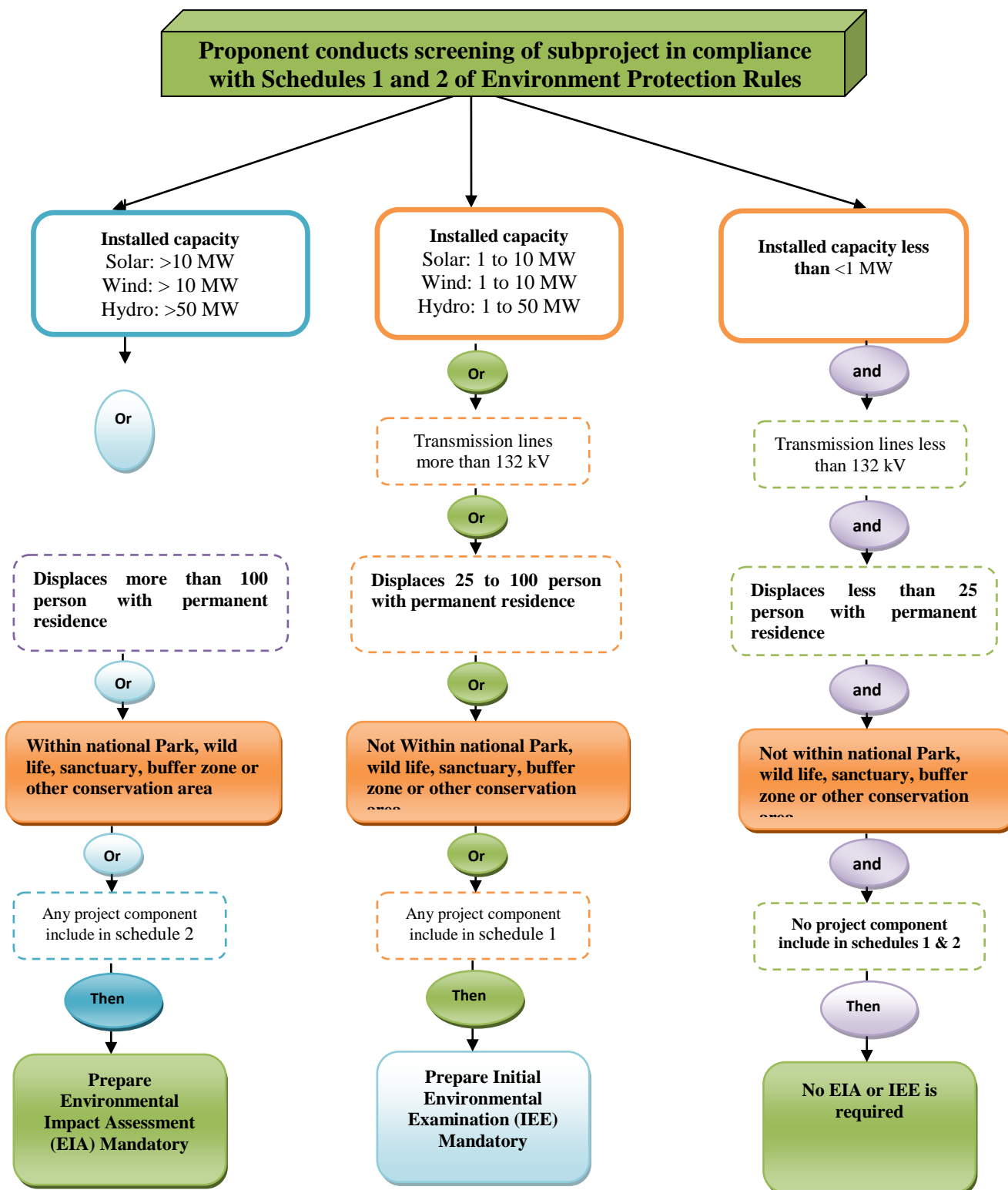
The Fourteenth Plan of GoN also defines that the areas where more than 50 percent of population is poor and the families have no extra income other than their own household production and which is sufficient for less than 9 months are designated as the poor areas. Likewise a family whose income is sufficient for less than three months is categorized as ultra poor who need to be supported for their livelihoods. One of the main thrusts of the Tenth Plan is the implementation of targeted programs for upgrading, employment and basic security of Dalits, indigenous people and disabled class. The policy provision also outlines that the government should pilot strong and separate package of program of basic security for vulnerable sections of society. Policies and actions for their protection and development have been also developed in the plan. The Plan states that targeted and empowerment programs shall be promoted to enhance the welfare of vulnerable, disadvantaged and exploited groups, the *Dalits* and indigenous scheduled caste groups.

The Plan has given emphasis in implementing different types of income generation supportive programs targeting the poor and vulnerable people. It is also recognized in the Plan that some *Dalits* being occupied as *kami* (blacksmith), *damai* (tailor) and *sarki* (cobbler) have suffered in recent years from loosing traditional markets for their products due to the increasing import of cheaper goods from urban foreign markets. Towards solving this problem, it seems necessary to design and implement different types of skill training programs aiming at specified groups.

Some of the other related acts on various vulnerable communities are (i) National Foundation for Upliftment of Adhibasi/Janajati Act, 2058 (2002) (ii) Bonded Labour Abolition Act, 2058, (iii) Children related Act, 2048 and (iv) Child Labour (abolition and regulation) Act, 2056. However, detailed plan and policies on vulnerable communities in Nepal is yet to be developed particularly on involuntary resettlement for the vulnerable communities.

The World Bank policy includes “the poor, women, and indigenous peoples, those less able to care for themselves (children, the elderly, and the disabled); and other groups not protected by national land compensation law (those without land use rights; host communities; and community members remaining in the original area after resettlement)” as vulnerable people’s communities. The ADB policy document on involuntary resettlement defines vulnerable groups as ‘those that fall below the poverty line, those without legal title to assets, household headed by women, indigenous people, ethnic minorities, and pastoralist.’ These donor agencies have given major focus to provide special attention to the vulnerable communities during involuntary resettlement activities.

Annex 2: Schematic diagram of GoN process for EIA/IEE



Annex 3: Identification of Potential Environmental and Social Risks and Impacts

1. Pre-construction Phase

The community will be informed about the project activities and likely impacts, and the mitigation measures. Environmental and social screening will be undertaken at an early stage in all subprojects, which will provide necessary information on the potential impacts likely to be encountered during implementation of the subprojects. During this stage various stakeholders such as beneficiaries, farmers, representatives from rural municipalities/municipalities, indigenous community, women, Dalits, and other local key informants this screening will be consulted which provides information about

- beneficiary population living within various impact zones of the project based on distance;
- extent of land required and number of land owners affected;
- impacts on poor and vulnerable groups including needs and priority for social and economic betterment;
- willingness of people for voluntary or negotiated land donation;

2. Construction Phase

2.1 Bio-physical Environment

2.1.1 Landscape disturbance

Construction of the project involves excavation, slope cutting and grinding which changes in local topography and disturb the slope. The construction works especially excavation will have adverse impact on the existing situation of weak physical zones. One of the major impacts from construction of such project in the hill region is slope instability. The placement of the project structures will change the landscape of the site.

Mitigation measures

- Minimal disturbance to the slopes,
- Implementation of appropriate slope protection structure,
- Construction of adequate and appropriate drainage systems, and
- Re-vegetation of the disturbed slopes and application of the proper bio engineering measures.

2.1.2 Land degradation and land stability (Landslide and soil erosion)

Land degradation is expected at the site used for labor camp and storage area. Landslide is expected in excavated slopes, spoil disposal and other areas. The excavation and digging of the land area, removal of vegetation may aggravate soil erosion due to light weight, high porosity and absence of ground vegetation (such as trees, grass turf, shrub and bushes etc.). This situation may be challenging during wet season and proper advance and timely planning shall overcome further deterioration.

Mitigation measures

- Minimum cutting of unstable slope,
- Proper drainage management,
- Geologically safe and stable site shall be selected for the labor camp;
- Spoil disposal area shall be away from the water source/bodies and disposed at designated tipping sites.

2.1.3 Change in land use pattern

The construction of mini grid project structures such as weir, powerhouse, penstock pipe, solar panel, wind met mass and pole installation will be required land taking and change the existing land use condition of the affected site. It may include cultivated land and private land. This land will be acquired by the proponent for construction of project components and will permanently turn into project area. Land use will also be temporarily affected by different project activities such as construction of labor camp and other facilities (toilets, water supply and sanitation etc), stock piling of the construction materials.

Mitigation measures

- Use of unproductive and barren land to the extent possible,
- Temporarily used land will be reinstated to its original or even better position after completion of the work and before handing over to the respective landowner.

2.1.4 Air Pollution

The impact on air quality is likely to be limited and much confined to a small area. Impact on ambient air quality will be generated from activities such as excavation, site clearance, and emission from the construction equipment and diesel plant, which might generate dust, particular matters, carbon monoxide, oxides of nitrogen and sulphur. Dust production will be more acute during dry seasons compared to wet season and during the construction period. Emission of dust and other oxides in the project site is site specific and has short-term effect on the project site. The other potential impact on air quality is unpleasant odor due to inappropriate management of sewers, solid waste and indoor smoke pollution due to cooking activities.

Mitigation measures

- Spraying of road surface with water twice a day,
- Prohibition of open storage and spillage of loose soil sands and aggregates in and around construction site near the settlement areas,
- Covering of the stock piled construction materials and spoils,
- Regular check-up and maintenance of the equipment,
- Batching plant, crushing plants and the diesel generators will be provided with smoke/dust stacks to minimize air emission.

2.1.5 Noise level

Construction activities and diesel plant will generate noise and vibration. In case of solar wind project, wind turbine produces continuous noise from blade movement through the air and

turbine mechanical noise. The construction workers will be in direct exposure to the generated noise.

Mitigation

- Contractor shall use heavy equipment, machinery, and fuels in compliance with national regulations,
- Contractor must provide hearing protection devices such as earmuffs and earplug to the construction workers,
- Minimize the use of drilling machines, vibrator, in order to maintain the level of noise pollution less than 65 dB at a time,
- All equipment and machinery will be maintained to manufacturer's specifications to minimize unnecessary noise emission.
- Noisy works (such as quarry operation, drilling and use of breakers etc.) shall be strictly prohibited during night time.

2.1.6 Water quality

The construction activities are likely to increase the turbidity, suspended solids in the project site. Disturbance of the river bed, disposal of unwanted materials on the river bank, etc. will increase the turbidity, suspended solids and dissolved solids in the river. This will have some adverse impacts on aquatic life of the river between proposed intakes to tailrace. The improper management of waste, both solid and liquid, generated by the people directly or indirectly involve in the project will result in increased BOD and coliform. This might have an adverse impact on aquatic life and public health of the local people in project area and downstream. Liquid waste may be produced as a result from the construction activities and from the use of lubricants, paints, cleaning, and construction chemicals. Some liquid wastes might produce as a result of leak from construction equipment accidental spillage during materials transfer and storage and also from improper and inadequate management, as lubrication of equipment and oil changing are the common practices in construction equipment. Solar and Solar/Wind subproject might not have any impact on water quality.

Mitigation measures

- Direct discharge of any kinds of wastes in the river will be strictly prohibited.
- The oils and lubricant will be stored properly and disposed in proper way.
- Toilet with septic tank will be constructed in labor camp area to avoid disposal of sewage directly in to river.
- Outside labor force including labors of the Petty Contractor shall be mandatorily accommodated in the designated labor camp.
- Open defecation by the labor will be strictly prohibited.

2.1.7 Solid Waste and Muck Disposal

During construction period, two type of waste will be generated from the work site i.e. domestic waste and construction waste. The amount of domestic waste depends on the number of workers

involved in construction. The disposal of construction material, excavated materials, cement bags, iron bars in the project area will have adverse impact on the environment.

Mitigation measures

- The domestic waste will consist of organic food waste that are biodegradable in nature and are non hazardous. These wastes will be managed by using it as stock feed and/or disposed by burying in pit at distances of about 100m away from river banks and covering with soil. The size of the pit will depend on the human resources and generated volume of waste.
- Non biodegradable waste like plastic wooden planks, empty cement bags and containers, rejected materials etc, will be stored out and kept separately instead of throwing haphazardly elsewhere. 3R strategy of waste management will be applied for minimization of the waste volume.

2.1.8 Stockpiling of Construction Materials

Construction materials need to be stockpiled before their application at the site. If large amounts of construction materials such as earthen materials, gravel, aggregates, sand etc. are stored for a long period near the construction site, they may become the source of escaping dust pollution and also the adjacent land may get damaged.

Mitigation measures

- Stockpiling of construction materials along existing roadside and highly productive land will be strictly prohibited,
- The useful spoil materials will be used in construction work,
- Remaining construction debris will be disposed at designated disposal site only, far away from water resources and precaution will be made on minimization of such waste as far as possible through environment friendly concepts,
- The area will be cleaned and reinstated promptly after completion of the project.

2.1.9 Visual Impact

The visual impact of wind turbines and solar panels is not considered to be too high. Number of wind turbine and solar panel used will depend upon the size of the subproject.

Mitigation measures

- Infrastructure will be designed so as to minimize visual impact.

2.1.10 Birds and Bats Mortality

Moving wind turbine blades can cause birds and bats death and injury. Collision of birds with rotating blades or static elements of turbines leads to death or damage. Barotrauma, internal hemorrhage induced in bats flying through the low-pressure zone around the wind turbines leads disruption in the natural life-processes and may cause death.

Mitigation Measures

- Continuous Bird and Bat Monitoring in the project area shall be performed
- No nesting at transmission cables
- There should be adequate spaces between each turbine for movement of birds which would reduce the probable accidental collision
- Daytime visual markers shall be provided on any wires used to support towers to enhance visibility of the wires to birds;
- Suitable visibility enhancement objects shall also be installed along the transmission line to avoid avian collision;
- Native vegetation with suitable species must be planted or allowed to grow around the wind turbines;
- Appropriate storm-water management measure shall be implemented after due feasibility to avoid creating ponds which can attract birds and bats for feeding or nesting in the project area;
- Consultation with Ornithologist shall be done for specific subprojects that might have impact on birds.

2.1.11 Forest and Vegetation

The project structure may affect any type of forest such as community forest, government forest, leasehold forest and private forest. There may be loss of trees.

During construction phase, numerous labors will be involved, the labor force and their dependent may use firewood from surrounding forest for cooking and timber for making sheds. So this will lead to increased pressure on forest resources.

Mitigation measures

- Compensatory plantation (1:25) is recommended in case of loss of tress,
- Workers will be highly motivated to use biomass, improved cooking stoves, kerosene or LPG for cooking.

2.1.12 Hunting and Poaching

The possibility of hunting and poaching by workers during the construction period will have some adverse impact on mammalian and avian fauna. The hunter in the work force might be attracted to hunt wild animals. However, such pressure on birds and animals will be site specific and decreases as the work completes.

Mitigation measures

- Contractor shall monitor the activities of construction workers,
- Awareness program about wild life and birds' conservation shall be provided to the workers.

2.2 Socio-economic and Cultural Environment

2.2.1 Change in Demographic Profile

The project construction will attract a large number of workers, job seekers, entrepreneurs and their dependents to the project area. The arrival of new people may change the population structure in the area. This might affect social and cultural norms and values, and result in loss of community strength.

Mitigation measures

- The influence of people from outside the project area will change the demographic profile of the project site and also increase the conflict among the local communities. So the most priority will be given to the local people as per their knowledge, skill and experiences in order to decrease the arrival of external worker.

2.2.2 Community and Occupational Health and Safety

The construction of mini-hydro, solar and solar/wind mini grid projects is machine based and numbers of equipment are required during construction period. In addition, working in steep slopes may cause accidents and injuries. The most common injuries that might occur are due to falls from scaffoldings or other structures, injuries due to falling objects such as rocks or other construction equipment, collapse from excavations, and drowning. Therefore, occupational health and safety hazard may arise during the construction period.

Mitigation measures

- Contractor shall provide awareness training to the worker
- The necessary precaution and warning sign will be placed at the work site. This area will be controlled for the entry of unauthorized person and vehicles. The major construction area is fenced off at entry point to avoid disturbance and risk. Personal Protection Equipment (PPE) such as hard safety hat, protective eye glasses, safety boot, and ear plugs, power-cutting device, and other necessary safety equipment will be provided to the work force during construction period. Toilet facilities, drinking water supply, and use of mask are the other mitigation measures necessary to minimize impacts associated with occupational safety.

2.2.3 Health and Sanitation

The presence of work force in the project sites may affect the health and sanitation situation of project site. There may also be the problems of sewage disposal. Sanitation problems due to open defecation may arise which may lead to contamination of water. Such contamination may lead to outbreak of the communicable diseases. Gathering and contacting local people may lead to transmission of infectious/communicable diseases. Disease transmission is facilitated by the migration of people, particularly among migrant laborers. If proper sanitary conditions are not maintained in the camps, it may create pool of waters and pile of waste which will attract vermin and vector diseases. Such vectors and new diseases may spread to local population, who are not immune to such diseases. Increased movements of people (from or to outside) may introduce new diseases to the area (particularly, communicable diseases like Tuberculosis, cholera). Spread

of HIV/AIDS and other STDs are of major concern with influx of migrant labor in the project area.

Mitigation measures

- Project workers as well as the local people shall be provided periodic awareness program on health and sanitation to control open defecation and communicable diseases.
- Awareness program will also include the use of toilet and safe drinking water. Similarly, awareness programs will also be provided to the local people including the affected families on proper utilization of money, saving and investment on income generation activities, control the gambling and alcoholism etc.

2.2.4 Labor influx management

Influx of workers and additional populations (followers - family members of workers, traders, etc) can lead to adverse social and environmental impacts on local communities, especially if the communities are rural, remote and small. Such adverse impacts may include social conflicts within and between communities, increased risk of spread of communicable diseases, increased rates of illicit behavior and crime, gender-based violence, child labor, increased demand for goods and services that can lead to price hikes and crowding out of local consumers, increased volume of traffic and higher risk of accidents, increased demands on ecosystem and natural resources.

Mitigation measures:

- Reduce labor influx by tapping into local workforce
- Incorporate social and environmental mitigation measures into the civil works contracts
- Adopt worker code of conduct with associated penalties for violation
- Establish a functioning sub-project level Grievance Redress Mechanism (GRM)
- Transparent local community engagement and participation throughout life of the project.

2.2.4 Gender and Vulnerable Group

In general the employment opportunity will be more to men in comparison to women in development projects due to lack of information sharing, participation in decision making, etc. and this trend may continue in this project as well. The contractor may discriminate the women and vulnerable group while hiring workers. The impact of the project construction is also expected on poor and disadvantaged group who might not be affected directly by the project but affected in other ways such as price hike, shortage of consumable goods, social inferiority and less opportunity of project related benefits.

Mitigation measures

- The project will not discriminate local people based on gender, caste, color or place of origin and vulnerable group. The project will prohibit the use of child labor. Women employment will be encouraged in the project. The job facilities, incentives to female will be provided at the same level as male. The project will provide an equal opportunity for both male and female and marginal groups depending upon their capabilities.

2.2.5 Employment opportunity

One of the major positive impacts of the project is the creation of employment opportunity to local people. Much skilled, semi-skilled and unskilled human resources will be required for the construction of the project. Major part of the required labor force will be supplied locally. These employment opportunities will increase the income level of the local people thus raising their living conditions.

Enhancement measures

- The project shall emphasize to hire the local people depending upon their qualification and skill for the construction and operation phase of the project. Due priority will be given to disadvantaged group and people likely to be affected by the project.

3. Operation Phase

3.1 Bio-physical Environment

3.1.1 Waste Hazard

The waste generated from the workplace during operation and maintenance of power plant will have adverse impact on local area. Since the number of employees during the operation phase is limited, the magnitude of impact is low, site specific and for long duration.

In terms of solar subprojects, the main waste that will be produced is used lead acid batteries. Sealed maintenance free batteries shall be considered for the energy storage purpose hence there will be no risk of acid burn during its operational phase. A quality Lead Acid Battery has a life of around 8-10 years. Solar PV modules have a guaranteed life of 25-30 years so they are not of much concern for a considerable period of time. Other wastes might include electrical, metallic and stationary wastes of office works, which can accumulate over a period of time.

Mitigation measures

- The Contractor shall be asked to provide battery management plan, which shall include specific plans for storage, haulage and recycling of the Used Lead Acid Batteries (ULABs). Other wastes shall be collected and stored securely and appropriate management shall be carried out.

3.1.2 Deterioration of fish habitat

In case of mini-hydro, the flow in the river water will be decreased due to diversion and dewatering of water from intake to powerhouse. There might be no effect of reduction of water during monsoon but during dry season, this section of river might be dry which will affect fish and aquatic life in the dewatered section.

Mitigation measures

- The legal provision made for the minimum environmental flow i.e.10% flow during the driest month in the dewatered zone will be strictly followed and will be ensured by regular monitoring to maintain the fish population.
- Baseline assessment shall be carried out to ascertain the type of fish and its population,

possibility of seasonal migration etc. Fish ladders suitable to fish species shall be provided to maintain the connectivity between U/S and D/S movement of migratory fish (if any)

Socio-economic and Cultural Environment

3.2.1 Occupational Health and Safety

Occupational health and safety aspect is one of the likely impacts to be experienced during the operation and maintenance phase of the project. Access to electricity may also bring some hazard like electric shock to local visitors. Similarly, lack of the adequate training on operation and maintenance skill and unavailability of personal protective equipment may cause risks for workers.

Mitigation measures

- Training on safety aspects of operational activities should be provided to the workers. Safety warning signs will be installed in appropriate construction sites. Contractor shall follow “Occupational Health and Safety Measures”. The provision of the first aid health facility and rescue during emergency at the work site will be provided. The Contractor will bear the cost for any injuries or death of workers, if any, and the compensation will be based on the existing legal regime. Personal equipment like helmets masks, eye protector, protective clothing, boots gloves and safety harness shall be provided to construction workers, supervisors and visitors. Only authorized personnel will be appointed to operate machinery and heavy equipment.

3.2.2 Community Health and Safety

Community health and safety aspect is one of the likely impacts to be experienced during the operation and maintenance phase of the project. Access to electricity may also bring some hazard like electric shock to local people.

Mitigation measures

- Community shall be oriented and trained about the consequences of electrocution and safety measure to be taken.

Environmental and Social Mitigation and Monitoring Plan Matrix

Micro/Mini Hydro, Solar, and Solar/Wind Subprojects

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
Pre-construction Phase					
Bidding Process	Incorporation of ESMP Measures in to Contractual documents	ESIA and ESMP	Bidding	AEPC	AEPC
Construction Phase					
Bio-physical Impacts					
Land use change	<ul style="list-style-type: none"> • Use of minimal land area for project structure • Distribution poles will be erected as far as possible on the road edge as well as on the edge of the agricultural terraces wherever applicable • Disturbed area will be vegetated 	ESIA/ ESMP	During construction	ESCO, CC	AEPC
Soil loss	<ul style="list-style-type: none"> • Excavation activity will be limited to actual construction sites. • Most of the excavated material will be used for backfilling purposes wherever required. • Special care needs to be provided in handling materials to prevent spillage of chemicals. • Accidental spillage into ground shall be responded immediately for their prompt 	ESIA/ ESMP	During construction	ESCO, CC	AEPC

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
	management.				
Noise	<ul style="list-style-type: none"> Heavy equipment, machinery and fuels shall be used in compliance with national regulations. Adequate hearing protection devices such as ear muffs and ear plugs will be provided for the construction workers. 	ESIA/ ESMP/ Noise Level Standard of GoN	During construction	ESCO, CC	AEPC, CC
Air	<ul style="list-style-type: none"> Water spray will be practiced in excavated area Dust shall be minimized at the source Regular maintenance of vehicles and machine used for construction Supply of appropriate personal protection equipment such as breathing masks and safety goggles to the construction workers in order to protect them from exposure to dust and other pollutants. 	ESIA/ ESMP/Air Quality Standard of GoN	During construction	ESCO, CC	AEPC, CC
Forest and vegetation	<ul style="list-style-type: none"> The contractor will monitor the activities of the construction workers to control hunting and poaching. Awareness among the worker for conservation of the wildlife shall be provided 	ESIA/ ESMP	During construction	ESCO, CC	AEPC, CC, UC

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
Socio-economic Environment					
Demographic profile	<ul style="list-style-type: none"> Contractor shall hire local people during construction. 	ESIA	During construction	ESCO, CC	AEPC, CC
Employment	<ul style="list-style-type: none"> The contractor shall recruit local human resources to the extent possible. Required skill development trainings shall be provided to the local human resources 	ESIA/ ESMP	During construction	ESCO, CC	AEPC, CC
Increased business	<ul style="list-style-type: none"> Daily essential goods shall be purchased from the local market to the extent available 	ESIA/ ESMP	During construction	ESCO, CC	AEPC, CC
Health and Safety	<ul style="list-style-type: none"> Develop a health and safety plan and ensure its strict implementation Construction area shall be fenced off at entry point to avoid disturbance and risk Adequate and appropriate safety signs shall be placed at construction site in Nepali language Construction site shall have the provision of the first aid health facility and rescue during emergency Adequate Personal Protection Equipment (PPE) shall be provided by the contractor to the construction workers 	Contract document, ESIA, ESMP	During construction	ESCO, CC, OC	AEPC, UC, Rural Municipality/Municipality

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
	<ul style="list-style-type: none"> Fire-fighting equipments shall be positioned in the construction areas Standard earthing procedures will be used for the lightning protection of solar array and bank of batteries. 				
Gender and vulnerable group	<ul style="list-style-type: none"> Shall maintain gender equity in providing employment Most priority of job will be given to BPL and DAG family Prohibit recruiting child labor 	Contract doc/ ESIA/ EMP/Child Labor Prohibition and Regulation Act, 1999 and Rules	During construction and operation	ESCO, CC, UC	AEPC, CC
Operation Phase					
Bio-physical Impacts					
Waste generation	<ul style="list-style-type: none"> Battery management plan including specific plans for storage, haulage and recycling of the ULABs Pamphlets shall be provided to households outlining the safe handling and disposal of used lead acid batteries and CFL/LED lamps to prevent a risk to human health and the environment Collection, secure storage and appropriate management of other kind of wastes 	ESIA/ESMP	During operation	ESCO, CC, OC	AEPC, UC, Rural Municipality/Municipality

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
Socio-economic Impacts					
Local employment	<ul style="list-style-type: none"> To the extent available, the staffs required for operation of the project will be hired from the local area. Required trainings on the operation and maintenance shall be provided to the recruited staffs by the supplier. Most priority will be given to disadvantaged group and people likely to be affected by the subproject 	ESIA/ ESMP	During operation	ESCO, CC, UC	
Safety	<ul style="list-style-type: none"> The workers shall be made aware of the handling techniques of the ULABs and other specific hazardous wastes Awareness pamphlets shall be prepared and distributed to the household users on safe handling and disposal of used lead acid batteries and CFL/LED lamps Awareness program on safety will be conducted for local people The mini grid installation area will be properly fenced to control the entry of 	ESIA/ ESMP	During operation	ESCO, CC, OC, UC	AEPC, Rural Municipality/Municipality

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
	unauthorized person check <ul style="list-style-type: none"> • Flowers will be planted along the fence area to maintain greenery. • Appropriate safety signs shall be placed at applicable locations in Nepali language. 				

Mini Hydro Project

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
Pre-construction Phase					
Bidding Process	Incorporation of EMP Measures in to Contractual documents	ESIA and ESMP	Bidding	AEPC	AEPC
Construction Phase					
Bio-physical Impacts					
Land use change	<ul style="list-style-type: none"> • Use of minimal land area for project structures • Distribution poles will be erected as far as possible on the road edge as well as on the edge of the agricultural terraces wherever applicable • Disturbed area will be vegetated 	ESIA/ ESMP	During construction	ESCO, CC	AEPC
Soil loss	<ul style="list-style-type: none"> • Excavation activity will be limited to actual construction sites. • Most of the excavated material will be used for backfilling purposes wherever required. • Special care needs to be provided in handling materials to prevent spillage of chemicals. • Accidental spillage into ground shall be responded immediately for their prompt management. 	ESIA/ ESMP	During construction	ESCO, CC	AEPC

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
Noise	<ul style="list-style-type: none"> Heavy equipment, machinery and fuels shall be used in compliance with national regulations. Adequate hearing protection devices such as ear muffs and ear plugs will be provided for the construction workers. 	ESIA/ ESMP/ Noise Level Standard of GoN	During construction	ESCO, CC	AEPC, CC
Air	<ul style="list-style-type: none"> Water spray will be practiced in excavated area Dust shall be minimized at the source Regular maintenance of vehicles and machine used for construction Supply of appropriate personal protection equipment such as breathing masks and safety goggles to the construction workers in order to protect them from exposure to dust and other pollutants. 	ESIA/ ESMP/Air Quality Standard of GoN	During construction	ESCO, CC	AEPC, CC
Forest and vegetation	<ul style="list-style-type: none"> The contractor will monitor the activities of the construction workers to control hunting and poaching. Awareness among the worker for conservation of the wildlife shall be provided 	ESIA/ ESMP	During construction	ESCO, CC	AEPC, CC, UC
Socio-economic Environment					

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
Demographic profile	<ul style="list-style-type: none"> Contractor shall hire local people during construction. 	ESIA	During construction	ESCO, CC	AEPC, CC
Employment	<ul style="list-style-type: none"> The contractor shall recruit local human resource to the extent possible. Required skill development trainings shall be provided to the local human resource 	ESIA/ ESMP	During construction	ESCO, CC	AEPC, CC
Increased business	<ul style="list-style-type: none"> Daily essential goods shall be purchased from the local market to the extent available 	ESIA/ ESMP	During construction	ESCO, CC	AEPC, CC
Health and Safety	<ul style="list-style-type: none"> Develop a health and safety plan and ensure its strict implementation Construction site shall be fenced off at entry point to avoid disturbance and risk Adequate and appropriate safety signs shall be placed at construction site in Nepali language Construction site shall have the provision of the first aid health facility and rescue during emergency Adequate Personal Protection Equipment (PPE) shall be provided by the contractor to the construction workers Fire-fighting equipments shall 	Contract doc, ESIA, ESMP	During construction	ESCO, CC, OC	AEPC, UC, Rural Municipality/ Municipality

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
	be positioned in the construction areas				
Gender and vulnerable group	<ul style="list-style-type: none"> Shall maintain gender equity in providing employment Most priority of job will be given to BPL and DAG family Prohibit recruiting child labor 	Contract documents/ESIA/ ESMP/Child Labor Prohibition and Regulation Act, 1999 and Rules	During construction and operation	ESCO, CC, UC	AEPC, CC
Operation Phase					
Biophysical Impacts					
Waste generation	<ul style="list-style-type: none"> Pamphlets shall be provided to households outlining the safe handling and disposal of CFL/LED lamps to prevent a risk to human health and the environment Collection, secure storage and appropriate management of other kind of wastes 	ESIA/ ESMP	During operation	ESCO, CC, OC	AEPC, UC, Rural Municipality/ Municipality
Socio-economic Impacts					
Local employment	<ul style="list-style-type: none"> To the extent available, the staffs required for operation of the project will be hired from the local area. Required trainings on the operation and maintenance shall be provided to the recruited staffs by the supplier. Most priority will be given to 	ESIA/ ESMP	During operation	ESCO, CC, UC	

Impacts/ Issues	Mitigation Measures	Standard Guidelines Document	Time	Responsible Implementing Agency	Monitoring Authority/ Agency
	disadvantaged group and people likely to be affected by the subproject				
Safety	<ul style="list-style-type: none"> The workers shall be made aware of the handling techniques of specific hazardous wastes Awareness pamphlets shall be prepared and distributed to the household users on safe handling and disposal of CFL/LED lamps Awareness program on safety will be conducted for local people The mini grid installation area will be properly fenced to control the entry of unauthorized person check Flowers will be planted along the fence area to maintain greenery. Appropriate safety signs shall be placed at applicable locations in Nepali language. 	ESIA/ ESMP	During operation	ESCO, CC, OC, UC	AEPC, Rural Municipality/ Municipality

Note: AEPC: Alternative Energy Promotion Centre; CC: Construction Contractor; ESCO: Energy Service Company; OC: Operation Contractor; UC: Users' Committee

Annex 4: Good practice guidance on identifying critical habitats, assessing the risks, and developing mitigation measures

The experience of the Environment and Climate Change Canada is discussed below.

Critical Habitat Identification Toolbox is intended to be used by Environment and Climate Change Canada recovery practitioners and those who work with Environment and Climate Change Canada in the development of recovery documents where Critical Habitat (CH) identification is required. The objectives of the toolbox are to provide a broad framework and associated guidance and decision tracking materials in order to improve consistency and transparency in the CH identification process. It is not intended to provide prescriptive methods on how to identify CH in all situations. Rather, it is designed to be flexible enough to adapt to the various situations encountered by recovery practitioners, but structured enough to provide consistency in how CH is identified and presented. Even with this toolbox, recovery practitioners will still need to use professional judgment at various steps in the CH identification process, and involve others with expertise and knowledge. When shared with others who participate in the CH identification process, this toolbox will help to ensure a common understanding, terminology, and framework thus facilitating their involvement.

The guidance provided in the toolbox is intended to help the recovery practitioner work their way through the Broad Framework diagram and complete the Decision Tracking Workbook (which also contains more detailed guidance on specific fields, etc). The Broad Framework consists of six main steps:

- Step 1. Review Recovery Strategy Population and Distribution Objective(s)/SARA Timelines
- Step 2. Gather and Assess Information
- Step 3. Develop Criteria for CH Identification
- Step 4. Determine and Apply CH Identification Method/Approach
- Step 5. Assess Candidate CH Identification
- Step 6. Present CH Identification

Annex 5: Sample Environmental and Social Screening Checklists

Table 1: Sample Checklist for Environmental and Social Screening – Micro/Mini-Hydro Mini-Grids

The purpose of this checklist is to identify potential environment and social issues related to project development, construction and operation.

(A) Project Background

1.	Name of Proposed Project	
2.	Location	
3.	Project objectives	
4.	Brief description of the project	
5.	Capacity or size of the project	
6.	Powerhouse area, m ²	
7.	Penstock/canal length, m	
8.	Distribution length, m	
9.	Relevant national requirements (assessment, threshold limits etc.)	

(B) Project selection criteria

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
1.	Is there indication of: a. Significant adverse impacts on ecologically sensitive areas ²⁴ deemed unacceptable by AEPC> b. Large-scale resettlement ²⁵ ? Significant adverse impacts on cultural heritage?			
2.	If yes, can these impacts be fully eliminated through adequate application of mitigation measures? (If no, subproject is not eligible for support)			

²⁴ Significant adverse impacts on ecologically sensitive areas will be determined using international best practice and tools, as well as based on the outcomes of relevant studies conducted as a part of ESIA of the subproject.

²⁵ For the purposes of exclusion, large-scale resettlement is defined as physical displacement of a significant number of people / households. Physical displacement would mean relocation/ loss of shelter and assets resulting from the acquisition of land that requires the affected persons to move to another location.

(C) International Waterways and Disputed Territories

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
1.	Is there a possibility of activities supported by the project that have impacts on international waterways? If yes, what are the potential impacts?			
2.	Is the project site located in disputed territory? If yes, subproject is not eligible for support			

(D) Environmental and Social Screening

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
Project's siting				
1.	Define project's boundaries and area of influence			
2.	Is the project site adjacent to or within any of the following sensitive receptors?			
	i. Natural habitats and/ or legally protected areas (wetlands, forests, estuary, buffer zones, nature reserves); if yes, is there possibility of a critical habitat present ²⁶ ? What are the ranges of endangered or threatened animals/birds/plant species (if known at the time of screening)?			
	ii. Cultural heritage site (e.g. temple, mosque)?			
	iii. Is the site located on Aesthetically Important Viewpoints?			

²⁶ Critical habitat is defined based on global good practice as a subset of both natural and modified habitat that deserves particular attention. Critical habitat includes areas with high biodiversity value that meet the criteria of the World Conservation Union (IUCN) classification, including habitats of significant importance for required for critically endangered or endangered species as defined by the IUCN Red List of Threatened Species; habitats of significant importance for endemic or restricted-range species; habitats supporting globally significant concentrations of migratory species and /or congregatory species; areas with unique assemblages of species or which are associated with key evolutionary processes. Primary Forests or forests of High Conservation Value shall be considered Critical Habitats. This includes HCV forests. HCV areas do not directly correspond with definitions for modified, natural, and critical habitat. The HCV Resource Network, an internationally recognized group, provides information and support on the evolving usage of HCV to ensure a consistent approach. <https://www.hcvnetwork.org/>.

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	iv. Is the site located near main settlement and trade centres? Description (approximate no. of HH and population, nature and special feature/importance/significance)			
	v. Fragmentation of habitat of flora and fauna (Avifauna and mammalian fauna)?			
	vi. Are there any flood prone/river cutting / low lying areas near or within site? What are the challenges and opportunities associated flood/river cutting/low lying areas (if any)?			
	vii. Are canals and irrigation systems present in direct proximity to project site?			
	viii. Are there any water sources or springs near or within site?			
	ix. Is the proposed site located on agricultural land?			
	x. Is project site is accessible round the area or only in dry season? Description of condition of road/track (black top, fair weather etc.) or need to construct new road, total length, nearest road head etc.			
	xi. Is the proposed site located on area used by Indigenous people?			
Potential Environmental Impacts				
1.	Impacts on natural resources that constitute livelihoods of community (e.g. water resources, fishing, grazing or hunting grounds)?			
2.	Disfiguration of landscape?			
3.	Is there potential for landslide and soil erosion impacts? If yes, please provide following information: - Past and present conditions and values (including tentative area			

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	to be affected, risky areas) What are the challenges and opportunities associated with landslides and erosion (if any)			
4.	Change of surface water quality or water flows?			
5.	Changes to flow rates and patterns, velocities, water depth and water quality (estimate environmental flow to determine the required minimum flow)?			
6.	Will the project cause increase in waste generation? Describe types and expected amount of waste.			
7.	Increase water turbidity due to run-off and erosion?			
8.	Waste water from camping sites to be directly discharged to the surface water resources or not?			
9.	Construction waste directly discharged to the surface water?			
10.	Impacts related to upstream and downstream changes to sediment movement, sediment deposition, sediment composition and erosion?			
11.	Changes in drainage patterns and resulting effects due to construction of project components and access roads?			
12.	Might it cause loss of river connectivity and impacts to migratory fish and other aquatic species/ biodiversity?			
13.	Will there be forest loss in terms of area (if yes, type of forest)? Will it lead to loss of forest species (provide details of the loss of listed species according to national and international – specifically IUCN - classifications)?			
14.	Is loss of non-forest species possible? If so, are these listed species (as above)?			
15.	Creation of barrier for migratory land animal			
16.	Construction of permanent access road near or through the forest?			
17.	Other potential biodiversity impacts			

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	(specify)?			
18.	Loss or destruction of unique or aesthetically valuable land or water forms			
19.	Disturbance of large areas due to material quarrying			
20.	Disposal of large quantities of construction spoils			
Labor and working conditions				
1.	Are overall labor and working conditions expected to be satisfactory, in line with national law? Are there provisions for both direct and contracted workers in the labor-related policies of the developer?			
2.	Is there policy that provides for non-discrimination?			
3.	Does the client employ persons less than 14 years of age?			
4.	Does the developer plan to employ young workers (between 14 and 18 years or age) which on account of its nature or due to the condition in which it is carried out, endangers the life, health, or physical, mental, spiritual, moral, or social development of the young workers performing it?			
5.	Will there be migrant workers required for construction and / or operation of the facilities? If yes, estimate how many and if any labor influx issues may arise (worker accommodation, interactions with local communities etc.)			
Potential Community and Occupational Health and Safety Impacts				
1.	Is there community health and safety risk due to the transport, storage, use and/or disposal of materials likely to create physical, chemical and biological hazards?			
2.	Will the construction works disturb other commercial/community/residential activities?			
3.	Will the project create major			

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	noise/vibration?			
4.	Will it create dust problem around the sites?			
5.	Will it temporarily stop or impact on the water supply and sanitation system?			
6.	Any potential impacts to public health via potential water logging and degradation of land and water quality			
7.	Will any liquid waste, or an item containing liquids (including oils), need to be transported off-site for reuse, recycle or disposal?			
8.	Will any explosive and hazardous chemicals be used within the project?			
9.	Will project's construction cause disturbance to the transportation in the project's site?			
10.	Will building materials containing asbestos be removed/disposed?			
11.	Will any building materials be removed/disposed that are coated with lead-based paint?			
12.	Will any building materials be removed/disposed that contain lead, silver or chrome?			
13.	Will batteries be removed/disposed (lead-acid or nickel-cadmium batteries from emergency lights and other battery-powered or battery-backup items)?			
14.	Will mercury-containing devices (switches, gauges, thermostats) be removed/disposed?			
15.	Will an emergency generator set or other Aboveground Storage Tank (AST) be installed or removed?			
16.	Will there be social conflict in case of workers hired from other region?			
17.	Will there be substantial migrant labor required?			
Potential Social Impacts				
1.	Permanent land acquisition			
2.	Temporary land acquisition			
3.	Type of land required			

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	Private land Public land Government land Leasehold land			
4.	Type of land procurement Voluntary donation Involuntary acquisition Negotiation (Willing seller willing buyer)			
5.	Loss of productive land			
6.	Impact on structure (residential, commercial, others)			
7.	Impacts on livelihoods/ source of income resulting in economic displacement?			
8.	Impacts on ecosystem services for local and/or downstream communities (e.g. fishing)?			
9.	Is there any household (including non-titleholders) that need to be relocated?			
10.	Is the resettlement site environmentally and/or culturally sensitive?			
11.	Project's construction will cause any damage to the existing local roads system?			
12.	Will soil excavation during project's construction cause soil erosion?			
13.	Will project activities have adverse impact on school, drinking water supply system, other facilities?			
14.	Will project need to use existing or open new access roads? What will be the impacts of increased traffic on communities?			
15.	Will project cause encroachment on historical/cultural/religious areas?			
16.	Acquisition of private land leading to loss of shelter and livelihood			
17.	Involuntary land taking resulting in loss of income, livelihood, sources of livelihood, loss of access to common property resources and/or private residential and/or property resources			

S. N.	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
18.	Adverse impact on non-titleholders including loss of shelter and livelihood			
19.	Adverse impact to women including economic and safety concerns			
20.	Possible conflicts with and/or disruption to local communities			
21.	Significant issues raised by the stakeholders during consultation			
22.	Uncontrolled human migration into the area, made possibly by the subproject activities			
23.	Disproportionate impacts on the poor, children and other vulnerable groups			
24.	Community health and safety risks due to the transport, storage, and use and/or disposal of materials likely to create physical, chemical and biological hazards			
25.	Risks to community safety due to both accidental and natural hazards during project construction and operation			
	Will the project potentially cause community-related impact due to temporary influx of labor?			
Climate Benefits				
1.	Will project activities contribute in the reduction of GHG emissions? Description on the activities that contributes for the reduction of GHG emission			

Table 2: Sample Checklist for Environmental and Social Screening – Solar and Wind Power Mini-Grids

The purpose of this checklist is to identify potential environment and social issues related to project development, construction and operation.

(A) Project Background

1.	Name of Proposed Project	
2.	Location	
3.	Project objectives	
4.	Brief description of the project	
5.	Capacity or size of the project	
6.	Number of Solar Panels	
7.	Capacity per solar panel	
8.	Land requirement calculated based on capacity, size of panels, and number of panels	
9.	Number of wind turbines	
10.	Capacity per wind turbine	
11.	Tower height and blade length of wind turbine, m	
12.	Powerhouse area, m ²	
13.	Distribution length, m	
14.	Relevant national requirements (assessment, threshold limits etc.)	

(B) Project selection criteria

Sl. No	Screening Question	Yes	No	Comments (In the case select "yes", provide detailed information)
1	Is there indication of: a. Significant adverse impacts on ecologically sensitive areas ²⁷ , deemed unacceptable by AEPC? b. Large-scale resettlement ²⁸ ? c. Significant adverse impacts on cultural heritage?			
2	If yes, can these impacts be fully eliminated through			

²⁷ Significant adverse impacts on ecologically sensitive areas will be determined using international best practice and tools, as well as based on the outcomes of relevant studies conducted as part of subproject the ESIA.

²⁸ For the purposes of exclusion, large-scale resettlement is defined as physical displacement of a significant number of people / households. Physical displacement would mean relocation/ loss of shelter and assets resulting from the acquisition of land that requires the affected persons to move to another location.

Sl. No	Screening Question	Yes	No	Comments (In the case select "yes", provide detailed information)
	adequate application of mitigation measures? (If no, subproject is not eligible for support)			

(C) Disputed Territories

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
1	Is the project site located in disputed territory? If yes, subproject is not eligible for support			

(D) Environmental and Social Screening

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
Project's siting				
1.	Define project's boundaries and area of influence			
2.	Is the project site adjacent to or within any of the following sensitive receptors?			
	i. Natural habitats and/ or legally protected areas (wetlands, forests, estuary, buffer zones, nature reserves); if yes, is there possibility of a critical habitat present ²⁹ ? What are the ranges of endangered or threatened animals/birds/plant species (if known at time of screening)?			
	ii. Cultural heritage site (e.g. temple,			

²⁹ Critical habitat is defined based on global good practice as a subset of both natural and modified habitat that deserves particular attention. Critical habitat includes areas with high biodiversity value that meet the criteria of the World Conservation Union (IUCN) classification, including habitats of significant importance for required for critically endangered or endangered species as defined by the IUCN Red List of Threatened Species; habitats of significant importance for endemic or restricted-range species; habitats supporting globally significant concentrations of migratory species and /or congregatory species; areas with unique assemblages of species or which are associated with key evolutionary processes. Primary Forests or forests of High Conservation Value shall be considered Critical Habitats. This includes HCV forests. HCV areas do not directly correspond with definitions for modified, natural, and critical habitat. The HCV Resource Network, an internationally recognized group, provides information and support on the evolving usage of HCV to ensure a consistent approach. <https://www.hcvnetwork.org/>.

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	mosque)?			
	iii. Is the site located on Aesthetically Important Viewpoints?			
	iv. Is the site located near main settlement and trade centres? Description (approximate no. of HH and population, nature and special feature/importance/significance)			
	i. Fragmentation of habitat of flora and fauna (Avifauna and mammalian fauna)?			
	ii. Is the proposed site located on agricultural land?			
	iii. Is the proposed site located on area used by Indigenous People?			
	iv. Is the proposed site free of encroachers/squatters?			
	v. Unique or aesthetically valuable land			
	vi. Are there any flood prone/river cutting/low lying areas near or within site? What are challenges and opportunities associated flood/river cutting/low lying areas (if any)?			
	vii. Are there any water sources or springs near or within site?			
	viii. Is the proposed site located nearby airport?			
	ix. Is the proposed site located in migratory route of birds?			
	x. Is project site is accessible round the area or only in dry season? Description of condition of road/track (black top, fair weather etc.) or need to construct new road, total length, nearest road head etc.			
Potential Environmental Impacts				
3.	Impacts on natural resources that constitute livelihoods of community (e.g. grazing or hunting grounds)?			
4.	Disfiguration of landscape?			

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
5.	Is there potential for landslide and soil erosion impacts? If yes, please provide following information: - Past and present conditions and values (including tentative area to be affected, risky areas) - What are the challenges and opportunities associated with landslides and erosion (if any)			
6.	Will the project cause increase in waste generation? Describe types and expected amount of waste			
7.	Waste water from camping sites to be directly discharged to the surface water resources or not?			
8.	Construction waste directly discharged to the surface water?			
9.	Other potential biodiversity impacts (specify)?			
10.	Loss or destruction of unique or aesthetically valuable land			
11.	Disturbance of large areas due to material quarrying			
12.	Disposal of large quantities of construction spoils			
Labor and working conditions				
1.	Are overall labor and working conditions expected to be satisfactory, in line with national law? Are there provisions for both direct and contracted workers in the labor-related policies of the developer?			
2.	Is there policy that provides for non-discrimination?			
3.	Does the client employ persons less than 14 years of age?			
4.	Does the developer plan to employ young workers (between 14 and 18 years or age) which on account of its nature or due to the condition in which it is carried out, endangers the life, health, or physical, mental, spiritual, moral, or			

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	social development of the young workers performing it?			
5.	Will there be migrant workers required for construction and / or operation of the facilities? If yes, estimate how many and if any labor influx issues may arise (worker accommodation, interactions with local communities etc.)			
Potential Community and Occupational Health and Safety Impacts				
18.	Is there community health and safety risk due to the transport, storage and use and/or disposal of materials likely to create physical, chemical and biological hazards?			
19.	Will the construction works disturb other commercial/community/residential activities?			
20.	Will the project create major noise/vibration?			
21.	Closest residence to the solar panel/wind turbine			
22.	Will it create dust problem around the sites?			
23.	Will project's construction cause disturbance to the transportation in the project's site?			
24.	Will batteries be removed/disposed (lead-acid or nickel-cadmium batteries) from battery-powered or battery-backup items?			
25.	Will there be social conflict in case of workers hired from other region?			
Potential Social Impacts				
26.	Permanent land acquisition?			
27.	Temporary land acquisition?			
28.	Type of land Private land Public land Government land Leasehold land			
29.	Type of land procurement Voluntary donation Involuntary acquisition			

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	Negotiation			
30.	Loss of productive land			
31.	Impact on structure (residential, commercial, others)			
32.	Impacts on livelihoods/ economic displacement?			
33.	Is there any household (including non-titleholders) need to be relocated?			
34.	Is the resettlement site environmentally and/or culturally sensitive?			
35.	Project's construction will cause any damage to the existing local roads system?			
36.	Will soil excavation during project's construction cause soil erosion?			
37.	Will project activities have adverse impact on school, drinking water supply system and other facilities?			
38.	Will project need to use existing or open new access roads? What will be the impacts of increased traffic on communities?			
39.	Will project cause encroachment on historical/cultural/religious areas?			
40.	Acquisition of private land leading to loss of shelter and livelihood			
41.	Involuntary land taking resulting in loss of income, livelihood, sources of livelihood, loss of access to common property resources and/or private residential and/or property resources			
42.	Adverse impact on non-titleholders including loss of shelter and livelihood			
43.	Adverse impact to women including economic and safety concerns			
44.	Possible conflicts with and/or disruption to local communities			
45.	Significant issues raised by the stakeholders during consultation			
46.	Uncontrolled human migration into the area, made possibly by the subproject activities			
47.	Disproportionate impacts on the poor,			

Sl. No	Screening Questions	Yes	No	Comments (In the case select "yes", provide detailed information)
	children and other vulnerable groups			
48.	Community health and safety risks due to the transport, storage, and use and/or disposal of materials likely to create physical, chemical and biological hazards			
49.	Risks to community safety due to both accidental and natural hazards during project construction and operation			
50.	Will the project potentially cause community-related impact due to temporary influx of labor?			
Climate Benefits				
51.	Will project activities contribute in the reduction of GHG emissions? Description on the activities that contributes for the reduction of GHG emission			

Annex 6: Salient Features of RETs promoted by AEPC

Technology	Capacity Range	Tentative Total Cost (NRs)	Construction Period	Environment safeguard	Social safeguard
Community Electrification (CE)					
Pico Hydro and Improved Water Mills	less than 1 kW for pico and upto 5 kW for IWM			Not Required	Not Required
Micro hydro	(1kW to 100 kW)	500000 per kW	8 -12 months	Screening, At least ESMP	Screening
Mini-hydro	(100 kW to 1 MW)	500000 per kW	14 – 18 months	IEE according to ADB Safeguard Policy Statement	Not required
Biomass Subcomponent					
Household Improved Cook stoves (ICS) including metallic ICS, Rocket Stoves and Gasifier Stoves	Domestic range	1,000 to 25,000		Not required	Not required
Institutional ICS				Not required	Not required
Biomass Electrification		500000/kW	5 – 6 months	Screening, At least ESMP	Screening
Solar Subcomponent					
Domestic Solar PV	(upto 100 kWp)	10,000 to 25,000		Not required	Not required
Urban Solar PV	(greater than 200 kWp)	50,000 to 200,000		Not required	Not required
Household Solar Dryer and Cooker				Not required	Not required
Institutional solar (ISPS)		greater than 3 million		Screening, At least ESMP	Screening

Technology	Capacity Range	Tentative Total Cost (NRs)	Construction Period	Environment safeguard	Social safeguard
Solar Water Supply Scheme and Solar				Screening, At least ESMP	Screening

Technology	Capacity Range	Tentative Total Cost (NRs)	Construction Period	Environment safeguard	Social safeguard
Irrigation System					
Municipal Solar Street Lighting				Screening, At least ESMP	Screening
Institutional Solar Dryer and Solar cooker	greater than 3 sq. ft (dryer)			Not required	Not required
Institutional Solar Water Heating System				Screening, At least ESMP	Screening
Solar Mini-grid	Up to 100 kWp	600000/ Wp	2 -3 months	IEE according to ADB Safeguard Policy Statement	Not required
Wind Energy					
Wind Energy	upto 100 kW			Screening, At least ESMP	Screening
Solar Wind Hybrid	5 to 100 kW	600000/ Wp	2- 3 months	IEE according to ADB Safeguard Policy Statement	Not required
Biogas Technology					
Domestic Biogas and Urban Biogas	upto 12m3	less than 100,000	1 month	Not required	Not required
Institutional and Community Biogas	greater than 12.5m3 size	greater than 200,000	greater than 2 months	Screening, At least ESMP	Screening
Commercial Biogas	greater than	greater than	greater than 2	Screening, At	Screening

	12.5m3	200,000	months	least ESMP	
Municipal Solid Waste (MSW) Biogas Plants	greater than 12.5m3	greater than 10 million	greater than 6 months	IEE (Category B projects) as per SREP EMF	Screening, may require Abbreviated RAP and/or VCDP as per SMF

Annex 7: ESMF Disclosure and Consultation Workshop

The first draft of Environmental and Social Management Framework (ESMF) for Nepal Mini-grid Project supported by the World Bank was disclosed on AEPC website on October 24, 2017. The notice of the disclosure was published in The Kathmandu Post (English) and the Naya Patrika (Nepali) dated October 28, 2017. Suggestion/comments were invited from the general public via these notices. The consultation workshop to discuss the ESMF was organized at Yak and Yeti Hotel on November 9, 2017. An invitation was sent to different stakeholders 2 weeks prior to the event along with soft copy of ESMF.

Dr. Naryan Adhikari, Assistant Director of AEPC, delivered the welcome speech and requested all participants to provide their feedback on the draft ESMF. Er. Santosh Rai, Project Manager of the Nepal Mini-grid Project, highlighted on the proposed project. Dr. Anusuya Joshi, Environmental and Social Safeguard Expert, presented the highlights of the framework. The consultation program was attended by fifty participants representing ESCOs, partner banks, AEPC, different NGOs/INGOs, academic institutions, environmental and social experts, indigenous organizations etc. Representatives of the World Bank attended the workshop as an observer. Mr. Nawa Raj Dhakal, Director of AEPC thanked all participants for their valuable inputs/suggestions. The comments received during the consultation workshop are presented as follows.

Table 1: Comments from Stakeholders during the consultation workshop

SN	Stakeholders comment	AEPC response
1	ICIMOD <ul style="list-style-type: none"> What if national grid comes? 	Will be connected to grid
2	IOE <ul style="list-style-type: none"> Disposal of battery? How to manage battery replacement? Role of stakeholder engagement? How high, medium and low risk are categorized? 	AEPC is going to implement battery management system
3	Department of Road (DOR) <ul style="list-style-type: none"> Incorporate environmental benefit Insert process of ESIA in annex 	Suggestion taken
4	Sociologist <ul style="list-style-type: none"> Should use synonyms for few words such as “Risk”, “Vulnerable” and “Lack”. 	Need further discussion
5	NEFIN <ul style="list-style-type: none"> Table 5: Classification of Vulnerable Groups/Janajati in Nepal, Source not clear 	typo
6	ESCOs <ul style="list-style-type: none"> Who will monitor the subproject during construction and post construction period? Who will be responsible for repair and maintenance? 	AEPC, WB, ESCO, Community user group will be responsible for monitoring ESCOs will be responsible for O&M

Table: List of Participants



Government of Nepal
Ministry of Population and Environment
Alternative Energy Promotion Centre (AEPIC)
Nepal Mini-Grid Project (NMGP)

**Consultation Workshop on Environmental and Social
Management Framework (ESMF)
Attendance Sheet**

Venue: Hotel Yak and Yeti

Date: 09/11/2017

Time: 2-6 pm

SN	Name	Organization	Designation	Contact No.	E mail
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3.	Krishna P. Devkota	NMMDA	President	9851013375	kpd-nmmda@gmail.com
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SN	Name	Organization	Designation	Contact No.	e mail
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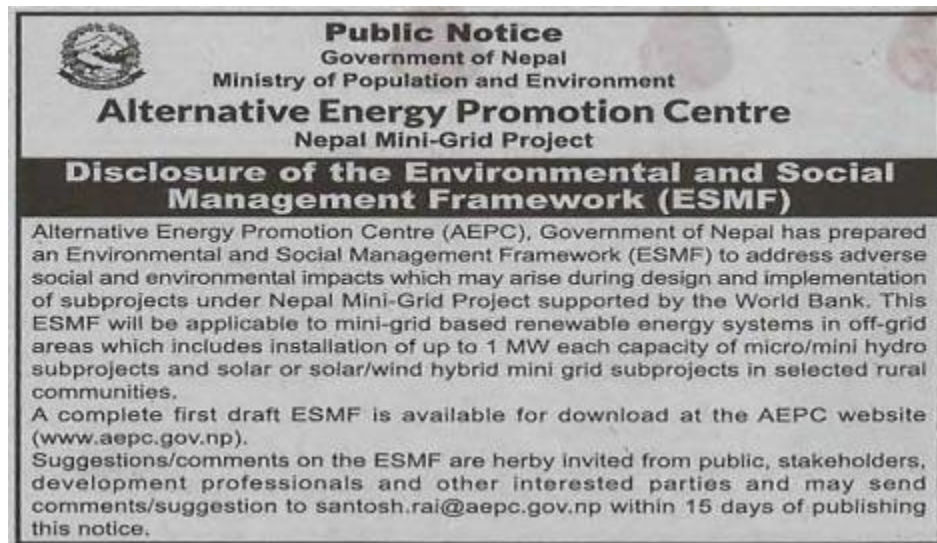


Figure1: Notice Published in The Kathmandu Post



Figure 2: Notice published in Naya Patrika

Pictorial Highlight of the Workshop





Terms of Reference (ToR): **Environmental Assessment Specialist for Nepal Mini Grid Project of AEPC**

ANNEX 8. Terms of Reference for "Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects"

1. Introduction

Alternative Energy Promotion Centre (AEPC) is the apex government body under the Ministry of Energy, Water Resources and Irrigation (MoEWI), established to promote the use of alternative/renewable energy technology to meet the energy needs in Nepal. The Business Model for Private Sector-Led Mini-Grid Energy Access Project, supported by the World Bank, will be implemented by AEPC from.... The objective of the project is to increase electricity access and delivery from renewable energy mini-grids (solar, hydro, wind, and hybrid) by mobilizing private Energy Service Companies (ESCOs). The project will deliver financing support to ESCOs to facilitate financial closure and enhance financial viability of the subprojects, provided to ESCOs in the form of loans through participating Banks (PBs), ESCOs to facilitate financial closure and enhance financial viability of the subprojects. The participating Banks (PBs) shall provide loans to the ESCOs. In line with this project, AEPC will be conducting DFS/DED for subprojects based on the site-specific environmental and social issues during the project preparation phase.

Therefore, AEPC intends to conduct Environment and Social Impact Assessment (ESIA), including social assessment and risk management measures in line with the national regulations and Safeguard Operational Policies (OPs) of the World Bank to facilitate implementation of the solar mini-grid subprojects and seeks services of **two qualified individual consultants** as follows:

1. Environmental assessment specialist
2. Sociologist/ social assessment specialist

This TOR covers the scope of work for the environmental assessment specialist. However, the two individual consultants will work together to complete this task in a coordinated manner and jointly prepare a single ESIA report and management plans for the subprojects under the consolidated TORs for ***"Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects"***, dated ... and which form an integral part of this TOR.

2. Objectives

The overall objective of the consultancy is to provide support to AEPC for the implementation of the environmental safeguard measures for NMGP. The specific objective is to carry out the ESIA study for subprojects in compliance with the project ESMF and with applicable World Bank and national standards.

3. Scope of work

Environmental assessment specialist, under guidance from AEPC and close coordination with the sociologist/social assessment specialist is required to provide intermittent support to conduct ESIA of subprojects, and will carry out the tasks described in the consolidated TORs for "Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects", dated In particular, the following will be a minimum level of deliverables:



Terms of Reference (ToR):
**Environmental Assessment Specialist for Nepal Mini Grid
Project of AEPC**

- Each subproject is screened to identify likely environmental impacts and sensitivities;
- Assessment of environmental risks and impacts is prepared (as a part of ESIA³⁰) of the sub-project, as well as mitigation measures identified;
- Recommendations provided for DFS of each sub-project to incorporate environmental recommendations made in the respective safeguard documents;
- Environmental monitoring measures are clearly identified in the ESIA;
- Public consultations to be conducted during ESIA preparation and on draft ESIA report following its disclosure to communities (before finalizing the ESIA report)

4. Qualification of the applicant

Environmental assessment specialist shall have a Masters' degree in environmental science/environment management/environmental engineering with minimum of 7 years of experience in Environmental Impact Assessment study and report preparation; understanding of the national legislative and regulatory as well as WB Policy requirements; and proven report writing skills.

The candidate should also have:

- Experience in implementing the international environmental safeguards policies/standards and well conversant with Government of Nepal (GoN) environment related policies, regulations and guidelines as well as multilateral donor agencies (e.g. World Bank, Asian Development Bank, etc.) requirements;
- Excellent command in Nepali and English language (both spoken and written) and communication skills;
- Knowledge and/or familiarity with the country's geography and willing to travel/trek to the project sites located in remote part of the country;
- Ability to work well with Government officials and community personnel;
- Deep knowledge in environmental management framework of local governments;
- Strong and demonstrated capacity for organization, management with excellent reporting and coordination skills;
- Strong leadership, technical competence and professional skills for timely implementation, coordination and management of activities;
- Ability to work in a team, develop synergies and establish effective working relations with various stakeholders;
- Strong interpersonal and communications skills, resourcefulness, initiative, tact and ability to cope with challenging situations;
- The candidate should be able to legally work in Nepal.

5. Duration of Services

The Environmental assessment specialist will be selected for providing intermittent service on the need of subprojects. The Environmental assessment specialist shall work on intermittent basis in Kathmandu and require few visits to subproject sites.

³⁰ ESIA report will include the E&S management plans.



Terms of Reference (ToR):
**Environmental Assessment Specialist for Nepal Mini Grid
Project of AEPC**

6. Supervisor and Reporting Requirements

The Environmental assessment specialist shall be under the immediate supervision of and will report to the Project Manager of AEPC/NMGP. S/he shall work closely with Technical Team and ESCO of the subproject as and when required. The Environmental assessment specialist shall prepare ESIA report as prescribed by the ESMF.

7. Remuneration and Compensation

The followings shall apply:

- The Environmental assessment specialist shall be provided with the remuneration and benefits as per the contract signed with AEPC. The contract will mention a lump sum amount of remuneration per month, which shall include all her/his overhead, social charges and other associated costs including local transportation.
- The Environmental Specialist shall be responsible for all taxes and duties including income tax applicable as per the Government of Nepal rules and regulations.
- In case of travel for project-related assignments, the Environmental Specialist shall be paid travel and lodging expenses on an actual cost basis and a subsistence allowance to cover all other costs.

8. Facilities to be provided by AEPC

Following facilities shall be provided to the Environmental assessment specialist by the AEPC during the period of service:

- Office space with furniture
- Internet access
- Required office stationery
- Photocopying facilities

9. Selection Process

Selection of the Environmental assessment specialist will be carried out in accordance with the selection procedure of individual consultant in the World Bank's 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers' January 2011.

10. Contact for Additional Information and Application:

Further information related to selection and recruitment of the Environmental assessment specialist may be obtained from AEPC. Interested candidates are requested to submit Cover Letter and detailed Curriculum Vita (CV) in a sealed envelope or by email to the following address:

Alternative Energy Promotion Centre (AEPC), Address: Khumaltar, Lalitpur Telephone:
+97715539390, 5539391 Website: www.aepc.gov.np



Terms of Reference (ToR): **Sociologist/Social Assessment Specialist for Nepal Mini Grid Project of AEPC**

1. Introduction

Alternative Energy Promotion Centre (AEPC) is the apex government body under the Ministry of Energy, Water Resources and Irrigation (MoEWI), established to promote the use of alternative/renewable energy technology to meet the energy needs in Nepal. The Business Model for Private Sector-Led Mini-Grid Energy Access Project, supported by the World Bank, will be implemented by AEPC. The objective of the project is to increase electricity access and delivery from renewable energy mini-grids (solar, hydro, wind, and hybrid) by mobilizing private Energy Service Companies (ESCOs). The project will deliver financing support to ESCOs to facilitate financial closure and enhance financial viability of the subprojects, provided to ESCOs in the form of loans through participating Banks (PBs), ESCOs to facilitate financial closure and enhance financial viability of the subprojects. The participating Banks (PBs) shall provide loans to the ESCOs. In line with this program, AEPC will be conducting DFS/DED for subprojects based on the site-specific environmental and social issues, during the project preparation phase.

Therefore, AEPC intends to conduct Environment and Social Impact Assessment (ESIA), including social assessment and risk management measures in line with the national regulations and Safeguard Operational Policies (OPs) of the World Bank to facilitate implementation of the solar mini-grid projects and seeks services of **two qualified individual consultants** as follows:

1. Environmental specialist
2. Sociologist/ social assessment specialist

This TOR covers the scope of work for the sociologist/ social assessment specialist. However, the two individual consultants will work together to complete this task in a coordinated manner and jointly prepare a single ESIA report and management plans for the subprojects under the consolidated TORs for "***Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects***", dated ... and which form an integral part of this TOR.

2. Objectives

The overall objective of the consultancy is to provide support to AEPC for the implementation of the social safeguard measures for NMGP. The specific objective is to carry out the ESIA study for subprojects in compliance with the project ESMF and with applicable World Bank and national standards.

3. Scope of work

Sociologist/ social assessment specialist, under guidance from AEPC and close coordination with the environmental assessment specialist is required to provide intermittent support to conduct ESIA of subprojects, and will carry out the tasks described in the consolidated TORs for "***Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects***", dated In particular, the following will be a minimum level of deliverables:

- Each subproject is screened to identify likely social impacts and sensitivities;
- Assessment of social risks and impacts is prepared (as a part of ESIA) of the subproject,



Terms of Reference (ToR):
**Sociologist/Social Assessment Specialist for Nepal Mini
Grid Project of AEPC**

as well as mitigation measures identified;

- If adverse impacts (involuntary resettlement, economic displacement, etc.) are identified, AEPC shall be notified early in the assessment process;
- If there is presence of Indigenous Peoples in the subproject area, Vulnerable Community Development Plan (VCDP) is prepared as part of the ESIA report;
- Public consultations to be conducted during ESIA preparation and on draft report following its disclosure to communities (before finalizing the ESIA report).

4. Qualification of the applicant

Candidates should have a post-graduate degree in Social Science (Sociology, Rural development and any other related discipline) and at least 5 years' experience in the field of RE sector and proven experience in gender equality and social inclusion (GESI); understanding of the national legislative and regulatory as well as WB Policy requirements; and proven report writing skills.

The candidate should also have:

- Experience in implementing the international social safeguards policies/standards and well conversant with Government of Nepal (GoN) social related policies, regulations and guidelines as well as multilateral donor agencies (e.g. World Bank, Asian Development Bank, etc.) requirements;
- Excellent command in Nepali and English language (both spoken and written) and communication skills;
- Knowledge and/or familiarity with the country's social dynamics and/or organization of rural communities and settings, and willing to travel/trek to the project sites located in remote part of the country;
- Ability to work well with Government officials and community personnel;
- Experience on Gender, Environment, and Social Inclusion (GESI) would be considered an advantage;
- Deep knowledge in social management framework of local governments;
- Strong and demonstrated capacity for organization, management with excellent reporting and coordination skills;
- Strong leadership, technical competence and professional skills for timely implementation, coordination and management of activities;
- Ability to work in a team, develop synergies and establish effective working relations with various stakeholders;
- Strong interpersonal and communications skills, resourcefulness, initiative, tact and ability to cope with challenging situations;
- The candidate should be able to legally work in Nepal.

5. Duration of Services

The Sociologist/ social assessment specialist will be selected for providing intermittent service on the need of subprojects. The Sociologist/ social assessment specialist shall work on intermittent basis in Kathmandu and require few visits to subproject sites.



Terms of Reference (ToR):
**Sociologist/Social Assessment Specialist for Nepal Mini
Grid Project of AEPC**

6. Supervisor and Reporting Requirements

The Sociologist/ social assessment specialist shall be under the immediate supervision of and will report to the Project Manager of AEPC/NMGP. S/he shall work closely with Technical Team and ESCO of the subproject as and when required. The Sociologist/ social assessment specialist shall prepare ESIA report as prescribed by the ESMF.

7. Remuneration and Compensation

The followings shall apply:

- The Sociologist/ social assessment specialist shall be provided with the remuneration and benefits as per the contract signed with AEPC. The contract will mention a lump sum amount of remuneration per month, which shall include all her/his overhead, social charges and other associated costs including local transportation.
- The Sociologist/ social assessment specialist shall be responsible for all taxes and duties including income tax applicable as per the Government of Nepal rules and regulations.
- In case of travel for project-related assignments, the Sociologist/ social assessment specialist shall be paid travel and lodging expenses on an actual cost basis and a subsistence allowance to cover all other costs.

8. Facilities to be provided by AEPC

Following facilities shall be provided to the Sociologist/ social assessment specialist by the AEPC during the period of service:

- Office space with furniture
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9. Selection Process

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Alternative Energy Promotion Centre (AEPC), Address: Khumaltar, Lalitpur Telephone:

+97715539390, 5539391 Website: www.aepc.gov.np



Terms of Reference (ToR):

Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects

Introduction

Alternative Energy Promotion Centre (AEPC) is the apex government body under the Ministry of Energy, Water Resources and Irrigation (MoEWI), established to promote the use of alternative/renewable energy technology to meet the energy needs in Nepal. The Business Model for Private Sector-Led Mini-Grid Energy Access Project, supported by the World Bank, will be implemented by AEPC from March, 2018 (tentative). The objective of the program is to increase electricity access and delivery from renewable energy mini-grids (solar, hydro, wind, and hybrid) by mobilizing private Energy Service Companies (ESCOs). The project will deliver financing support to ESCOs to facilitate financial closure and enhance financial viability of the subprojects, provided to ESCOs in the form of loans through participating Banks (PBs), ESCOs to facilitate financial closure and enhance financial viability of the subprojects. The participating Banks (PBs) shall provide loans to the ESCOs. In line with this program, AEPC will be conducting DFS/DED for subprojects based on the site-specific environmental and social issues, during the project preparation phase.

Therefore, AEPC intends to conduct Environment and Social Impact Assessment (ESIA), including social assessment and risk management measures in line with the national regulations and Safeguard Operational Policies (OPs) of the World Bank to facilitate implementation of the solar mini-grid subprojects.

Objectives

The main objective of this study is to carry out the Environment and Social Impact Assessment (ESIA) of Solar Mini-grid Subprojects as per the requirements of GoN and the World Bank

This study will facilitate the implementation of solar mini-grid subprojects. More specifically, the consultants shall perform following tasks:

- Study of relevant potential impacts and risks associated with the proposed subprojects.
- Study of compliance of the proposed subprojects against applicable National regulations and World Bank requirements and environmental laws and regulations of the jurisdictions in which the subprojects operate.
- Study to incorporate mitigation hierarchy (e.g. avoid, minimize, mitigate and compensate) into the subproject design process.

Potential Environmental and Social Issues

[This section should be completed based on AEPC initial E&S screening results once the subprojects are selected; approximate content is given below].

Potential environmental and social impacts associated with the proposed subprojects can be classified as: (i) impacts during pre-construction/design phase; (ii) impacts during construction phase; (iii) impacts during operation phase and (iv) impacts during decommissioning phase. All direct impacts are constrained within the project boundary³¹

³¹ Indirect impacts could be beyond the project boundary.



Terms of Reference (ToR):

Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects

a. Solar panels/ solar plant

Potential impacts may include involuntary land acquisition and resettlement,³² changes in land use (if located on agricultural land, it might ultimately degrade surrounding agricultural land as well). Any indication of impacts on livelihoods - including any possible resettlement or restrictions on land use - need to be assessed and, if any are identified, alternatives considered to avoid them (e.g. alternative location).

Other impacts may include pollution from overflow of filled earth (dredged materials); erosion from the filled materials and side slope of filled lands; local flood hazards during the rainy season and especially during flash flood events. The construction activities are likely to create a visual intrusion and a disruption to aesthetics include: materials lay down, excavation, backfilling, and spoil. Additionally, there may be some dust generation and exhaust emissions from construction activities. Construction activities for solar power plant may also contribute to noise impacts; soil loss (due to the removal of top soil); surface water quality in the adjacent water bodies due to disposal of solid wastes, sewage effluent, dredged materials etc.; disturbance of flora and fauna; generation of non-hazardous and hazardous waste; traffic; potential impacts on workers' and community health and safety; impacts on cultural resources; impacts due to labor influx.

During operation phase, some impacts may include risks of glare; some soil impacts during operation phase are limited to accidental spillage of lubricant, fuel and other chemicals that may potentially cause soil degradation; some pollution associated with plant activities. A major impact would be expected to be environmental, health, and safety issues related to potentially improper storage and disposal of expired batteries (if those are to be used as part of subproject design) and PV modules wastes. Service and maintenance is very important as to have a battery system to run efficiently and with least possible replacement of batteries and related environmental impacts.

b. Distribution Lines

For distribution lines, occupational health and safety (OHS) risks likely to arise during construction and O&M include exposure to physical hazards, trip and fall hazards, exposure to dust, noise and vibrations, falling objects, exposure to hazardous materials, exposure to electrical hazards, exposure to extreme heat, working around large water bodies, working at height, working live power equipment and lines, and impacts of access roads/routes. In addition, temporary land taking, damage to crops, buildings and other structures, and physical infrastructure can also take place. In the mountainous areas, soil erosion and land sliding can also be caused by the construction activities. Vegetation clearing and tree cutting may also be needed for the construction and O&M of the distribution lines.

c. Positive Impacts

³² Such impacts will not be allowed in pilot subprojects



Terms of Reference (ToR):

Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects

Renewable energy is recognized internationally as a major contributor in protecting our climate, nature, and the environment as well as providing a wide range of environmental, economic, and social benefits that will contribute towards long-term global sustainability. It is a particularly beneficial solution for areas lacking access to national grid electricity or where chances of connecting to the grid are low. The belief that the provision of electricity in rural areas can bring about desired socioeconomic changes (increased economic opportunities, improved health and education facilities). Thus, benefits for the local communities need to be carefully analyzed and benefit-sharing schemes/mechanism potentially proposed.³³ Among other things, positive benefits of the subprojects may also arise either from short-term job opportunities during construction, or long-term job opportunities during operation. It is important that construction and operation jobs to be targeted to the local people.

Scope of Work (Activities)

Through the proposed study, AEPC desires to ensure environmental and social risks and impacts analysis of the solar mini-grid subprojects, including pre-construction, construction, operation and maintenance, and de-commissioning phases, and to assess environmental and social consequences in line with the World Bank's relevant operational policies, as well as compliance with the national, provincial regulations on environment and social aspects.

The ESIA will consider environmental and social aspects in an integrated way and will be prepared to comply with the following World Bank Operational Policies, as follows:

OP / BP 4.01	Environmental Assessment
OP / BP 4.04	Natural Habitats
OP / BP 4.11	Physical Cultural Resources
OP / BP 4.12	Involuntary Resettlement
OP/BP 4.10	Indigenous Peoples
OP / BP 4.36	Forests
BP 17.50	Disclosure of Operational Information

The consultants will also make use of the relevant WBG Environmental, Health, and Safety Guidelines:

http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

The proposed study is aimed at screening and assessing the proposed project interventions against adverse environmental and social impacts and recommending, where necessary, appropriate mitigation and enhancement measures, and course of action for implementation. The following key activities are included:

- Review of subproject details: Interaction with AEPC/involved ESCOs/PBs/ WB for a good understanding of the assignment.

³³ The guideline for royalty distribution benefit sharing guideline 2063 developed by the erstwhile MOLD, now MoFALD may need to be consulted.



Terms of Reference (ToR):
Environment and Social Impact Assessment Study for Solar Mini-grid
Subprojects

- Define Project Area of Influence on the basis of the project scope and extent;
- Review the policy, legal, and administrative framework within which the ESIA is carried out. Review the national environmental and social requirements and those of any co-financier (World Bank)
- Collection of data from secondary sources for the macro-environmental setting like climate (temperature, rainfall, humidity, and wind speed), physiographic, geology etc. and social baseline
- Conduct site visits to subproject locations including formal and informal discussion with local communities, government entities and other key stakeholders to assess baseline environmental quality or social issues, as appropriate, through field studies within the impact zone for various components of the environment, viz. air, noise, water, land and socio-economic, etc.
- Provide the existing physical, biological, socio-economic and cultural environment of the subproject area, including any changes anticipated before the project commences.
- Analyze project design alternatives: Systematically compare feasible alternatives to the proposed project site, technology, design, and operation--including the "without project" situation.
- Identify and describe the subproject's potential environmental and social impacts (including expired battery storage and disposal risk management provisions as well as induced impacts from the project.
- Follow mitigation hierarchy while designing mitigation measures to make it prudent;
- Prepare, conduct, and describe in the ESIA the subprojects' public consultation process proceedings in report format and Grievance Redress Mechanism (to be operational from pre-construction through implementation phase). As part of informing subproject design, and in addition to risk mitigation measures to reduce negative impacts on communities, public consultations should explore positive impacts of solar mini-grids, as well as possibilities and modalities of Anchor--ESCO (business)-community (ABC) benefit-sharing schemes.
- As part of the ESIA, assessment of social aspects (land acquisition including temporary, involuntary resettlement,³⁴ indigenous people, gender, public consultation, etc.)³⁵ of the project planning and design must be in full coordination with the environmental assessment and planning aspect. If found necessary based on the ESIA findings, prepare a Vulnerable Community Development Plan (VCDP).
- Prepare the Environment and Social Impact Assessment (ESIA) study report in accordance with WB's OPs.
- Provide Environmental and Social Management and Monitoring Plans for the overall subproject (including defining institutional responsibilities, capacity building and training, and the required budget). ESMPs must be complete with mitigation plan,

³⁴Such subprojects will not be considered as pilots

³⁵If screening identifies adverse social impacts and presence of Indigenous Peoples in the subproject area, social assessment of such impacts shall be conducted for the proposed sub-projects. This assessment will cover the following key areas: (a) overall project impact analysis, (b) development of a socio-economic baseline, (c) a stakeholder analysis, (d) identification and free, prior and informed (FPIC) consultation with vulnerable and indigenous peoples communities



Terms of Reference (ToR): ***Environment and Social Impact Assessment Study for Solar Mini-grid Subprojects***

compliance monitoring plan, effects monitoring plan, institutional arrangements, training needs, documentation and communication protocol, grievance redress mechanism, cost of implementing ESMP, and mechanism to integrate ESMPs with the subprojects (e.g., through contractual clauses). If any contractors are to be involved, risk management plans must include clear provisions for contractors, incorporating among other things labor-related clauses for contractors and their workers.

Stakeholder Engagement

As part of the ESIA, environmental and social consultants – with support from AEPC and concerned ESCO – will conduct the following activities in a fully coordinated manner:

- Stakeholder identification / mapping and analysis exercise (to be included in the ESIA report)
- Information disclosure and consultations: Hold two rounds of consultations:
 - o During ESIA study, conduct consultation meetings, including consultations for obtaining the informed views of the affected people and local nongovernmental organizations (NGOs). Hold consultative workshops at the site.
 - o Hold consultations after preparing draft ESIA report (during Public Hearing) with local communities.
- Capture outcomes of negotiation and partnerships with communities (in view of benefit-sharing schemes). More specifically, community mobilization will be essential to foster support from residents and businesses of the community for the project. Community mobilization has both social and commercial implications for the subprojects. This critical aspect needs to be covered by ESIA and ESMP and planned well-in-advance.
- Design, process, and resources allocated to grievance redress mechanism (co-managed by ESCOs, contractors, AEPC).
- Describe potential options of community involvement in subproject monitoring

Inputs from AEPC

The programs and the projects under AEPC (NRREP, RERL and SASEC) will provide relevant documents and information.

- Environmental Assessment and Review Framework (EARF) for Solar and Solar/Wind Mini-grid Subprojects under AEPC/SASEC
- Results of initial E&S screening conducted by AEPC
- Where available, general / preliminary feasibility studies for subprojects
- Technical support for Screening and review of ESIA report
- World Bank will provide relevant documents and information

ESIA Sample Table of Contents

Executive Summary

This section shall describe the subproject activities, critical environmental and social issues, significant findings and recommended actions.



Terms of Reference (ToR):
Environment and Social Impact Assessment Study for Solar Mini-grid
Subprojects

1. Introduction

- i. Background of the subproject
- ii. Scope and objectives of the ESIA study
- iii. Study methodology in details
- iv. Limitations of the study
- v. Composition of study team

2. Policy, Legal and Administrative Framework

- i. GoN Nepal requirements and relevant legislation
- ii. WB requirements and guidelines
- iii. International agreements

3. Description of the Subprojects

- i. Background and Rational of the Project
- ii. Project Site and Location
 - Description of the location of the proposed subproject with maps
 - Project area of influence
 - Nearby communities, environmentally sensitive areas, and heritage sites (For solar mini grid buffer zone should be 1 km)
- iii. Technical Aspects
 - Description of the subproject components, permanent and temporary facilities
 - Project equipment and civil works
 - Project ownership
 - Summary of project structures and operating regime
 - Construction activities
 - Operation and maintenance
 - Manpower requirements (including local and migrant workforce)
 - Construction machinery, materials and other supplies (including estimated numbers/quantities)
 - Land filling activities (if any)
 - Power supply arrangements
 - Waste generation and disposal (including estimated quantities)

4. Baseline Environmental Conditions

4.1 Physical Environment

- i. Topography
- ii. Geological Condition
- iii. Meteorological Condition (Rainfall, Temperature, Humidity, Wind speed)
- iv. Air Quality
- v. Noise Quality
- vi. Surface and Ground water quality
 - Surface:(testing of: pH, TDS, DO, COD, BOD)
 - Ground:(testing of: pH, Arsenic, TDS, alkalinity, Cl, Fe)



Terms of Reference (ToR):
Environment and Social Impact Assessment Study for Solar Mini-grid
Subprojects

- vii. Project location from flood level
- viii. Soil Quality
- ix. Water resources
- x. Agro-ecological zones within project area of influence
- xi. Seismicity
- xii. Climate change and natural disasters
- xiii. Land use

4.2 Biological Environment

- i. Bio-ecological environment
- ii. Flora and Fauna
- iii. Protected areas
- iv. Terrestrial Ecosystem, Protected areas and red book species
- v. Vulnerability to Climate Change and Natural hazard
 - Explain in detail about how the project will be affected by the climate change impact
 - Explain how the project is vulnerable to various natural calamities including flood, earthquake, drought, cyclone and so on

5. Social Impact Assessment

5.1 Baseline Socio-economic Conditions

- i. Distribution of population in the project area in terms of religion, age, sex, ethnicity, income, household size, occupational patterns and their relevance with the project, poverty
- ii. Project land
- iii. Land use and ownership (including traditional use and ownership)
- iv. Cropping and/or grazing patterns
- v. Vulnerability of the Affected Peoples (APs)
- vi. Employment
- vii. Livelihood
- viii. Physical and cultural resources (school, health post/ hospital, college, temple, monasteries etc.) in the project area
- ix. Availability of Indigenous settlement
- x. Communication facility
- xi. Local amenities

5.2 Potential Social Impacts³⁶

- i. Overview of stakeholder and institutional analyses and a description of the data and information gathered
- ii. Description of potential adverse impacts on Indigenous Peoples and other communities

³⁶ May include annexes on specific issues, such as: the itinerary of the social assessment process, relevant maps, minutes of meetings and consultation with Indigenous peoples and other key stakeholders, etc.



Terms of Reference (ToR):
Environment and Social Impact Assessment Study for Solar Mini-grid
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- iii. Description of the legal and institutional context pertaining to Indigenous peoples and other vulnerable groups and the sector in the country
- iv. Description of the process of free, prior, and informed consultation with the affected Indigenous People's communities
- v. Description of potential benefits for Indigenous Peoples and other communities
- vi. Recommendations for project design and implementation, including recommendations to ensure that project benefits are culturally appropriate and sustainable, and recommendation for appropriate mitigation measures for any adverse impacts. These recommendations to be incorporated into the project design and the Indigenous Vulnerable Community Development Plan.
- vii. Recommendation for capacity building and institutional strengthening of local communities
- viii. Recommendation for participation of and free, prior and informed consultation with Indigenous Peoples during project implementation, monitoring and evaluation
- ix. The evaluation of the extent of broad community support for the project, including any formal agreements reached with Indigenous People's communities and/or other organizations. Should be supported by data based evidence

6. Analysis of Project Alternatives

- i. Reason to choose the technology
- ii. Without project alternative
- iii. Site Alternative
- iv. Distribution line routes
- v. Other temporary and permanent facilities

7. Stakeholder engagement including Grievance Redress Mechanism

Stakeholder engagement process focusing on free, prior and informed consultation (FPIC) shall be conducted with the community and other stakeholders, and especially take into account modalities where Indigenous Peoples or other types of vulnerable and marginalized communities may be involved. The consultation shall include prior disclosure of information in a manner accessible and understandable to communities, key informant interviews, focus group discussion (male & female, youth) and public consultation. The consultation shall be documented with required facts, figures and evidence including participant list with contact details, photographs. Information shall be disclosed as per the requirement of National Regulations and relevant OPs of the World Bank. This section shall describe the grievance redress mechanism. The standard GRM of AEPC will support but not replace grievance mechanisms established at subproject level.

8. Anticipated Environmental and Social Impacts and Mitigation Measures

- i. General
- ii. Area of Influence (AoI)
- iii. Pre-construction Phase
 - Land taking/Land use / land filling



Terms of Reference (ToR):
Environment and Social Impact Assessment Study for Solar Mini-grid
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- Flood Hazards
- iv. Construction Phase, Operational Phase and Decommissioning Phase
 - Visual Amenity
 - Birds and Bats Mortality
 - Air Quality
 - Noise
 - Soil
 - Water Resources
 - Terrestrial Ecology
 - Waste Generation
 - Occupational Health and Safety
 - Community Health and Safety
 - Vulnerable Community
 - Employment Opportunities
 - Traffic Management
 - Archaeology and Cultural Resources
 - Cumulative and induced impacts
- v. Summary of Anticipated Impacts

9. Environmental and Social Management Plan (ESMP)

This section deals with the set of mitigation management measures to be taken to avoid, reduce, mitigate or compensate for adverse environmental, occupational and social impacts with the institutional arrangement, monitoring schedule, parameters to be monitored and soon including tentative monitoring budget. It would include the following aspects:

- Types of impacts and their mitigations
- Mitigation measures
- Environmental Code of Practices (to be attached to bidding documents and/ or contracts)
- Monitoring Plan
- Communication and documentation
- Cost of ESMP
- Integration with Project (contract clauses, others)
- Grievance resolution process
- Plan for stakeholder/ community engagement during pre-construction, construction, and operation phases; the plan should include community mobilization approach from both social and commercial perspectives.

10. Vulnerable Community Development Plan

- A summary of the social assessment, including identification and mapping of indigenous communities in the project area
- A summary of results of the free, prior, and informed consultation with the affected Indigenous Peoples' communities that was carried out during project preparation and that led to broad community support for the project



Terms of Reference (ToR):
Environment and Social Impact Assessment Study for Solar Mini-grid
Subprojects

- A framework for ensuring free, prior, and informed consultation with the affected Indigenous Peoples' communities during project implementation
- A summary project impacts on indigenous communities, including both positive and adverse impacts
- An action plan of measures to ensure that the Indigenous Peoples receive social and economic benefits that are culturally appropriate, including, if necessary, measures to enhance the capacity of the project implementing agencies
- An action plan delineating measures to avoid, minimize, mitigate, or compensate for adverse impacts
- Cost estimates and financing plan for the VCDP
- Accessible procedures appropriate to the project to address grievances by the affected Indigenous Peoples' communities arising from project implementation
- Implementation arrangements.

11. Environmental and Social Benefits

This section will summarize how the project will provide benefits in environmental sector and social life, directly and/or indirectly.

12. Conclusion

This section shall provide the conclusion drawn from the assessment and provides recommendation.

Annex 9: Summary of Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution

The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas. A summary of industry sector activities is provided in Annex A.

1.0 Industry-Specific Impacts and Management

EHS issues associated with electric power transmission and distribution that occur during the construction and operation phases of a facility, along with recommendations for their management are discussed.

1.1 Environmental

Terrestrial Habitat Alteration

Construction of Right-of-Way: The construction and maintenance of transmission line rights-of-way, especially those aligned through forested areas, may result in alteration and disruption to terrestrial habitat, including impacts to avian species and an increased risk of forest fires. Right-of-way construction activities may transform habitats, depending on the characteristics of existing vegetation, topographic features, and installed height of the transmission lines. To prevent and control these impacts, critical habitat should be avoided through use of existing utility and transport corridors for transmission and distribution, and existing roads and tracks for access roads, whenever possible. Moreover, construction activities should be avoided during breeding season and other sensitive seasons and times of day.

Right-of-Way Maintenance: Regular maintenance of vegetation within the rights-of-way is necessary to avoid disruption to overhead power lines and towers. Unchecked growth of tall trees and accumulation of vegetation within rights-of-way may result in a number of impacts, including power outages through contact of branches and trees with transmission lines and towers; ignition of forest and brush fires; corrosion of steel equipment; blocking of equipment access; and interference with critical grounding equipment. Implementation of an integrated vegetation management approach (IVM) is one of the measures recommended to prevent and control impacts.

Forest fires: If underlying growth is left unchecked, or slash from routine maintenance is left to accumulate within right-of-way boundaries, sufficient fuel can accumulate that may promote forest fires. Monitoring right-of-way vegetation according to fire risk, disposal of maintenance slash by truck or controlled burning, and planting and managing fire resistant species within, and adjacent to, rights-of-way are some recommended measures to prevent and control risk of forest fire.

Avian and Bat Collisions and Electrocutions: The combination of the height of transmission towers and distribution poles and the electricity carried by transmission and distribution lines can pose potentially fatal risk to birds and bats through collisions and electrocutions. Aligning transmission corridors to avoid critical habitats (e.g. nesting grounds, heronries,

rookeries, bat foraging corridors, and migration corridors), maintaining 1.5 meter spacing between energized components and grounded hardware or, covering energized parts and hardware and installing visibility enhancement objects such as marker balls, bird deterrents, or diverters are some recommended measures to minimize avian and bat collisions and electrocutions.

Aquatic Habitat Alteration

Power transmission and distribution lines, and associated access roads and facilities, may require construction of corridors crossing aquatic habitats that may disrupt watercourses and wetlands, and require the removal of riparian vegetation. In addition, sediment and erosion from construction activities and storm water runoff may increase turbidity of surface watercourses. Site power transmission towers and substations to avoid critical aquatic habitat (e.g. watercourses, wetlands, and riparian areas), as well as fish spawning habitat, and critical fish over-wintering habitat and minimizing clearing and disruption to riparian vegetation are some recommended measures to prevent and control impacts to aquatic habitats.

Electric and Magnetic Fields

Electric and magnetic fields (EMF) are invisible lines of force emitted by and surrounding any electrical device (e.g. power lines and electrical equipment). 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. 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 transformers such as, shielding with specific metal alloys, burying transmission lines, increasing height of transmission towers etc.

Hazardous Materials

Hazardous materials in this sector include insulating oils/gases (e.g. Polychlorinated Biphenyls [PCB] and sulfur hexafluoride [SF₆], and fuels, in addition to chemicals or products for wood preservation for poles and associated wood construction material. The EHS guideline provides ranges of recommendations for the management of such hazardous materials as well as suggests the alternatives.

1.2 Occupational Health and Safety

Occupational health and safety hazards specific to electric power transmission and distribution projects with prevention and control measures are discussed.

Live power lines: Workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance, and operation activities. Some prevention and control measures are to allow trained and certified workers to install, maintain and repair electrical equipment, and to deactivate and properly ground live power distribution lines before work is performed.

Working at height: Workers may be exposed to occupational hazards when working at elevation during construction, maintenance, and operation activities. Some prevention and control measures are 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; use of safety strap.

Electric and magnetic fields (EMF): Prevention and control measures are 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, and train workers in the identification of occupational EMF levels and hazards.

Exposure to chemicals: Potential exposures to pesticides include dermal contact and inhalation during their storage, preparation and application. Some recommended prevention and control measures are to train personnel to apply pesticides and ensure hygiene practices.

2.0 Performance Indicators and Monitoring

The EHS guideline states the requirement to comply with principles and guidelines described in the General EHS Guidelines to meet ambient air and surface water guidelines. Moreover, the guideline depict the need of Environmental Monitoring based on direct or indirect indicators of emissions, effluents, and resource use applicable to the particular project and Occupational Health and Safety Monitoring based on internationally published exposure guidelines, such as Threshold Limit Value (TLV[®]) occupational exposure guidelines and Biological Exposure Indices (BEIs[®]) etc. In addition, it lists exposure limits for general public exposure to electric and magnetic fields, the minimum safe working distances for trained employees and the exposure limits for occupational exposure to electric and magnetic fields.

Link for the **Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution:**
<http://www.ifc.org/wps/wcm/connect/66b56e00488657eeb36af36a6515bb18/Final+-+Electric+Transmission+and+Distribution.pdf?MOD=AJPERES>

Annex 10 - Environmental and Social Monitoring Indicators

Name of subproject:

Date:

SN	Activity	Details	Remarks
1.	Employment generation		
a.	Number of local labor employed during construction	Male..... Female.....	
b.	Number of migrant worker	Male..... Female.....	
c.	Number of child workers involved (if any)	Male..... Female.....	
d.	Number of women employed during construction phase	Male..... Female.....	
2.	Training and awareness program		
a.	Participants on awareness program on electrocution, health and safety	Male..... Female.....	
b.	Participants on awareness program on environment management	Male..... Female.....	
c.	Participants on income generating training (if any)	Male..... Female.....	
3.	Trade and commerce		
a.	Number of shops increased		
b.	Number of shop decreased		
c.	Rental of house increased		
d.	Establishment of local enterprises in the subproject vicinity		
4.	Transportation facility		
a.	Number of public vehicles increased during construction		
b.	Cost of transportation		
c.	Saving of time		
5.	Change in migration pattern		
a.	Number of person migrating to subproject area		
b.	Number of person migrating from subproject area		
c.	Number of person returned from foreign job		
d.	Number of person migrating to subproject area for business purpose		
6.	Occupational health and safety measures		

a.	First aid facility and emergency services provided at work sites		
b.	Protective gears provided to workers and using helmet, facemasks, gloves, muffle, boots, jacket, goggles etc		
c.	HIV/AIDS awareness provided for worker		
d.	Number and types of accident occurred		
e.	Accidental insurance for worker		
f.	Information, sign, signboard used at construction sites		
7.	Camp site management		
a.	Clean drinking water supply at camp site		
b.	Temporary pit latrine at campsite		
c.	Kitchen waste management at camp site		
d.	Wastewater management		
e.	First aid facilities available at camp sites		
f.	Types of fuel used for cooking (kerosene/LPG gas/firewood)		
8.	Protection of cultural and religious sites		
a.	Protection of temple, chautari, mela spot, dharmasala, cremation sites etc		
9.	Land value increased or decreased around subproject vicinity		
10.	Forest and vegetation		
a.	Number of trees cut down		
b.	Increased sale of timber and NTFP		
c.	Pressure due to use of firewood on nearby forest		
d.	Compensatory plantation in forest, private land and roadsides		
11.	Wildlife		
a.	Hunting and poaching by workforce		
b.	Trading of wildlife products		
c.	Loss of wildlife habitat due to construction activities		
12.	Birds		
a.	Hunting and poaching by workforce		
b.	Trading of birds		
c.	Loss of birds habitat due to construction activities		
d.	Effect on migratory route		
13.	Slope instability		
a.	Number and location of slope failure		

b.	Measures for landslides and erosion control		
c.	Application of bioengineering measures		
d.	Disturbed area due to lack of drainage		
14.	Spoil management		
a.	Use of safe spoil disposal location		
b.	Lower value land used as disposal site		
c.	Reuse of spoil materials		
d.	Plantation done on the spoil disposal land		
15.	Air, water and noise quality		
a.	Dust generation from construction sites		
b.	Noise generation from construction sites		
c.	Noise generation from wind turbine		
d.	Disturbance of drinking and irrigation water		
e.	Discharge of drain water into farm land and settlement area		
f.	Glare effect due to solar panel		
16.	Quarrying of construction materials		
a.	Proper management of stockpiling of construction materials		
17.	Safe disposal of construction waste		
18.	Grievance received in last month		
19.	Establishment of safeguard unit		
20.	Meeting conducted by Users' Committee		
21.	Photographs		

Annex 11: Sample E&S Management Pla for Interconnection Subprojects

Activity	Impacts	Mitigation Measures	Time	Responsibility
Pre-construction Phase				
Line Route Selection & Surveying	Loss of crops	<ul style="list-style-type: none"> Private, Cultural and Religious properties shall be avoided absolutely/as much as possible. The affected/beneficiary community shall be consulted Farmers/land owners shall be fully briefed on the project, time schedule and extent of land to be affected by the project and mitigation measures. The line shall be made to run close to the existing line Roads and paths used for maintenance of existing line shall be used to provide access for contractors/ valuation team. Destruction of private assets and crops shall be kept to the barest minimum 	Prior to physical construction	ESCO/ AEPC
Acquisition of Right-of-Way, Consultations and Compensation	Loss of crops and structures, livelihood - Land Ownership/ Conflict	<ul style="list-style-type: none"> Owners shall be informed, consulted and given prior notice to any such action The process of acquisition shall be carried out with due consultations with all stakeholders and in line with the national policy and the RPF prepared for this project, which requires that all affected households, including explicitly those holdings under various forms of traditional or customary tenure are compensated for loss of the land. Compensation for loss of private assets and livelihood shall be done in line with the RPF prepared for this project. Project affected persons shall be briefed on grievance procedures 	Prior to physical construction	ESCO/ AEPC
Construction Phase				
Tower spotting	Flora & Fauna	<ul style="list-style-type: none"> Construction of new tracks is kept to the barest minimum. Track routes will be selected in such a way as to minimize any damage to farms and crops. 	Construction/ Operation Phase	ESCO/ AEPC

Activity	Impacts	Mitigation Measures	Time	Responsibility
		<ul style="list-style-type: none"> • Mechanical control will be used for all vegetation clearing within the RoW. • The access tracks will be selected so as to avoid crossing streams and other water bodies. • Where stream crossings are unavoidable, suitable culverts will be constructed over them. Under no circumstances water bodies must be blocked to provide for construction access. • Removal of stream bank vegetation (especially bamboo/mangrove) will be avoided as much as possible. • Compaction of soils along the graded tracks will be reduced by regulating the number of passes of heavy trucks to and from the sites. • The ground surface at each tower site will be graded to provide drainage away from the tower legs. Where necessary (particularly on hillsides), terracing, cribbing or riprap may be used to provide protection for tower foundations. • The landing area of falling trees will be carefully selected to minimize damage to farms. Adequate warnings will be given to ensure that public safety is not compromised. 		
	Noise	<ul style="list-style-type: none"> • As much as possible, all equipment/plants and vehicles for the project will be new. • When making order of equipment, requirement for low noise equipment shall be priority in order to decrease noise impact. • All such equipment and vehicles will undergo periodic routine maintenance to reduce vibrations and other faults. Workers will be issued protective gear during working hours to offset any risk of hearing loss. • All noise producing activities will be kept to daylight hours of operation. • The unnecessary tooting of horns during transportation of 	Construction/ Operation Phase	ESCO/ AEPC

Activity	Impacts	Mitigation Measures	Time	Responsibility
		<p>equipment and materials through settlements will be avoided as much as possible.</p> <ul style="list-style-type: none"> • Night time work especially near communities will be avoided as much as possible to prevent undue noise impacts on local communities. • Noise levels shall be monitored at areas where work is ongoing. • Routine maintenance activities shall be practiced to reduce noise levels. • Engineering controls shall also be done as a means of reducing noise levels. • All stationary machinery and equipment will be mounted on vibration damping foundations. • Workers will not be allowed to be in direct contact with machine which vibrates as an operational necessity. 		
	Air quality	<ul style="list-style-type: none"> • Regular watering of the site will be carried out during construction to reduce the effect of wind pick-up of dust particles • Construction machinery and equipment will be maintained regularly to minimize the release of soot in the exhaust fumes. • Trucks that supply sand, gravel and stone aggregates will have their buckets properly covered with tarpaulin during transit to prevent wind pick-up of dust, spill of materials and the release of dust into the atmosphere. 	Construction/ Operation Phase	ESCO/ AEPC
	Water Resources	<ul style="list-style-type: none"> • Minimize erosion and manage excavated materials, wastewater from excavations and accidental spillage of oil, fuel and paints • Clearing and grading of access and tower corridor tracks and the excavation of tower base areas will be limited to the 	Construction/ Operation Phase	ESCO/ AEPC

Activity	Impacts	Mitigation Measures	Time	Responsibility
		<p>minimum area requirements.</p> <ul style="list-style-type: none"> • Construction workers engaged must, at all costs, avoid conflicting with water demands of local communities. • Site spoils and temporary stockpiles shall be located away from drainage systems and surface run off are directed away from stockpiles to prevent erosion. • Prevention of bitumen, oils, lubricants and waste water used/produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes. • In the event of temporary damming of streams and rivers, this must be done in such a way that disruption of water supplies to communities downstream is avoided and maintain the ecological balance of the river system. • Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to civil works being carried out. • Measuring of quality of sources of water for construction purposes. • The contractor shall use galvanized steel pipes across water bodies to allow for access in order to avoid blockage of streams, rivers and other water bodies. • No construction water-containing spoils or site effluent especially cements and oil must be allowed to flow into natural water drainage courses. 		
	Erosion	<p>Excavation of the tower base areas will be</p> <ul style="list-style-type: none"> • Erection of towers/tower footings on steep slopes will be 	Construction/ Operation	ESCO

Activity	Impacts	Mitigation Measures	Time	Responsibility
		<p>avoided as much as possible to prevent slip erosion.</p> <ul style="list-style-type: none"> Erosion control practices such as re-grading, compaction and early re-vegetation shall be applied to promote soil conservation. 	Phase	
	Work camp management	<p>Establish camp at least 500 m from the closest settlement to minimize noise impacts on the community</p> <ul style="list-style-type: none"> Recruitment of local workforce to minimize labor influx. Provision of worker code of conduct and OHS standards for the project. Provision of training for workers on roles and responsibilities, lawful conduct, cultural sensitization, gender based violence, etc. Children and minors will not be employed directly or indirectly. Do not accommodate employees at the camp. Avoid accidental spillage of oil, fuel and paints as much as be clearly marked. Equipment and materials will be properly secured when being transported to prevent them from falling and posing potential danger to people. Legally mandated speed limits on the roads and highways shall be strictly observed in all settlements. Tower base excavations in or near settlements or farms will be protected or clearly marked to prevent people from inadvertently falling into these excavations. Tree felling will be done by a certified timber contractor with competent workers. Adequate warning will be given to ensure that public safety is not compromised during this activity. The Contractor will be to place warning notices ("NO 	Construction	ESCO

Activity	Impacts	Mitigation Measures	Time	Responsibility
		ENTRY”, “NO TRESPASSING ALLOWED” etc.) at entry to access roads. In addition, random security patrols shall be carried out. <ul style="list-style-type: none"> The public in active construction areas are continuously educated through the beating of gong-gong to avoid the construction areas as much as possible. 		
	Public Safety	<ul style="list-style-type: none"> Tower base excavations in or near settlements or farms will be fenced. 	Construction / Operation Phase	ESCO
Operation Phase				
	Occupational Safety & Health	<ul style="list-style-type: none"> Provision of personal protective equipment. Adhere to conditions of Occupational Health & Safety Plan 	Construction / Operation Phase	ESCO
	Socio-economic/ cultural issues	<ul style="list-style-type: none"> Cultural “chance finds” - sites of cultural significance must be managed to the satisfaction of both the local communities Workers from outside the communities must be accommodated in workers' camp 	Construction / Operation Phase	ESCO
	Visual intrusion	<ul style="list-style-type: none"> Undertake actions to minimize glare effect of galvanized towers 	Construction / Operation Phase	ESCO
		<ul style="list-style-type: none"> Collect metal wastes and sell as scrap to dealers for re-cycling purposes Dispose damaged cables and conductors, rags, paper cartons and domestic wastes at appropriate public waste disposal sites. Provide mobile toilet facilities to avoid the pollution of the environment with human waste. 		ESCO
	Waste Generation	Adequate numbers of containers shall be provided with covers to keep rain out or to prevent loss of wastes when it is windy. <ul style="list-style-type: none"> Solid and hazardous waste containers shall be properly 	Construction / Operation Phase	ESCO

Activity	Impacts	Mitigation Measures	Time	Responsibility
		<p>labeled to identify them to ensure that toxic liquid wastes (used oils, solvents and paints) will not be disposed of in solid waste containers. Additionally, the project personnel will be trained on proper collection and disposal methods of different types of solid wastes.</p> <ul style="list-style-type: none"> • Construction waste and domestic waste will be collected, removed and disposed of only at designated areas. • Wherever possible, production of construction waste and domestic waste will be minimized by reusing and reusing leftover materials wherever possible and also through proper planning and design. • Construction workers shall be instructed in proper construction waste and domestic waste storage and handling procedures. • If scrap metal occurs, these scraps shall either be reused or sold to companies whose business activity is dealing with scraps. • Wood and cardboard wastes shall be reused if possible. • Disposing of domestic waste on the construction site will be prohibited for workers and visitors. • Domestic rubbish field will be established as planned, and regularly disinfected. • Sanitary facilities will be well planned and cleaned daily. • Construction work camps and surroundings shall be kept in clean and neat conditions at all times. • Collected domestic waste and construction waste will not be stored in the vicinity of drainage systems or watercourses. • No waste shall be disposed off or buried on the site. Illegal dumping, either at the construction camp, along public roads or in the surrounding areas, or into the river will not be 		

Activity	Impacts	Mitigation Measures	Time	Responsibility
		<p>allowed.</p> <ul style="list-style-type: none"> • The wastewater and runoff from concrete batching plants (mobile and stationary plants) will be clarified by settlement ponds and the alkali level of waste water and run off will be neutralized to prevent water pollution. • Waste generated from concreting activities will not be allowed to flow into drainage ways, and receiving waters. • Both employees and subcontractors shall be instructed about concrete waste management techniques • Hardened concrete waste will be disposed of according to solid waste management procedures. 		
	Public Health	<ul style="list-style-type: none"> • Education of workers to avoid casual sex 	Construction / Operation Phase	ESCO

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