

DRAFT

Nepal Electricity Authority

(A Government of Nepal Undertaking)

**Operational Manual of
Environmental Social Impact Assessment
(EIA/SIA) for Sub-Projects Financed Under the
Additional Financing of the Power Development
Project**

(Revised April 2009)

Executive Summary

In Nepal, the environmental impact assessment process takes a holistic approach. The term “environment” refers to the physical environment, the biological environment, the socio-economic environment, and the cultural environment. This manual presents a summary of the processes, guidelines, and principles of preparation of Environmental Impact Assessments (EIA) for activities to be supported under the Nepal Power Development Project (Nepal PDP) and the Additional Financing of the Nepal PDP. A functional system is currently in place to conduct EIAs for hydropower projects, which includes regulations, user-friendly manuals, and reliance on local expertise. In addition, the legislation has provisions for conducting EIAs for transmission and distribution lines. The World Bank’s OP 4.01 requires environmental assessments and the preparation of environmental management plans for construction of electricity sub-stations, switching stations and rehabilitation of power plants regardless to the type of fuel used, in addition to the EIA requirements identified under the legislation in Nepal.

Development of EIA practices is an ongoing process, and work continues in the implementation of more effective and streamlined procedures. MOWR, MOEST, DOED, NEA as well as other government agencies are working toward building capacity to evaluate and process a larger number of project EIAs. The EIA process in Nepal comprises:

Project Environmental Screening- Projects are examined by government agencies in order to determine whether EIA is required.

Scoping- Proponent identifies significant issues, including potential impacts of the project, and provides alternatives. This Scoping document serves as a basis for developing the Terms of Reference (TOR) document, which outlines the necessary studies.

Terms of Reference- this document is prepared on the basis of the approved Scoping document. The TOR provides an outline regarding how to conduct an EIA study.

EIA- This document summarizes all the information obtained, analysis, and interpretation of results. The report also identifies any mitigation measures required to address potential environmental impacts in the Environmental Management Plan (EMP).

Throughout this process, principles of transparency and stakeholder involvement are emphasized, in order to maximize project benefits and minimize negative impacts.

SIA Framework- The framework aims to ensure realistic rehabilitation and compensation of the acquired assets of the affected persons such as loss of land, loss of livelihood, loss of standing crops/ trees, loss of access to common property resources (CPR) and facilities, and additional benefits for vulnerable person. The framework provides mitigation measures against losses for titleholders. The framework is based on the principle that the affected persons are not worse-off on

account of the project than they were before. This approach would ensure greater acceptability of the project to the people and is expected to facilitate its effective implementation.

This manual is divided into seven chapters, first five focusing on a specific aspect relevant to the EIA process, and the last of the SIA process.

- Chapter 1: Background- discusses basic principles of EIA.
- Chapter 2: Information on the project- discusses what is entailed in a proponent's description of project.
- Chapter 3: Prevailing Acts, Rules, Guidelines, Plans, and Policies Relevant to Study of Power Projects- discusses relevant legislation, both national and international.
- Chapter 4: World Bank Safeguard Policies Applicable to Projects- specifically discusses World Bank policy and its relationship to Nepal.
- Chapter 5: Process of Environmental Impact Assessment- outlines the EIA process.
- Chapter 6: Process for Initial Environmental Examination- details the procedure for conducting Initial Environmental Examination (IEE), which is required for some projects that do not necessitate a full-scale EIA.
- Chapter 7: Environmental Assessment Process for Transmission Line, Distribution Line, construction of electricity sub-stations and switching stations and rehabilitation of existing power generation plant projects and it covers the EIA, IEE and EMP requirements process for such projects.
- Chapter 8: Social Impact Analysis framework.

The user of this manual should note that the bank's categories of sub-projects would not determine *per se* whether or not a project would undergo an Environmental Impact Assessment (EIA), an Initial Environmental Examination (IEE), Environmental Management Plan (EMP). Determination would be made by environmentally screening the projects through Schedules 1 and 2 of the Environmental Protection Rules 1997, as amended 1999 (Annexes 1 and 2). The following are flow charts (Figures 1 to 3) summarizing the screening process and the review and approval processes for EIAs, and IEEs.

Figure 1: The Screening Process for All Generation, TransmFission, and Distribution Projects.

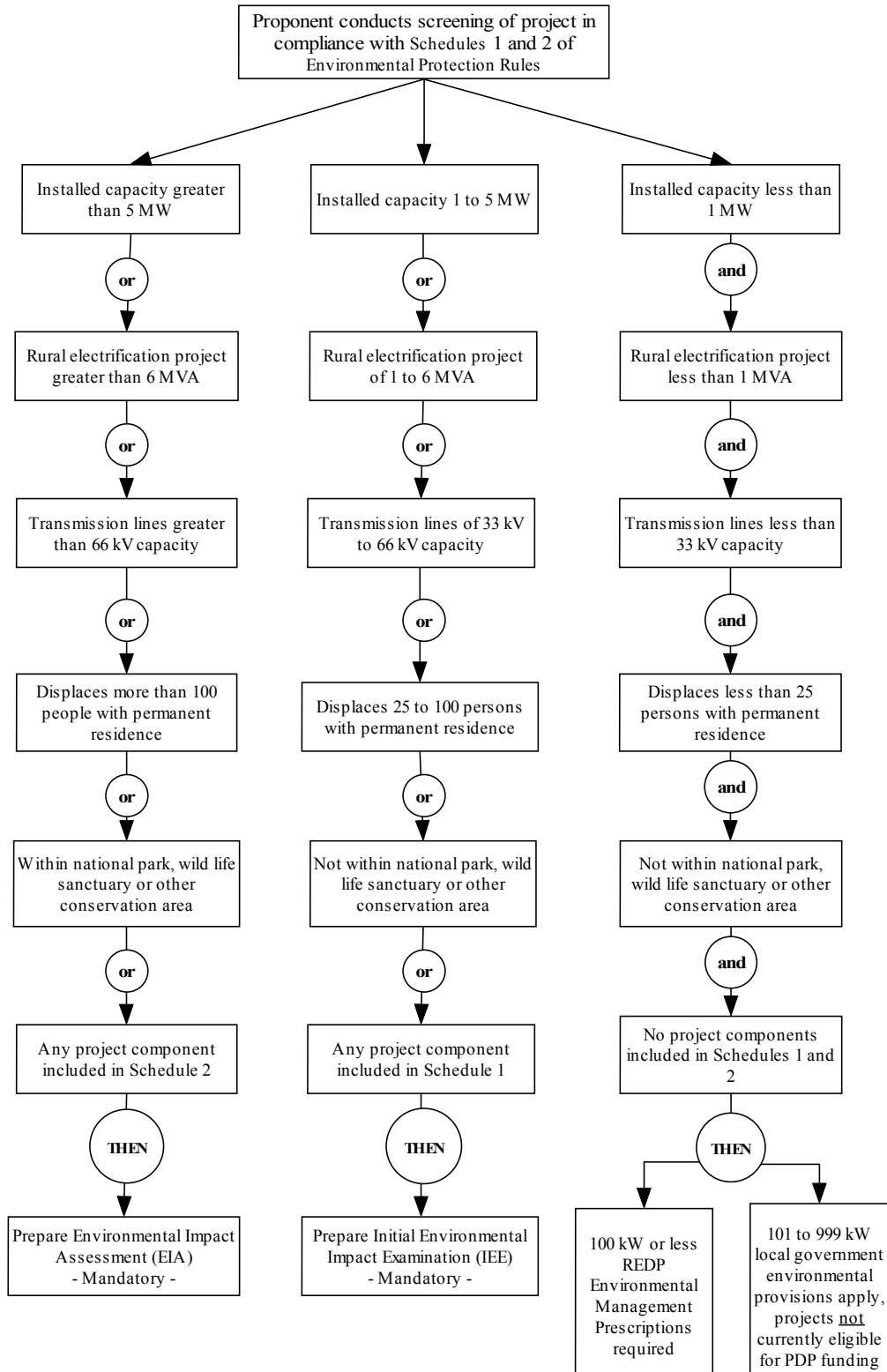
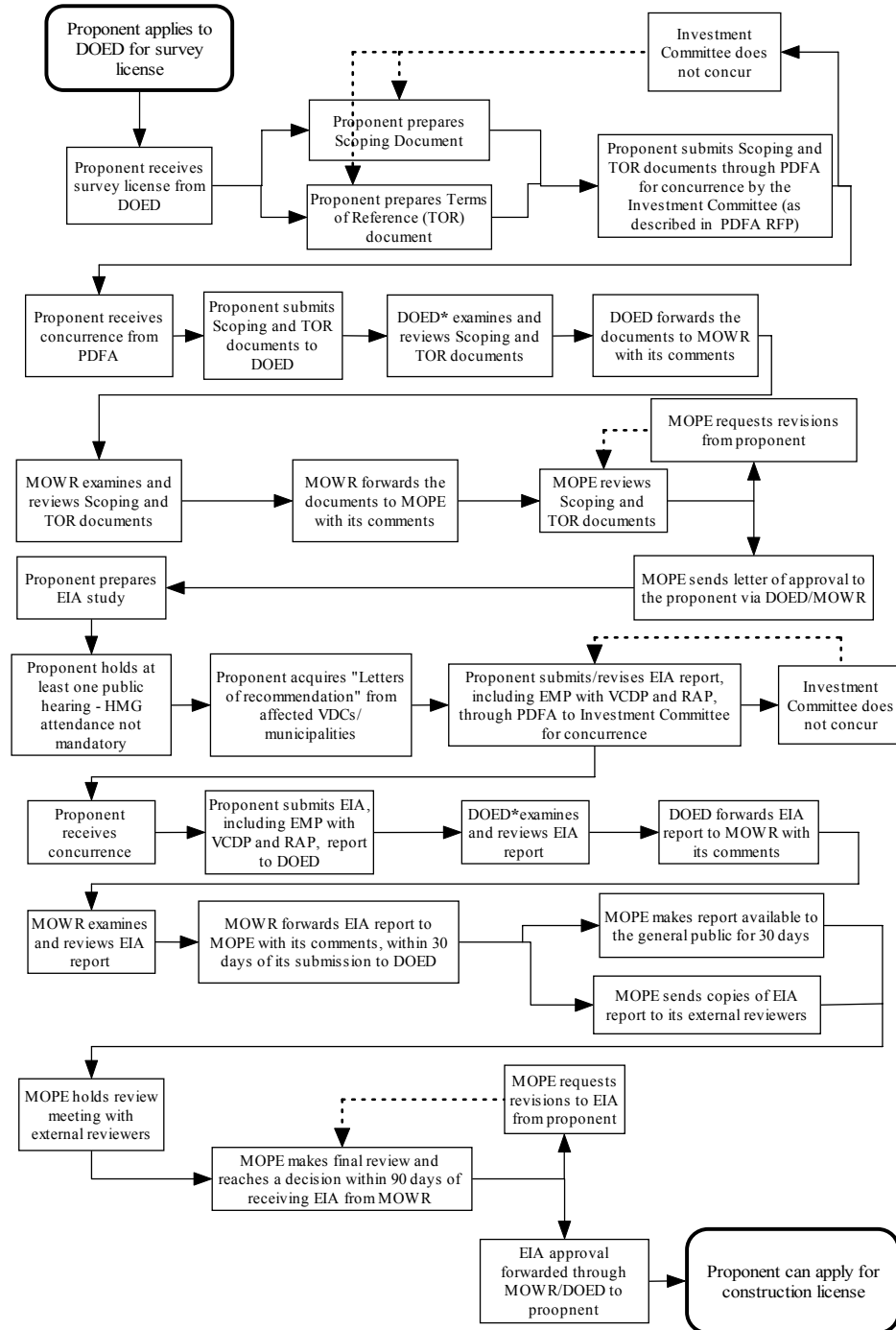


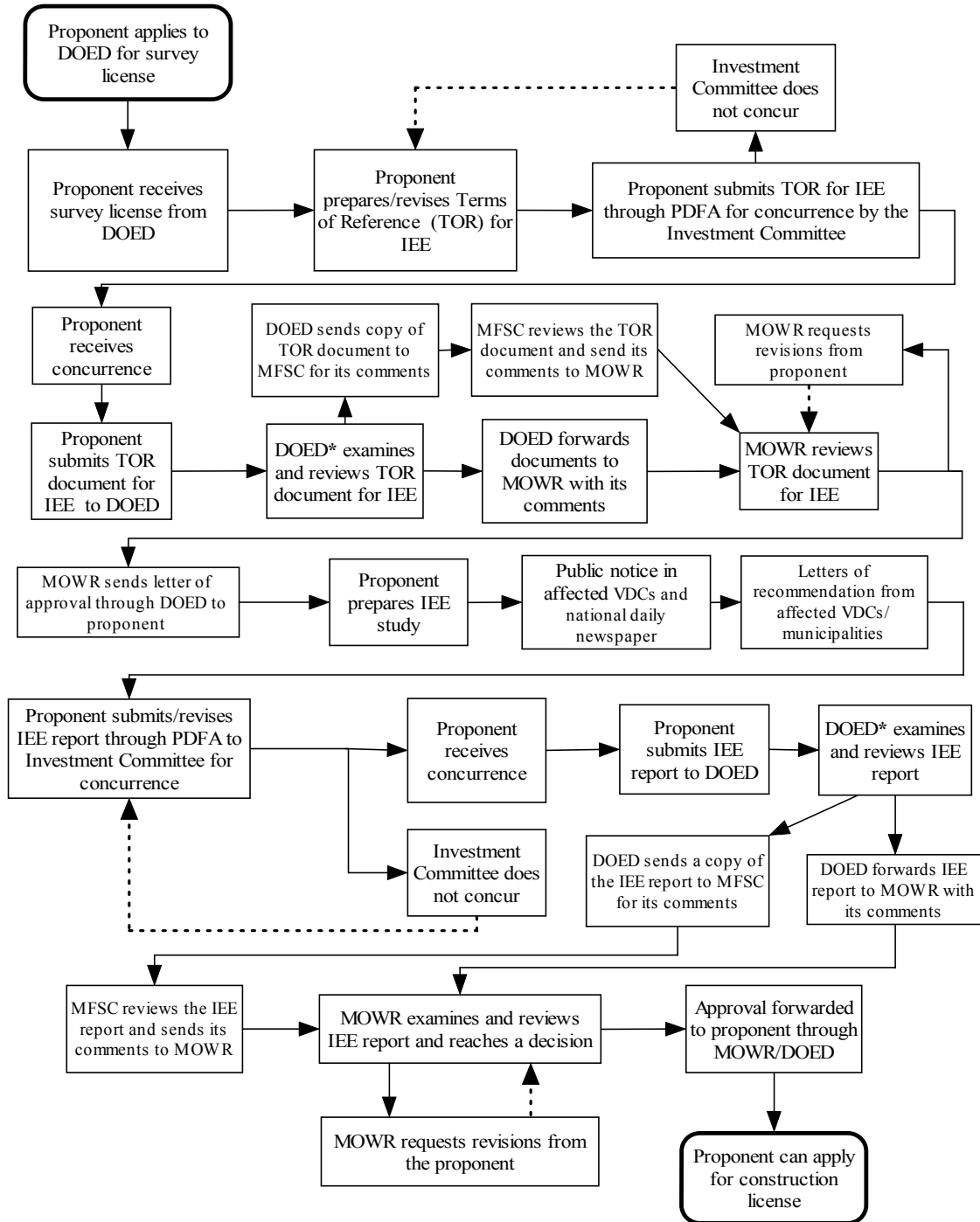
Figure 2: Review and Approval Process for Projects undergoing an Environmental Impact Assessment (EIA).



* In practice, the proponent generally submits draft copies of the report to DOED requesting DOED’s suggestions/comments on the report. DOED, after examining and reviewing the reports, sends its comments back to the proponent for incorporation. Then, the

proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time in reviewing the reports later on.

Figure 3: Review and Approval Process for Projects undergoing an Initial Environmental Examination (IEE).



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proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time in reviewing the reports later on.

Acronyms and Abbreviations

AAPA	Aquatic Animal Protection Act
BP	Bank Procedure
CBD	Convention on Biological Diversity
CO	Community Organization
DDC	District Development Committee
DOED	Department of Electricity Development
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Act
EPR	Environmental Protection Rules
FS	Feasibility Study
GoN	Government of Nepal
GP	Good Practice
IAIA	International Association for Impact Assessment
IEE	Initial Environmental Examination
MHFG	Micro Hydro Functional Group
MHP	Micro-Hydel Projects
MOA	Ministry of Agriculture
MOFSC	Ministry of Forest and Soil Conservation
MOPE	Ministry of Population and Environment
MOWR	Ministry of Water Resources
NCAMP	National Catchments Area Management Policy
NEA	Nepal Electricity Authority
NEIAG	National Environmental Impact Assessment Guidelines
NGO	Non-Governmental Organization
OD	Operational Directive
OP	Operational Policy
PAF	Project Affected Families
PDF	Project Development Fund
PEME	Participatory Environmental Monitoring and Evaluation
REDP	Rural Energy Development Project
REDS	Rural Energy Development Section
SIA	Social Impact Analysis
TOR	Terms of Reference
TRC	Technical Review Committee
VDC	Village Development Committee

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Preface

This Operational Manual should be used together with the, the *Environmental Protection Act, 2053*, and the *Environmental Protection Rules, 2054 (amended 2055)*.

To help the proponent to prepare IEE and EIA documents, the Department of Electricity Development has prepared a series of manuals. Those published to date are:

1. Manual for Preparing Scoping Document for Environmental Impact Assessment (EIA) of Hydropower Projects.
2. Manual for Preparing Terms of Reference (TOR) for Environmental Impact Assessment (EIA) of Hydropower Projects, with Notes on EIA Report Preparation.
3. Manual for Preparing Environmental Management Plan (EMP) for Hydropower Projects.
4. Manual for Public Involvement in the Environmental Impact Assessment (EIA) Process of Hydropower Projects.
5. Manual for Developing and Reviewing Water Quality Monitoring Plans and Results for Hydropower Projects.

Background

1.1. Introduction

Nepal Electricity Authority (NEA) is the central organization established in 2042 B.S as an undertaking of the Government of Nepal. It is the national organization under the Ministry of Water Resources (MOWR) which is involved in the generation, transmission and distribution of the electricity in the country and is responsible to make electricity available to all consumers within Nepal through central grid operation.

Under the Nepal Power Development Project (NPDP) supported by the World Bank, NEA's ongoing component involves power transmission and distribution development and technical assistance. The major sub-projects that are currently under implementation by NEA management are: i) Construction of 220 kV Transmission Line from Khimti-Dhalkebar and from Hetauda-Bharatpur ii) Chandranighapur System Reinforcement Project and 33 kV Transmission Line and iii) Distribution of Rural Electrification Project in Dhading and Nuwakot districts.

As an emergency measures to address the current power crisis in Nepal, NEA has requested World Bank for additional financing for improvement/ rehabilitation of a number of power plants and power transmission. A preliminary list of the subprojects under additional financing include: i) Bharatpur-Bardghat 220 kV Transmission line ii) Pathlaiya 132 kV switching station with 6 numbers of 132 kV line-bays and one bus coupler bay iii) Rehabilitation of Multifuel Power Plant of Duhabi, Biratnagar iv) Overhauling of Hetauda Diesel Plant (14.4 MW) v) Kaligandaki A Hydropower Station vi) Modi Hydroelectricity Project vii) Microhydro Village Electrification Program viii) Kathmandu Valley Distribution Strengthening and ix) Technical Assistance to support for project preparation.

Power development projects like the construction of hydropower plants, transmission lines, distribution lines, and others such as construction of electricity substations, switching stations and rehabilitation of existing power sector facilities frequently have environmental and social impacts. They generally concern such issues as:

- Climate and air quality
- Topography and slope stability
- Hydrology and water quality
- Wildlife and forest
- Endangered species
- Fish and fisheries, and other aquatic organisms
- Human population and social structures
- Land use
- Public health

- Local and national economy
- Communal resources
- Recreation
- Culture and religions
- Historical, cultural, and archeological sites

Impacts produced by the implementation of power sector projects may degrade environmental and social resources, including local ecology and ecosystems, and can eventually affect the sustainability of project benefit. Therefore, Environmental Impact Assessment (EIA), or IEEs, and Social Impact Assessment (SIA) are needed in order to make projects more environmentally sound, sustainable, and socially beneficial.

1.2. Environmental Impact Assessment

EIA is one of the major tools adopted with the aim of making development projects more compatible with their environment. The use of EIA began in 1970 in the USA, and spread throughout the world, particularly after the *UN Earth Summit '92*. To enable such issues to be taken into consideration in decision making, it was necessary to introduce a systematic EIA procedure. By this point many countries across the world have a legal and institutionalized system of EIA.

EIA has been defined in various ways by many national and international authors and institutions. The International Association for Impact Assessment (IAIA) provides one of the simplest but most complete definitions of EIA as a "*systematic process of identifying the future consequences of a current or proposed action.*"

An application of EIA is based upon certain fundamental values, to enable effective implementation at all levels. The three core principles are:

- Sustainability – the EIA process will result in environmental safeguards
- Integrity – the EIA process will conform to agreed standards
- Utility – the EIA process will provide balanced, credible information for decision making

The objective of EIA is to protect our Environment in order to have:

- Healthy and functional ecosystems and preservation of biodiversity
- Resources on which sustainable economic structure is based
- Safe and healthy living conditions for a high quality of life
- A sound socio-cultural structure

This can be accomplished through:

- Planning development and economic activities

- Conservation and protection of the physical, biological, socio-economic, and cultural environment
- Maintenance of environmental health

1.3. The Application of EIA

EIA is considered to be a project management tool for collecting and analyzing information on the environmental ¹effects of a particular project. As such, it is used to:

- Identify beneficial and adverse environmental impacts
- Examine the significance of environmental implications
- Identify alternatives
- Assess whether adverse impacts can be avoided, and beneficial impacts can be enhanced
- Assess whether adverse impacts can be mitigated
- Recommend preventive and corrective mitigating measures
- Inform decision makers and concerned parties about environmental implications
- Advise whether development should proceed

EIA as a tool to achieve sustainable development supports the notion of the Brundtland Commission (1987), which defines sustainable development as *"development which meets the needs of the present generation, without compromising the ability of fulfilling the needs for future generations."*

1.4 Social Impact Assessment

The power projects are expected to have adverse social impacts such as the loss of land, loss of residential and commercial structures, loss of crops, trees, community forests and other resources particularly in case of transmission line project which would adversely affect the income, livelihood and living standard of the people. In addition, the rehabilitation of multifuel and diesel plants would trigger noise and vibration to the people residing close to the plants unless appropriate mitigation measures are taken. This Social Impact Assessment (SIA) framework will provide a guiding document to identify the likely impacts of the interventions during subprojects construction and come up with appropriate mitigation measures to address them.

The objective of SIA framework is to ensure realistic rehabilitation and compensation of the acquired assets of the affected persons such as loss of land (homestead; agriculture; community land), loss of structure (residential; commercial; community), loss of livelihood, loss of standing crops/ trees, loss of access to common property resources (CPR) and facilities, and additional benefits for vulnerable person. The framework provides mitigation measures against losses for titleholders (legal land owners and people with usufruct and traditional rights).

¹ The term "environment" refers to the physical environment, the biological environment, the socio-economic environment, and the cultural environment.

1.4. The EIA Process

In EIA systems, there are number of sequential activities, which are applied in a logical order and are termed as EIA processes.

The EIA sequence of application:

- **Project Environmental Screening-** determines whether the project needs an EIA.
- **Scoping-** identifies significant issues, provides project alternatives, and serves as a basis for developing Terms of Reference (TOR).
- **TOR-** provides an outline of methodology of conducting the EIA study.
- **EIA-** summarizes all the information obtained, analyzed, and interpreted, and compiles it into a report form; report should contain a non-technical summary, including methods used, results, interpretation and conclusion.

EIA and associated reports generally concern the following:

- **Project description and consideration of alternatives-** seeks to describe all reasonable alternatives, including preferred and "no action" options (project location, scale, process, layout and operating conditions).
- **Prediction of impacts-** predicts impacts (as quantitatively as possible) in terms of characteristics such as magnitude, extent and duration.
- **Evaluation of impacts-** describes the significance of predicted impacts.
- **Mitigation measures-** measures to avoid, reduce, and minimize adverse impacts and to enhance beneficial effects are proposed in an Environmental Management Plan (EMP).
- **Monitoring and auditing measures-** impacts that should be monitored are identified, and auditing requirement specified.

The EIA process includes:

- **Stakeholder involvement-** This process starts during the scoping phase by involving stakeholders in correctly identifying all issues or impacts that should be studied during the course of EIA study. The stakeholder involvement process continues throughout the various stages of the EIA sequence, to ensure quality, comprehensiveness and effectiveness of the EIA, and to ensure that stakeholders' views are adequately addressed in the decision-making process.
- **Review-** the EIA report submitted is reviewed in order to assess whether all possible issues have been adequately addressed, and to facilitate decision making.
- **Decision making-** determines whether or not the project should proceed.

Information on the Project

2.1. Project Description

The project description forms part of the factual basis for the prediction of environmental impacts. Though it must be recognized that the design of the development is likely to change and evolve as a result of the assessment process, at some point a plan must be selected to be used as a basis for the assessment.

The elements and activities that characterize the construction and operation stages of projects will vary, and with them so will the sources of impact. The following should be included in the description of projects at different stages:

Description of project at construction stage should include, but not be limited to:

- Land clearing
- Construction power supply
- Roads onto and on the sites
- Access routes for the construction vehicles
- Stockpile of materials and equipment
- Cut, fill, borrow and disposal areas
- Parking facilities, construction camp areas, and campsite areas
- Provision of utilities, including lighting
- Methods for dealing with runoff
- Construction planning and implementation schedules
- Manpower requirement at different stages of construction

Description of project at operational stages is as follows:

- Building and infrastructure
- Details of operational activities
- Traffic generated
- Landscaping and restoration
- Salient features of the project

Prevailing Acts, Rules, Guidelines, Plans and Policies Relevant to EIA Study of Power Projects

3.1. Introduction

Most developing countries, including Nepal, have recognized the importance of EIA, and have integrated it into their policy framework. This has been done through the development of environmental assessment guidelines and standards, and the enactment of relevant legislation.

3.2. Environmental Protection Act, 1996 and Environmental Protection Rules, 1997

The Government of Nepal (GoN) enacted the Environmental Protection Act (EPA) in 1996 and the Environmental Protection Rules (EPR) in 1997, which make an application of Initial Environmental Examination (IEE) and EIA legally binding to the prescribed projects. Proposals requiring IEE and EIA have been included in Schedules (1) and (2) of the EPR (Amendments, 1999) respectively.

However, the Ministry of Population and Environment (MOPE) issued an additional notice in the Nepal Gazette, on 23 August 1999, stating that proposals not listed in Schedule (1) and worth investment of Rs. 10 million to 100 million may require an IEE study, and those not listed in Schedule (2) with investment of over Rs. 100 million should undergo an EIA process.

The EPR requires preparation of an IEE for any water resource development project requiring permanent resettlement/displacement of between 25 and 100 people (EPR, 1997). For water resource development projects requiring displacement of 100 or more people, an EIA is mandatory. The EPR also requires conducting IEE for hydropower projects of 1-5 MW, and an EIA is required for hydropower projects of more than 5 MW.

With respect to transmission lines, an IEE is required for transmission line projects of 33-66 kV capacity, while an EIA is required for projects of 132 kV and more. EIA is also required for thermal power projects with capacity of more than 1MW. Also, any type of power projects, including transmission line projects, which fall under national park areas, conservation areas, or wildlife preserves, require an EIA.

3.3. Electricity Act, 1992

The Electricity Act was enacted to manage the survey, generation, transmission and distribution of electricity, and to standardize and safeguard electricity services. According to Section 4, Sub-Section 1 of the act, "Any person or corporate body who wishes to conduct survey, generation, transmission or distribution of electricity over 1 MW, shall be required to submit an application to the prescribed officer along with the economic, technical and environmental study report". Section 24 of this act states that, "While carrying out electricity generation, transmission or distribution, it shall be carried out in such a manner that no substantial adverse effect be made on environment by the way of soil erosion, flood, landslide, air pollution etc."

3.4. Water Resource Act, 1992

The Water Resources Act was enacted to make arrangements for the rational utilization, conservation, management and development of water resources in Nepal. According to Section 8, Sub-Section 1 of the act, "A person or corporate body who desires to conduct survey or to utilize water resources, shall be required to submit an application to the prescribed officer or authority along with the economic, technical and environmental study report." Section 16 of the act deals with acquisition of land and houses. Sections 18, 19, and 20 of the act deal with water quality standards, water pollution, and adverse effect on the environment. Sub-Section 2 of Section 19 prohibits anyone from polluting water resources.

3.5. Land Acquisition Act, 1977

The Land Acquisition Act authorizes the government to acquire land for public purposes, while requiring compensation for private landowners. The act, however, does not specify that the compensation must be at market value. The following is a brief summary of the act:

- Authorizes GON to acquire unlimited land and fixed property of any owner for public use and welfare, diplomatic mission, and international organizations after issuing public notice and completing the required procedures.
- Under this act GON can also acquire land for public and private corporations, organizations, and private firms for public use and welfare.
- GON shall provide compensation to the concerned persons and organizations as decided by the Compensation Fixation Committee.

3.6. Forest Act, 1993 and Forest Regulation, 1995

Section 23 of the Forest Act empowers the government to permit commercial use of any part of government managed forest, community forest, or leasehold forest for a plan or project of national priority, on the condition that there is no alternative and implementation of the plan will not significantly affect the environment.

3.7. Industrial Enterprises Act, 1992

Schedule (4) of the Industrial Enterprises Act (IEA) has defined hydropower projects as national priority projects.

3.8. Aquatic Animal Protection Act, 1961

The Aquatic Animal Protection Act (AAPA) provides some legislative protection of the habitats of aquatic species. Section 3 of the AAPA renders punishable any party introducing poisonous, noxious or explosive materials into a water source, or destroying any dam, bridge or water system with the intent of capturing or killing aquatic life. However, no agency has been designated the responsibility for administering and enforcing the AAPA.

3.9. Local Self-Governance Act, 1999 and Local Self-Governance Rules, 2000

The special features under this act are that Village Development Committees (VDCs), District Development Committees (DDCs), and municipalities are authorized to generate and distribute electricity, and are required to select the development projects that contribute to conservation of the environment.

3.10. Plans, Guidelines, and Policies

3.10.1. Periodic Policies/Plan

The Eighth Plan period (1992-1997) has made a contribution in institutionalizing the EIA system in Nepal's development planning and administration. In order to continue these advancements, the current Ninth Plan (1997-2002) has adopted a policy of participation in the EIA system, and it emphasizes making procedures for the involvement of local bodies, communities, the private sector, non-governmental organizations (NGOs), and government agencies necessary.

3.10.2. Guidelines

The National Environmental Impact Assessment Guidelines (NEIAG) was endorsed by the government in 1993. However, the EIA guidelines themselves do not have legal recognition, as they have not yet been formalized into regulations. According to the guidelines, an EIA is mandatory for hydropower generation projects with a generating capacity of over 5 MW and thermal power generation projects over 1 MW. The guidelines also provide clear directions on how EIAs are to be conducted in Nepal, and specify the responsible agencies. Two separate guidelines for the forestry and industry sectors also came into force in 1995 through administrative decisions.

3.10.3. Hydropower Development Policy 2001

The Hydropower Development Policy of 2001 emphasizes the need to develop environmentally friendly hydropower to meet the country's energy needs, and to encourage the private sector to invest in hydropower. The following are the main priorities of current hydropower policy in Nepal:

- Generate electricity at low cost by utilizing the water resources available in the country
- Extend reliable and quality electric services throughout the Kingdom of Nepal at a reasonable price
- Link electrification with economic activities
- Support the development of the rural economy by expanding rural electrification
- Develop hydropower as an exportable commodity

In order to achieve the aforementioned objectives in an environmentally and socially sustainable manner, the following strategies have been included:

- Extend hydropower services to the rural economy with a viewpoint of social equity, understanding that development of the power sector directly concerns both agricultural and industrial development.
- Implement small, medium, large, and storage projects in hydropower development, with the objectives of national interest, environmental protection, and maximizing benefits in the development of Nepal's water resources.
- Adopt a broader perspective on national development in the context of the macro-economy, in terms of implementing and managing hydropower lines with the concept of developing water resources in an integrated manner.
- Minimize the potential risks in hydropower projects with a joint effort between the government and private sector, and make provisions for allocating risks that cannot be mitigated, based on capacity to bear the risk at lowest cost.

3.11. International Conventions, Delegations, and Agreements

Nepal has signed four conventions and treaties, which it should implement based on moral obligation, though not on legal ground. In terms of the EIA requirements on international legal responsibilities, the Convention on Biological Diversity (CBD) of 1992 is the most important.

Besides these, there are other conventions such as the Stockholm Declaration, Rio Declaration, and Agenda 21 – the UN’s blueprint of action for the 21st century- that oblige UN member states to adopt the necessary measures on EIA application to minimize potential environmental impacts and augment beneficial effects.

3.12. Standards

Current environmental law empowers the government to issue standards for promotion of environmental management in Nepal. No ambient standards have been developed so far, and efforts are underway to develop other categories of standards. Currently, two types of environmental standards are under implementation: voluntary standards and legally binding standards.

Discharge Standards

- Effluent standards
- Vehicle emission standards
- Pesticide residues

The standards on carbon monoxide (CO) and cartridge smoke unit (CSU) are legally binding and were issued in accordance with the provisions of the Vehicle and Transport Management Act (1992).

World Bank Safeguard Policies Applicable to Projects

4.1. Introduction

The World Bank's new operational guidelines contain measures and annexes relevant to EIA and Social Impact Assessment (SIA) of power sector projects. These documents cover Environmental Assessment, Environmental Management Plans, Natural Habitats, Water Resources Management, Indigenous Peoples, Involuntary Resettlement, Safety of Dams, and Projects on International Waterways.

The World Bank's guidelines are classified under four basic headings:

- Operational policies (OPs) establish parameters for the conduct of operations. They are statements that follow from the World Bank's Articles of Agreement, the general conditions and policies approved by the board.
- Bank Procedures (BPs) list the procedures and documentation that the borrower is required to follow and/or produce.
- Good Practices (GPs) give advice regarding implementation of the World Bank's policy.
- Operational Directives (ODs) are mixtures of OPs, BPs and GPs, which are gradually being updated.

The 4.01 series of Environmental Assessments are, in general, compatible with Nepali legislation. A minor difference is that for projects smaller than 5 MW the Nepal guidelines require only an IEE Report, whereas the World Bank's OD does not make any distinction. However, at this point, there are no projects below 5 MW being considered financing. The need for an EIA in accordance with the World Bank's guidelines can be assessed on the basis of the IEE.

The World Bank's guidelines on Environmental Management Plans could potentially benefit Nepal. In particular, this could be a source of finance for implementing a National Catchments Area Management Policy (NCAMP).

The World Bank's guidelines on Natural Habitats (OP 4.04 and BP 4.04) would also be beneficial to Nepal if a NCAMP were to be developed, as would OP 4.36 on Forestry.

The Bank's guidelines regarding a public consultation process may also be beneficial in terms of dissemination of information. In addition to having notices published in national daily newspapers in both English and the local language, announcements may also be made over local and national radio, which has proved to be a feasible means for orientation of the public.

Particularly vulnerable groups, such as women and children who will be affected by project implementation, should also be specially accounted for to ensure their participation as project beneficiaries.

The Bank's guidelines would also require a basic environmental analysis and the preparation of Environmental Management Plans for the construction of electricity sub-stations, switching stations and rehabilitation of existing thermal or hydro power stations.

Process for Environmental Impact Assessment Study

5.1. Screening Process

This process determines which power projects require EIA. As per EPR, all project listed in Schedule (2) are required to undergo an EIA study. Typically, power projects such as the following necessitate EIA:

- Hydropower projects with installed capacity more than 5 MW
- Thermal power projects with installed capacity more than 1 MW
- Transmission line projects with 132 kV installed capacity or more
- Projects lying in national parks, wildlife sanctuaries, or conservation areas, regardless of the size of the project

5.2. Scoping Process

As per EPR, after it has been determined that a project requires an EIA study, scoping is the first step in the process. Scoping is carried out in order to ascertain the major issues that are likely to arise due to project implementation. Scoping helps in developing and selecting alternatives to the proposed action, and in identifying the issues to be considered in the EIA. It is also a procedure designed to establish a TOR for the EIA. A legal definition of scoping is provided by EPR. Under Rule (4) of EPR, scoping is defined as “procedures for determining the extent of and approach to an EIA,” and it involves the following tasks:

- Involvement of relevant authorities, interested parties and affected groups
- Identification of relevant or significant issues to be examined
- Identification and selection of alternatives and development of TOR for further studies/analyses/interpretation

In regards to any proposal requiring EIA, the proponent shall publish a public notice in a national daily newspaper requesting VDCs, municipalities, schools, hospitals, DDCs, and other local institutions and individuals to offer their suggestions concerning the impacts of project implementation, within 15 days of the date of publication of such notice. The scoping document should incorporate these suggestions.

5.2.1. Aim of Scoping

Scoping is required in order to:

- Identify concerns and issues for consideration in EIA
- Enable those responsible for an EIA study to properly brief the study team on the alternatives and on impacts to be considered at different levels of analysis
- Determine the assessment methods to be used
- Identify all affected parties
- Provide an opportunity for the public to determine factors to be assessed, and facilitate early agreement on contentious issues
- Establish TOR for the EIA study

Scoping is not an isolated exercise. It may continue well into the project planning and design phase, depending on whether new issues arise for consideration.

5.2.2. Methods of Scoping

The approach and techniques used in scoping are commonly a part of any decision-making process. Issues are identified, evaluated, and organized for presentation to decision makers. The basic components of scoping exercise are as follows:

- Making a plan for public involvement
- Assembling relevant existing information
- Distribution of information to affected interest
- Identifying major issues of public concern
- Evaluating the significance of issues on the basis of available information
- Establishing priorities for environmental assessment
- Developing a strategy for addressing priority issues

5.2.3. Agencies Responsible for Scoping

Responsibility for conducting scoping rests with the project proponent, who may be a private developer or government agency, but the authorizing agency should provide guidelines for this activity. As per EPR, the proponent will have the final responsibility of conducting the scoping exercise. A team of multidisciplinary experts should be involved in the scoping study. At the community level, key local persons, leaders, and special interest groups such as teachers, women, students and farmers should also be involved in EIA scoping. Such involvement will encourage their participation in both the EIA process and the implementation of the proposed project, including environmental monitoring and evaluation. EIA scoping should be an open and participatory exercise.

5.3. The Contents of EIA Report

Schedule (6) of EPR provides an outline of the matters that should be incorporated into an EIA report. However, there are many duplications, and unnecessary duplications may increase the volume of the report and make it costly. Schedule (6) obliges the proponent to prepare an EIA report in the following format:

1. Name and address of proponent and party preparing report
2. Summary of the proposal (project summary)
3. Summary of the report (executive summary of the EIA report)
4. Particulars of the proposal (project description)
5. Description of environmental baseline information
6. Identification of environmental impacts
7. Alternative analysis
8. Mitigation measures
9. Environmental management plan (EMP)
10. Review of policy and legal provisions
11. Environmental monitoring
12. Environmental auditing
13. References
14. Annexes

The following revisions are recommended to avoid duplication:

- Consideration of EMP is required; however, except for monitoring and auditing, the legal regime is silent on the contents of the EMP. In principle, an EMP includes planning, organization, staffing, directives, coordination, reporting and budgeting, along with the inclusion of management practices.
- EPR does not indicate the need of conclusions and recommendations in the report, but in practice, this is included as a separate chapter.

EIA Report Format

Executive summary

Acronyms

Chapter 1: Project description

- 1.1 Background
- 1.2 Project Location
- 1.3 Project Description
- 1.4 Objective of the EIA Study
- 1.5 Methodology

1.6 Limitations

Chapter 2: Policy, legislation, guidelines and institutions

- 2.1 Relevant Policy
- 2.2 Relevant Laws
- 2.3 Relevant Convention
- 2.4 Environmental Guidelines and Manuals
- 2.5 Relevant Institutions

Chapter 3: Existing environmental conditions

- 3.1 Physical Environment
- 3.2 Biological Environment
- 3.3 Socio-Economic and Cultural Environment

Chapter 4: Alternative analysis

- 4.1 Implementation of the Proposed Project
- 4.2 Project Alternative Identification

Chapter 5: Identification of Environmental impacts

- 5.1 Adverse Impacts
- 5.2 Beneficial Impacts

Chapter 6: Mitigation Measures

- 6.1 Mitigation Measures
- 6.2 Enhancement Measures
- 6.3 Cost for Mitigation and Enhancement
- 6.4 Staffing for Implementation of Mitigation and Enhancement Measures

Chapter 7: Environmental Management Plan

- 7.1 Environmental Monitoring
- 7.2 Environmental Auditing
- 7.3 EMP Implementation

Chapter 8: Conclusions and Recommendations

- 8.1 Conclusions
- 8.2 Recommendations

References

Annexes

5.4. Public Consultation

5.4.1. Introduction

Public participation is a vital component in successful EIA systems and specific EIA studies. Different terms have been used to describe this aspect of EIA, for example, “consultation, participation, and public hearing as per EPR 1997.”

Individuals, groups or organizations representing various interest groups should be involved in EIA. Often, EIAs provide opportunities for other experts to become involved, such as research scientists, who may be knowledgeable on aspects of the concerned locality. In total, they are often referred to as "*stakeholders*".

There are three main types of public involvement during preparation of EIA report.

First, there is an information dissemination, wherein the proponent provides information in a proposal to the stakeholders. The flow of information is *one-way*.

Secondly, there are consultations, with information exchanged between the proponent and stakeholders in a two-way process. During consultation, there are opportunities for the stakeholders to express their views on issues related to the proposal. However, the proponent and/or authorizing agency is not bound to take such views into account in decision making, though they may do so if they consider it appropriate.

Finally, there is participation. As the term indicates, this requires shared involvement and responsibilities. Basically, it implies an element of joint analyses and control over decision. In participatory decision-making, there is no single source of ultimate control or authority. The participating parties must discuss and reach a decision by means of an agreed-upon process, for example, by meditation and consensus building.

Upon completion of the draft EIA report, the project proponent should organize a meeting to discuss it, and invite concerned stakeholders at both district and local levels to attend. Such a meeting is called a *public hearing*. In the public hearing, the proponent discloses all the information contained in the draft EIA report and collects relevant comments and suggestions from local people and stakeholders, which will be incorporated into the final EIA.

5.4.2. Participation of Stakeholders

Involvement of stakeholders through consultation and participation is considered to be an essential part of EIA. Experience has shown that the following benefits occur:

- Improved understanding among the potential impacts of the proposed projects
- Identification of alternative sites, designs, and mitigation measures

- Clarification of values and trade-offs associated with these different alternatives
- Identification of contentious issues (and a possible forum to resolve them)
- Establishment of transparent procedures for implementing proposed projects
- Creation of accountability and a sense of local ownership during project implementation

5.4.3. Plan for Involvement of Stakeholders

It is important that a plan for stakeholder involvement be prepared before EIA work begins. It is essential to have such a plan because there is a tendency for EIA practitioners to focus their attention only on the technical aspects of the EIA work, which may happen as experts are consolidated into large teams of engineers, planners or environmental scientists.

To prepare a plan, the following considerations should be made:

- Objectives of the EIA
- Identification of the stakeholders
- Budgetary/time constraints and opportunities
- Identification of appropriate techniques to involve stakeholders
- Traditional authority structures and decision-making processes
- Identification of approaches to ensure 'feedback' to stakeholders
- Identification of mechanisms to ensure consideration of stakeholders' views, opinions, and suggestions by the study team
- Need to guide involvement to focus on issues

It is very important to formulate a strategy to maintain a continued interest on the part of stakeholders, particularly with regard to lengthy EIAs. Local people may rapidly lose interest if they feel there are few visible benefits to their communities from their involvement in the EIA.

There are numerous techniques used to enable stakeholders to participate in EIA, which include:

- **Public Hearings** – these are required as per EPR.
- **Advisory Panels** – a group of individuals chosen to represent stakeholder groups, which meets periodically to assess work done/results obtained and to give advice on future works.
- **Open House** – a manned facility, in a locally accessible location, which contains an information display on the project and the study. Members of the public can go to obtain information and make their concerns/views known.
- **Interviews** – a structured series of open-ended interviews with selected community representatives to obtain information/concerns/views.
- **Questionnaires** – a written, structured series of questions issued to a sample of local people to identify concerns/views/opinions. No interviewing may be involved.

- **Participatory Appraisal Techniques** – A systematic approach to appraisal based on group inquiry and analysis and, therefore, multiple and varied inputs. It may be assisted, but not controlled or directed, by external specialists.

The main challenge is to identify and involve individuals and groups likely to be affected, but whose interests are not necessarily reflected by local/national government organizations or NGOs. It is essential to identify representatives for such affected individuals and groups and to obtain their inputs. Examples of such representatives are as follows:

- **Traditional Authorities**, such as village headmen, tribal elders and religious leaders
- **Voluntary Organizations**, such as local community development or users' groups, kinship societies, recreational groups, neighborhood associations, labor unions, gender groups, ethnic organizations, and cooperatives
- **Private sector representatives**, such as private business interest groups, trade associations or professional societies
- **Gender representatives:** In many situations, it is very important to obtain the views of women because of their various social and economic roles. Special efforts need to be made to identify the best means of obtaining their views.

5.4.4. Stages of Involvement and Participation

The stages at which public participation may occur are during:

- Preparation of Scoping Report
- Project appraisal (while conducting the EIA/feasibility studies) either at release of the preliminary/interim EIA report and/or the draft/final EIA report
- Project implementation (application of EIA recommendations)
- Project evaluation (determination extent to which a project has achieved its objectives)

5.5. Review and Approval Process

As per the legal requirement, MOPE is responsible for the approval of EIA reports. In general practice, the environment divisions/sections/units of the concerned agencies assist MOPE in the EIA report approval process, and they are knowledgeable and skilled personnel involved in review and clearance activities. Their responsibilities are to:

- Examine and review Scoping, TOR and EIA reports submitted by the proponent
- Involve representatives(s) from the concerned ministries having direct connection with the proposed project and program in order to ensure horizontal coordination
- Utilize previous experiences and information while reviewing the reports, and convince and encourage the proponent to bear social responsibility
- Participate in public hearing in the process of finalization of EIA

- Make the review process transparent

While reviewing Scoping, TOR, and EIA reports submitted by the project proponent, MOPE convenes the Report Review Suggestion Committee under the chairmanship of the Joint Secretary of its Environment Division, to seek expert opinion on a case-by-case basis. The committee is represented by the concerned agencies and government-nominated experts. The committee conducts meetings, may inspect the site, and can provide suggestions to the government to make the project more environmentally sound and sustainable. In practice, at least one meeting is conducted for Scoping and TOR, and several for final EIA report approval. The proponent presents the summary of the report and the committee members discuss issues of concern.

The review suggestion committee is mandated to provide suggestions on the Scoping Report, TOR Report and the final EIA Report submitted by the proponent for approval. The Committee provides:

- Comments and suggestions to MOPE on EIA-related documents
- Advice on the issues and conditions before the approval of the documents

Composition of the EIA Report Review Suggestion Committee

Joint-Secretary, Environment Division, MOPE	Chairman
Representative of the concerned ministry	Members
Representative of the proponent	Members
Government nominated expert	Members
Chief of the EIA Section, MOPE	Member-Secretary

The final decision on approval of EIA report is made by MOPE.

5.5.1. Scoping and TOR

In the Scoping and TOR report approval process, as mentioned in the EPR, the proponent may submit Scoping and TOR reports either separately or together. The proponent submits the reports to the Department of Electricity Development (DOED) and MOWR as the case may be. In the case of power generation projects, DOED after reviewing and examining the reports, sends the documents to MOWR² along with its comments (if any) to MOWR for further action. MOWR then, after reviewing and examining the reports, forwards the reports to MOPE with comments and suggestions. Then MOPE reviews the report, as well as the comments and suggestions from MOWR, and subsequently convenes the Report Review Committee. Based upon comments made by the committee, MOPE may approve the Scoping and TOR reports. In the case of power sector

² In practice, the proponent generally submits draft copies of the report to DOED requesting DOED's suggestions/comments on the report. DOED, after examining and reviewing the reports, sends its comments back to the proponent for incorporation. Then, the proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time in reviewing the reports later on.

projects initiated by NEA, the scoping report and TOR is sent to MOWR for review and approval. Thereafter, the process followed is as outlined above.

For any projects requesting funding through the Power Development Fund, the proponent should submit the Scoping document and TOR to the PDF Administrator for comments and concurrence **prior** to submission to DOED.

5.5.2. EIA Report

In the approved EIA process, the proponent submits a specific number of copies of the EIA report to DOED or MOWR directly as in the case of NEA being the project proponent. DOED/MOWR³ reviews for the following two legal requirements: (i) Organization of a public hearing about the proposal in the area of the appropriate VDC or municipality, as well as collection of comments and suggestions. (ii) Submission of the recommendations of the concerned VDC or municipality. DOED, after reviewing and examining the reports, forwards the reports with comments and suggestions to MOWR for review. MOWR examines and reviews the reports along with DOED's comments/suggestions. MOWR then forwards the reports to MOPE, with comments and suggestions for further actions.

With all clarification, MOPE will then publish a public notice inviting concerned public and stakeholders to provide comments on the report. For accessibility of the public to the reports, MOPE places EIA reports in concerned VDC and DDC offices, central libraries and at other significant public places for a period of 30 days. If in that time, the public provides substantial comments on the report, MOPE may instruct the proponent to address them. Also, MOPE convenes an EIA Report Review Committee as mentioned earlier. The Review Committee reviews the EIA, as well as the comments forwarded by MOWR, and submits a report on it. Then MOPE, based upon the comments made by the Review Committee and suggestions received in response to public notice, may approve the report. (Including comments made by the review committee, etc.)

For any projects requesting funding through the Power Development Fund, the proponent should submit the EIA report to the PDF Administrator for comments and concurrence **prior** to submission to DOED.

5.6. Environmental Management Plan

The EMP is a document to be prepared as a part of the EIA report. Depending on the nature of a given project, the EMP will include a Vulnerable Communities Development Plan (VCDP) and a Resettlement and Rehabilitation Action Plan (RRAP) where involuntary resettlement of 25 or more families occurs.

³ In practice, the proponent generally submits draft copies of the report to DOED requesting DOED's suggestions/comments on the report. DOED, after examining and reviewing the reports, sends its comments back to the proponent for incorporation. Then, the proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time in reviewing the reports later on.

An EMP includes project monitoring, auditing, and project management. The requirement of a chapter on EMP within the EIA report in Nepal has been clearly mentioned in EPR. Environmental monitoring includes summarizing any institutional arrangements made between different agencies, a description of the implementation schedule and reporting procedures, as well as cost estimates and sources of funds. Other aspects often associated with environmental monitoring, such as a summary of impacts and description of mitigation measures, are to be included in separate chapters.

Since an EMP includes environmental monitoring and auditing, it is appropriate to provide some introduction to the types of monitoring and auditing to be included in the EMP chapter.

5.6.1. Types of Monitoring

Various types of monitoring activities are currently in practice, each of which is relevant to an EIA study. The main types are:

a) Baseline Monitoring

A survey should be conducted on basic environmental parameters in the area surrounding the proposed project before construction begins (Pre-Audit Study). Subsequent monitoring against the baseline can assess the changes in those parameters over time.

b) Impact Monitoring

The physical, biological, and socio-economic and cultural parameters within the project area must be measured during the period of project construction and operation, in order to detect environmental changes that may have occurred as a result of project implementation.

c) Compliance Monitoring

This form of monitoring employs either a periodic sampling method or a continuous recording of specific environmental quality indicators or pollution levels, to ensure project compliance with recommended environmental protection standards.

5.6.2. Monitoring Responsibility

Environmental monitoring is a prerequisite to improving the environmental conditions of the project. The monitoring is required to ensure that the impact does not exceed legal standards, environmental protection measures are implemented as planned, and potential and actual environmental damages have been identified.

In the EPR it is stated that MOWR shall monitor and evaluate the impact of the implementation of a proposal on the environment. At present, the project proponent is generally assigned monitoring responsibility. In most cases, the condition is made that the project proponent should submit monitoring reports to MOWR at three-month intervals. The monitoring agency should be involved in review of the monitoring parameters, prepare site-specific monitoring formats, and conduct

monitoring of each parameter included in the EIA report. Furthermore, the monitoring agency should also monitor other parameters, which were not predicted during the preparation of the EIA report but may have emerged during the project construction and operational stages.

The monitoring agency should involve local beneficiaries and stakeholders, to the greatest extent possible, in environmental monitoring works. The monitoring should be transparent; all monitored data should be well stored and easily available to all concerned public, up until the project completion report is prepared and adequately distributed. It should also prepare interim monitoring reports and distribute them to stakeholders as well as the approving agency of the EIA-related documents.

5.6.3. Environmental Auditing

Auditing refers to the examination and assessment of a certain type of performance. In the case of an EIA, an audit should assess the actual environmental impacts, the accuracy of prediction, the effectiveness of environmental impact mitigation and enhancement measures, and the functioning of monitoring mechanisms. As per EPR, the audit should be undertaken after the project has been operational for two years. It is performed once for each project.

The following types of audit are recommended for EIA of power projects:

- a) **Decision Point Audit:** It examines the effectiveness of EIA as a decision-making tool.
- b) **Implementation Audit:** It ensures that consent conditions have been met.
- c) **Performance Audit:** It examines the effectiveness of project implementation and management.
- d) **Project Impact Audit:** It examines environmental changes arising from project implementation.
- e) **Predictive Technique Audit:** It examines the accuracy and utility of predictive techniques by comparing actual against predicted environmental effects.
- f) **EIA Procedures Audit:** It critically examines the methods and approach adopted during the EIA study. Not all types of audit techniques are required to be implemented. At the project approval stages, however, both the project proponent and the authorizing agency should consider whether the application of a particular auditing technique is likely to result in new information or an improvement in management practices. Particular attention should be given to the cost-effectiveness of any proposed audit and to the technical difficulties likely to be encountered.

Environmental auditing should compare monitoring results with data generated during the pre-project period. Comparisons can be made with similar projects or against standard norms. Relating actual impacts with predicted ones will help in evaluating the accuracy and adequacy of EIA predictions.

Since the EIA concept is relatively new in Nepal, the use of environmental audits will play a significant role in evolving a systematic approach to the application of the EIA.

Process for Initial Environmental Examination Study

6.1. Introduction

Projects for which the necessity for an EIA cannot be easily ascertained are subjected to an IEE. An IEE is carried out to determine if significant environmental effects are likely to occur and require a detailed study for mitigation measures. A detailed IEE study can then be carried out to propose such measures. The IEE requires:

- Adequate in-depth analysis
- Adequate technical input of environmental specialists
- Adequate resources and time

If an application of IEE provides a solution for potential problems, there is no need for conducting a full-scale EIA.

An IEE for hydropower projects should be carried out at an early stage of project planning. As determined by EPR and its first 1999 amendment, the IEE should be carried out for projects involving:

- Construction of transmission line of capacity 33 kV to 66 kV
- Rural electrification of capacity 1 MVA to 6 MVA
- Generation of electricity of 1 to 5 MW installed capacity

Hydropower and transmission line projects mentioned in Schedule (1) of EPR must undergo an IEE process. However, in the case that some problems cannot be solved at the IEE stage, there is also a provision that the IEE may recommend for the application of EIA. This has been explicitly mentioned in Rule (6) of EPR.

The legal process for undertaking IEE has been described in Rules (3) and (5), Sub-Rule (2) of Rule (7), Rule (10), and Sub-Rule (1) of Rule (11) of EPR applicable to Hydropower Projects, and is as follows:

1. The proponent must carry out an IEE for the designated project as specified in Schedule (1) of EPR.
2. The project proponent should prepare a TOR based on the format given in Schedule (3) of EPR, to be submitted to DOED⁴ and MOWR for approval.

⁴ In practice, the proponent generally submits draft copies of the report to DOED requesting DOED's suggestions/comments on the report. DOED, after reviewing and examining the reports, sends its comments back to the *Operational Manual of EIA for Sub- projects Financed under Additional Financing of the Power Development Project* **26**

3. In the process of preparing the IEE report, the proponent should affix the notice in concerned VDCs/Municipalities/DDCs, Schools, hospitals, and health posts, as well as publish the notice in a national daily newspaper. This notice must request the concerned institutions and individuals to offer their written opinions and suggestions within 15 days pertaining to the possible impacts on the local environment from the implementation of the project. The proponent should prepare a deed of public enquiry (Muchulka) of that action. Opinions and suggestions recorded in response to the notice shall be included in the IEE report prepared as per Rule (7), and the format mentioned in Schedule (5) should be followed. The reports should include the recommendation letters of the concerned VDCs and municipalities.
4. Upon submission of IEE report with all necessary documents, as required by the prevailing laws, the DOED⁵/MOWR after reviewing and examining the reports can approve the project within 21 days of submission; if it is found that implementation of the project will have no adverse impacts on the environment.
5. If the IEE recommends the undertaking of an EIA for the selected project, the proponent must carry out a full-scale EIA.

6.2. TOR for IEE

The scoping process has been removed from IEE in the first amendment of EPR (1999). Thus, TOR for IEE also represents the scoping process to some extent, and TOR should be presented here for the purpose of reference. The proponent should develop a TOR to be submitted to DOED and MOWR for approval.

If the proposed hydropower project falls within Schedule (1) of EPR, the TOR is required to provide specific guidelines for IEE study. TOR preparation assists in:

- Systematizing the working procedure
- Delineating the specific activities to be implemented
- Fitting the IEE study into the context of existing polices, rules and administrative procedures
- Accomplishing the work within a specified time frame
- Giving emphasis to the most important elements for study
- Providing technical guidance in delineating the specific environmental aspects for study

Format for TOR (as per Schedule (3) of EPR)

1. Name and address of the person/institution preparing the report
2. (a) General introduction, (b) relevancy of proposal

proponent for improvement. Then, the proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time for reviewing the reports later on.

⁵ In practice, the proponent generally submits draft copies of the report to DOED requesting DOED's suggestions/comments on the report. DOED, after reviewing the reports, sends its comments back to the proponent for improvement. Then, the proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time for reviewing the reports later on.

3. Procedures to be adopted while preparing the report
4. Policies, acts, rules and manuals to be taken into account
5. Preparation of the report:
 - Time
 - Estimated budget
6. Delete in first amendment (1999)
7. Specific impacts of implementation of the proposal on the environment
 - Physical and chemical
 - Biological
 - Socio-economic
 - Cultural
8. Alternatives for the implementation of the proposal
 - Design
 - Project site
 - Technology, procedures of operation, time schedule, raw materials to be used
 - Other matters
9. Prevention of impacts on the implementation of the proposal on the environment
10. Matters to be monitored while implementing the proposal
11. Other necessary matters

Note: The general practice in socioeconomic environment and cultural environment is combined as “Socioeconomic and Cultural Environment. Also, physical and chemical environment is termed “Physical Environment”.

6.3. The Contents of IEE

Schedule (5) of EPR provides an outline of the matters that should be mentioned preparing IEE report. The following is the outline of the format as per Schedule (5) of EPR:

1. Name and address of proponent
2. Summary of proposal
3. Project description
4. Baseline information
5. Impacts of project implementation on environment
6. Alternatives for the implementation of project
7. Mitigation measures
8. Matters to be monitored
9. Other necessary matters

The following are the topics of the **Table of Contents** for IEE reports in practice in Nepal for hydropower projects:

Acronyms

Executive Summary

1. Introduction

- 1.1 Background
- 1.2 Justification of Study
- 1.3 Objective of Study
- 1.4 Methodology
- 1.5 Alternatives
- 1.6 Study Limitations

2. Project Description

- 2.1 Project Components
- 2.2 Salient Features of the Project
- 2.3 Project Construction Schedule
- 2.4 Manpower and Materials Requirement

3. Baseline Information

- 3.1 Physical Environment
- 3.2 Biological Environment
- 3.3 Socio-Economic and Cultural Environments

4. Identification of Environmental Impacts

- 4.1 Physical Environment
- 4.2 Biological Environment
- 4.3 Socio-Economic and Cultural Environments
- 4.4 Beneficial Impacts
- 4.5 Cumulative Impacts

5. Consideration of Alternatives

- 5.1 No Action Option
- 5.2 Project Implementation Option
- 5.3 Options for Project Facilities

6. Impact Mitigation Measures

- 6.1 Physical Component
- 6.2 Biological Component
- 6.3 Socio-Economic and Cultural Components
- 6.4 Beneficial Impacts Augmentation

7. Environmental Monitoring

8. Policies, Laws, Regulations and Guidelines

9. Conclusions

References

Annexes

6.4. Public Consultation Process

The public consultation process is a cornerstone of project planning and implementation. The effectiveness of an IEE is largely determined by how successfully the community has been involved in the process. Public participation helps to:

- Facilitate individual involvement in development projects from the planning stage onwards
- Create a sense of responsibility towards making development project environmentally sound and cost-effective
- Allow due recognition of traditional practices and knowledge
- Create public awareness
- Enhance the chances of project success

Public consultation and involvement is required during the following phases of project planning:

- Project identification and at pre-feasibility, feasibility and project construction and operational stages
- Monitoring, evaluation and auditing

The following agencies, groups and individuals are required to participate in the IEE process:

- Local beneficiaries, target groups, user groups, interested and affected parties, and special interest groups, such as women
- Relevant government agencies
- Local elected leaders
- Relevant NGOs and academic groups

Methods to involve people at different levels include:

- Community meetings and information sharing
- Interpersonal contact
- Dialogue with user groups and local leaders
- Questionnaire/survey/interview
- Involvement of local people during monitoring and evaluation
- Interaction with local elected bodies

The project proponents, implementers and authorizing agencies are responsible for encouraging community involvement, from the planning stage onwards, in all hydropower projects of IEE level. The public, proponents, and implementers should jointly undertake information collection and assessment prior to decisions being made.

6.5. Review and Approval Process

An IEE report for a hydropower project, developed based on approval of the TOR, is submitted to DOED. DOED, in turn after reviewing and examining the reports, submits it with comments to MOWR. MOWR examines and reviews the IEE report and also obtains opinions from other concerned agencies, such as the Ministry of Forest and Soil Conservation (MOFSC), Ministry of Agriculture (MOA) etc., as well as district line agencies. If there are no objectionable issues raised, MOWR approves the IEE report within 21 days of its submission (Rule (11) of EPR, 1997).

Minimum requirements – The Review Officer should review for the following requirements:

1. Proof of posting of notice in the concerned VDC/municipality, office of the District Development Committee, school, hospital, and health posts as per the provision of section 7(2) of EPR.
2. The deed of public enquiry of that action as per a provision of section 7(2) of EPR.
3. The said public notice shall also be published in a national newspaper, with 15 days allowed for responses.
4. Inclusion of the recommendation letter(s) of the VDC(s) and municipality(ies) in the final IEE report.
5. Compliance of the IEE report with the approved TOR in accordance with Rule (5) of the EPR.
6. Submission of the 15 copies of the final IEE report to the concerned agency.
7. Comments and suggestions from other concerned ministries/departments, and line agencies.

For any projects requesting funding through the Power Development Fund, the proponent should submit the TOR and IEE report to the PDF Administrator for comments and concurrence **prior** to submission to DOED.

6.6. EMP Monitoring Responsibility

6.6.1. Introduction

A shortcoming of some IEEs is the absence of baseline data and impact monitoring during the construction, operation, and completion phases of development projects. Without such data, it is impossible to test impact predictions and the success of mitigation measures. Furthermore, the lack of appropriate ecological monitoring impedes scientific progress in impact prediction and assessment, which makes it difficult to learn from experience. Thus, baseline data is essential for effective monitoring.

Environmental monitoring is one of the most important components of an IEE. It is essential for:

- Ensuring that impacts do not exceed legal standards

- Checking the implementation of mitigation measures in the manner described in the IEE report
- Providing early warning of potential environmental damage

6.6.2. Types of Monitoring

Various types of monitoring activities are currently in practice; each has some degree of relevance. The main activities are briefly described below.

Baseline Monitoring – A survey should be conducted of environmental resources of the area surrounding the proposed project before construction begins. This allows subsequent monitoring to assess changes in the parameters over time against the baseline.

Impact Monitoring – The ecological, socio-economic (including public health), and cultural parameters within the project must be measured during both construction and operational phases, in order to detect environmental changes that may have occurred as a result of project implementation.

Compliance Monitoring – This form of monitoring employs either periodic sampling or continuous recording of specific environmental quality indicators or pollution levels, in order to ensure project compliance with recommended environmental protection standards.

6.6.3. Responsibilities

Rule (13) and Sub-Rules (2) and (3) of EPR specifically mention that the concerned body shall monitor and evaluate the impact of implementation of the proposal on the environment. The concerned body in this case is MOWR and its departments, but in practice, the proponent is given monitoring authority, along with the involvement of local stakeholders. The proponent should submit the monitoring reports at an interval of every three months. If the conditions prescribed have been breached at the time of approval, the concerned agency should issue directives to the proponent (Sub-Rules (2) and (3) of Rule (13) of EPR, 1997).

⁸ In practice, the proponent generally submits draft copies of the report to DOED requesting DOED's suggestions/comments on the report. DOED, after reviewing the reports, sends its comments back to the proponent for improvement. Then, the proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time for reviewing the reports later on.

Environmental Assessment Process for Construction of Transmission Line, Distribution Line, Electricity Substation and Switching Station and Rehabilitation of Existing Power Plant Projects

All major projects are now being considered for the application of EIA since the enforcement of Environment Protection Rule (EPR) 1997. Schedule -1 and 2 of the EPR provide guidance for the level of studies to be conducted in different type of projects. According to EPR 97 the environmental Assessment Process for transmission line project is as follows:

7.1 Transmission Line Projects Requiring EIA

The following projects require full scale Environmental Impact Assessment Study

- Construction of 132 kV Transmission Line Project
- Rural Electrification project above 6 MVA capacity
- Loss of more than 5 ha single patch of forest by the construction of project
- Resettlement of more than 100 households by the implementation of the project
- Implementation of project in National Park Area, Conservation Area, Buffer Zone Area, Environmentally sensitive area and area of Historical and Cultural Importance
- Projects falling in Schedule 2 of EPR

7.1.1 Environmental Assessment Guideline of GoN and World Bank

GoN Guideline

The following guidelines are applicable for Transmission Line and Distribution System Projects.

- Environmental Impact Assessment Guideline 1993
- Environment Protection Rules 1997 and First amendment 1999
- Environment Protection Act 1996
- Forest Sector Guideline 1995

World Bank Guideline

World Bank Operational Directives specifies that a Thermal and Hydropower Development and dam and reservoir projects require a full EIA as Category "A" Projects. Transmission projects can be Category A or B, depending on the anticipated severity of their impact. As an, transmission projects will require a full EIA. As a B, they will only require a more moderate environmental

analysis. The World Banks OP and BP 17.5 mandate public information and consultation for such projects.

The other World Banks Policies and Guidelines that need to be specially considered for the EIA project are:

Operational Directives 4,01, 1991 Environmental Assessment

Operational Directives 4.20, 1991 Indigenous People

Operational Directives 1 Involuntary Resettlement

7.1.2 Scoping Process

Environmental Scoping is the first step of the Environmental Study. The following procedure will be adapted during scoping exercise:

- Collection and review of background material of the Project
- Publication of 15 days notice
- Field visits by the group of expert
- Conduct group meeting with stakeholders
- Collect issues from group meeting and key informants
- Collect field level baseline data and identify the likely issues in physical, biological and socioeconomic and cultural environment
- Collect written response and issues from VDCs and other stakeholders
- Prioritize the issues
- Prepare Scoping document as per EPR 97

7.1.3 TOR

- Prepare Terms of Reference covering the issues of Scoping as per Schedule-4 of EPR 97 by undertaking an environmental screening process
- Submit the Scoping and Terms of Reference document to Ministry of Population and Environment through Ministry of Water Resources and Department of Electricity Development

Note: Notice must contain project background, list of affected VDCs and request for providing written suggestion to concern VDCs, school, health post, affected families and other concerned people

7.1.3 Contents of the EIA

The basic format of the report will be as mentioned in the Schedule 6 of the EPR 1997 and National EIA Guidelines 1993. The EIA report will include

- Organization Preparing the Environment Impact Assessment Report with Address the Title/cover page

- An Executive Summary (Summary of the baseline information and impacts on physical, biological and Socioeconomic resources)
- Introduction
- Description of the project
- Description of the Baseline Information (physical, biological and Socioeconomic resources)
- Identification of Environmental Impacts (Direct, indirect, positive negative and cumulative impacts, construction phase and operation phase impacts etc)
- Alternative Analysis (Project alternative, design alternative etc)
- Mitigation Measures (Protective measures, compensatory measures design measures etc)
- Environment Management Plan
- Review of relevant Rules, Acts and Regulation
- Monitoring
- Auditing
- Conclusion and Recommendation
- Reference
- Appendices
- Summary of EIA report will be prepared in Nepali language

The books, reports, maps and other documents referred during the EIA will be listed in alphabetical order. The name of the publication, its author, date of publication and the name of the publisher will be given to make verification easier.

7.1.5 Public Consultation Process

According to EPR Public involvement will be implemented in different stages of the Environmental Study.

A. Public Participation during Scoping Stage

- Publication of 15 days in national daily news paper
- Group meeting at site
- Meeting with line agencies
- Discussion and Presentation to Review committee Member formed by MOPE for particular project

B. Public Consultation during EIA Stage

- Field visit by the expert and consultation with local people
- PRA and RRA program for the socioeconomic and environmental survey
- Public hearing program
- Make sure the local people are fully aware about the program

- Implementation of Public hearing program in project affected area in the presence of concerned central and district level line agencies, NGOs, project affected families and local people.
- Presentation of the findings of the draft EIA study and distribution of Brochure which include summary of the findings
- Collection of response of participants
- Prepare final report including all the relevant issues
- EIA report will be publicly open for 30 days for the review and comments of general public. The report is kept in Tribhuvan University library, MOPE library and other concerned places at central level and District Development Committee Office and Village Development Committee Office and local level.

7.1.6 Review and Approval Process

Scoping and TOR

- Proponent will prepare and submit Scoping and TOR document to Department of Electricity Development (DOED) for necessary action as per EPR 97(1st amendment⁹)
- Proponent may submit Scoping and TOR documents separately or together.
- DOED will examine and review the documents and send the documents to MOWR with its comments⁸
- MOWR will examine and review the documents along with DOED's comments and send the documents to MOPE with its comments
- Ministry of Population and Environment form Review Committee for the review and comments of the submitted document. The review committee generally includes representative of MOWR, DOED Ministry of Forest and Soil Conservation, Environmental Experts and other concerned people.
- Distribute the document to review committee members and organize review committee meeting in the presence of Joint Secretary of MOPE
- Proponent will present about the proposal and thorough discussion between committee members and proponent's experts will be held
- Minuting of the comments and comments will be forwarded to Proponent for corrections in the document
- MOPE will check the corrections and approve the scoping document and Terms of References
- The proponent will prepare EIA report based on approved Terms of Reference

EIA Stage

- Submit 15 copies EIA report to Department of Electricity Development (DOED) and the DOED will examine and review the report and send the documents to MOWR along with its comments⁹

⁹ In practice, the proponent generally submits draft copies of the report to DOED requesting DOED's suggestions/comments on the report. DOED, after reviewing the reports, sends its comments back to the proponent for

Operational Manual of EIA for Sub- projects Financed under Additional Financing of the Power Development Project **38**

- MOWR will examine and review the report along with DOED's comments and send the documents to MOPE with its comments
- MOPE will publish 30 days notice in national daily newspaper
- Deliver the EIA report to review committee member, public library, DDC office and VDC office for public access and review and comments
- Collect the response of local people and other concerned agencies
- Organize review committee meeting in the presence of Joint Secretary of MOPE
- Proponent will present about the findings of EIA study and thorough discussion between
- Committee members and proponents experts will be held
- Minuting of the comments and comments will be forwarded to Proponent for corrections in the document
- MOPE will check the corrections and provide final approval within 60 days as per EPR 97

7.1.7 EMP Monitoring Responsibilities

According to EPR 97 and first amendment 1999 primary responsibility lies with the proponent for the implementation of the EPM. The proponent may :

- Form Environmental Management and Monitoring Unit under the project umbrella
- Hire local Consultant for the implementation of Environmental Management and Monitoring program
- Request Environmental and Social Studies Department of NEA for implementation of Environmental Management and Monitoring program

The secondary responsibility lies with respect to implementation of EMP is to:

- Ministry of Population and Environment (Provision of Inspector is made in EPR 97)
- Ministry of Water Resources
- Ministry of Forest and Soil Conservation
- Department of Electricity Development
- Department of Forest
- Village Development Committee
- Donor in case of donor funded project

For NEA initiated projects, the Environmental and Social Assessment Division of the NEA should be tasked with the responsibility of monitoring the implementation of the EMP. In addition, an independent environmental and social compliance audit will be conducted on all sub-projects funded under the Additional Financing to ensure compliance with EMP responsibilities.

improvement. Then, the proponent submits a specific number of copies of the report (as required by the law) to DOED again. This is done to save time for reviewing the reports later on.

7.2 Initial Environmental Examination (IEE) for Distribution Line and Transmission Line Projects and the Construction of Electricity Substations, Switching Stations and Rehabilitation of Existing Power Generation Stations

The following projects need Initial Environmental Examination level study:

- Transmission Line projects of 33 - 66 kV capacity
- Rural Electrification projects of 1 to 6 MVA capacity
- Loss of single patch of up to 5 ha forest by the construction of project
- Resettlement of 25 to 100 households by the implementation of the project
- Projects falling in Schedule 1 of EPR
- The Construction of Electricity Sub-stations and Switching Stations
- Rehabilitation of existing power generation stations

7.2.1 GON and World Bank Guideline

The guidelines mentioned above are also applicable for IEE level study.

7.2.2 TOR Process

Scoping is not required for IEE level study. However all of the above projects to be supported under the Additional Financing are required to undergo environmental screening. TOR must be prepared prior to IEE study. The TOR will be approved by MOWR via Department of Electricity Development.

7.2.3 Contents of the IEE

- Organization Preparing the IEE Report with Address the Title/cover page
- An Executive Summary (Summary of the baseline information and impacts on physical, biological and Socioeconomic resources)
- Introduction
- Description of the project
- Description of the Baseline Information (physical, biological, socioeconomic and cultural resources)
- Identification of Environmental Impacts (Direct, indirect, positive negative and cumulative impacts, construction phase and operation phase impacts etc)
- Alternative Analysis (Project alternative, design alternative etc)
- Mitigation Measures (Protective measures, compensatory measures design measures etc)
- Environment Monitoring Plan
- Environmental Auditing Plan (Although not required by EPR 97)
- Conclusion and Recommendation
- Reference
- Appendices

- Summary of EIA report will be prepared in Nepali language

The books, reports, maps and other documents referred during the EIA will be listed in alphabetical order. The name of the publication, its author, date of publication and the name of the publisher will be given to make verification easier.

7.2.4 Public Consultation Process

- Field visit by the expert and consultation with local people
- PRA and RRA program for the socioeconomic and environmental survey
- 15 days public notice in daily newspaper about the project and request for comments and suggestions from local people.
- Display of notice in public places at local level and preparation of "Muchulka"
- Collection of recommendations of affected VDCs/Municipalities
- Incorporate the issues in IEE report

7.2.5 Review and Approval Process

Submission of 15 copies of IEE report to Department of Electricity Development (DOED) and the department will review and either forward the report with comments to MOWR or return to proponent for correction and resubmission. MOWR will review and either approve or return to proponent for correction and resubmission

7.2.6 EMP Monitoring Responsibilities

Please refer the EMP responsibilities mentioned for EIA studies. For NEA initiated projects, the Environmental and Social Assessment Division of the NEA should be tasked with the responsibility of monitoring the implementation of the EMP. In addition, an independent environmental and social compliance audit will be conducted on all sub-projects funded under the Additional Financing to ensure compliance with EMP responsibilities.

Social Assessment and Management Framework

8.1 Introduction

Under the Nepal Power Development Project (NPDP) supported by the World Bank, NEA's ongoing component involves power transmission and distribution development and technical assistance. The major sub-projects that are currently under implementation by NEA management are: i) Construction of 220 kV Transmission Line from Khimti-Dhalkebar and from Hetauda-Bharatpur ii) Chandranighapur System Reinforcement Project and 33 kV Transmission Line and iii) Distribution of Rural Electrification Project in Dhading and Nuwakot districts.

As an emergency measures to address the current power crisis in Nepal, NEA has requested World Bank for additional financing for improvement/ rehabilitation of a number of power plants and power transmission. A preliminary list of the subprojects under additional financing include: i) Bharatpur-Bardghat 220 kV Transmission line ii) Pathlaiya 132 kV switching station with 6 numbers of 132 kV line-bays and one bus coupler bay iii) Rehabilitation of Multifuel Power Plant of Duhabi, Biratnagar iv) Overhauling of Hetauda Diesel Plant (14.4 MW) v) Kaligandaki A Hydropower Station vi) Modi Hydroelectricity Project vii) Microhydro Village Electrification Program viii) Kathmandu Valley Distribution Strengthening and ix) Technical Assistance to support for project preparation.

The subprojects currently under implementation and the new ones to be supported under additional financing are expected to have adverse social impacts of varied nature and extent. These include primarily the loss of land, loss of residential and commercial structures, loss of crops, trees, community forests and other resources particularly in case of transmission line project which would adversely affect the income, livelihood and living standard of the people. In addition, the rehabilitation of multifuel and diesel plants would trigger noise and vibration to the people residing close to the plants unless appropriate mitigation measures are taken. This Social Impact Assessment (SIA) framework has been prepared as a guiding document to identify the likely impacts of the interventions during subprojects construction and come up with appropriate mitigation measures to address them.

8.2 Objectives of the Framework

The objective of this framework is to ensure realistic rehabilitation and compensation of the acquired assets of the affected persons such as loss of land (homestead; agriculture; community land), loss of structure (residential; commercial; community), loss of livelihood, loss of standing crops/ trees, loss of access to common property resources (CPR) and facilities, and additional benefits for vulnerable person. The framework provides mitigation measures against losses for

titleholders (legal land owners and people with usufruct and traditional rights) and non titleholders including tenants; lease holders). The framework aims to:

- a) minimize displacement and to identify the non-displacing or least-displacing alternatives;
- b) plan the Resettlement and Rehabilitation of Project Affected Families (PAFs), including special needs of vulnerable sections;
- c) assist affected persons in maintaining/restoring their former living standards, income earning capacity, and production levels.
- d) facilitate harmonious relationship between the Implementing Authority (Acquiring Body) and PAFs through mutual cooperation and regular interaction; and
- e) ensure that the affected persons are meaningfully consulted and provided opportunities to participate in the planning and implementation stages of the resettlement program in order to suitably accommodate their inputs and make this framework more participatory in nature and broad based in its scope

This framework is applicable to all the sub projects coming under the Nepal Power Development Project

8.3 Terms and Definitions

8.3.1 Compensation: is the payment in cash or kind equivalent to the market value of the property under acquisition.

8.3.2 Compensation Fixation Committee: is the committee established under LA Act, 1977 to determine the market value of the property under acquisition.

8.3.3 Grievance Redress Committee: is the committee established by the implementing agency to address the grievances of project affected persons (PAPs) related to land acquisition; resettlement and loss of livelihood caused by the project. The structure and roles and responsibilities of each member of GRC will be detailed out in individual Resettlement Action Plan.

8.3.4 Land Acquisition: is the process whereby private land either in full or part is acquired for a public purpose by the government.

8.3.5 Project Affected Families is defined as head of the household, spouse and dependent children below the age of 18 years. Children of the same household above the age of 18 years, irrespective of their marital status, will be considered as separate family for R&R assistance but not for compensation and housing facilities.

8.3.6 Project Affected Person is a person, who is adversely affected by the project and is thus entitled to either compensation or assistance or both as per the project entitlement framework

8.3.7 Resettlement Action Plan is an action plan that details out the impacts; measures to avoid / minimize / mitigate the adverse impacts; the required resources to implement the measures;

timeframe and the implementation mechanism. The RAP is prepared based on census and baseline socio-economic survey of the affected persons at a sub-project level.

8.3.8 Rehabilitation Assistance is the amount and / or training for income restoration given as one time grant / activity to affected persons over and above the compensation to assist them in at least regaining their former standard of living or to improve upon the same.

8.3.9 Replacement Cost is the cost of purchasing comparable assets elsewhere by the affected person in lieu of the acquired land and other amenities, buildings etc. The compensation awarded for the acquired land and other amenities, buildings, etc. should be adequate to enable purchase of comparable assets elsewhere by the affected person.

8.3.10 Right of Way Easement or ROW easement is the process whereby the owner or possessor of the land permits the continued use of a part of the land towards transit of persons and / or service against a consideration, but where the ownership of the land remains unchanged.

8.3.11 Severely Project Affected Person (SPAF) is a person (i) who loses 25% or more than 25% of the total landholding or the residual land is reduced to uneconomic land holding (less than 5.0 *Katha*); (ii) loses his residential and / or commercial structure and is being displaced. Each structure acquired will be considered as one SPAF.

8.3.12 Sub – project is each of the power generation units and the transmission and distribution schemes under the project.

8.3.13 Vulnerable Communities Development Plan (VCDP) is a plan to assist in socio-economic development of ethnic minorities; tribal groups and families living below poverty line in the project affected area.

8.4 The Principles

This framework is based on the principle that the affected persons are not worse-off on account of the project than they were before. This approach would ensure greater acceptability of the project to the people and is expected to facilitate its effective implementation. The general principals of the framework are:

1. The negative impact on persons affected by the sub projects would be either avoided to the extent possible or minimized.
2. Where the negative impacts are unavoidable, the project-affected persons irrespective of their legal title will be assisted in regaining their standard of living. Vulnerable Groups will be identified and assisted to improve their standard of living.
3. All information related to resettlement preparation and implementation will be disclosed to all concerned, and people's participation will be ensured in planning and implementing the project.
4. The PAPs will receive compensation for lost assets at replacement cost and the compensation will be available prior to the taking over of assets.

5. Broad entitlement framework of different categories of project-affected people has been assessed and is given in the entitlement matrix. PAFs will be surveyed / enumerated as of the cut – off date. Provisions will be kept in the budget for those who were not present at the time of enumeration. However, anyone moving into the project area after the cut-off date will not be entitled to assistance.
6. Appropriate grievance redressal mechanism will be established as provided for in the Electricity Act 1993 and Electricity Regulation to ensure speedy resolution of disputes.
7. All consultations with PAPs shall be documented. Consultations will continue during the implementation of resettlement and rehabilitation works.
8. Avoid any disruption of socially and culturally sensitive areas. If impacted shall be conserved following the laws of land.
9. Consultations with potential affected persons will be held among local population regarding finalization of proposed route of the transmission lines and sub-stations as part of the public hearing process during environmental impact study;
10. Delivering R&R entitlements and compensation for lost assets based on the entitlement framework.
11. Resettlement Action Plan (RAP) if required will be prepared in close consultation with the affected families to ensure their acceptability as well as timely delivery of entitlements and assistance.
12. The compensation for the land will be as per the Land Acquisition Act 1977, and compensation for the right of way will be as per Electricity Act 1993. For structures affected partially compensation for the entire structure shall be paid.
13. 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.
14. As far as possible, project plans to conduct its construction activity after the harvests to avoid damage to crops. In case damage to standing crop is unavoidable, project will provide compensation under LA Act.

8.5 Policy, Legal and Regulatory Framework

This section presents the legal framework for the land acquisition process and Resettlement and Rehabilitation framework which also includes the entitlements for affected eligible families. NEA has developed this framework based on Land Acquisition Act, 1977, Water Resource Act, 1992¹⁰, Hydropower Development Policy, 2001¹¹, Forest Act, 1993, Electricity Regulation Act, 1992 and World Bank operational policies 4.12 (involuntary resettlement) and 4.10 (indigenous people). The framework recognizes the need to support restoration of livelihoods of adversely affected people and lays down norms for rehabilitating the affected people and broadly outlines an approach and institutional framework to achieve its objectives.

8.5.1 Land Acquisition

Land Acquisition Act, 1977 is the main legislation to guide the land acquisition process in the country for development projects. According to the Act, GON can acquire land at any place in any

¹⁰ Section 16 of the Act mentions that GON will facilitate for land and house acquisition for development projects under prevailing rules

¹¹ The policy emphasizes the need of implementation of impacts mitigation measures in project affected area. It also states that Resettlement and Rehabilitation works shall be conducted as per approved criteria of GON

quantity by providing compensation pursuant to the Act (sections 3 and 4) for any development project. Once the decision is made to acquire land for the project, the Project Manager initiates preliminary actions to assess the location and extent of land to be acquired. The Act provides for cash compensation decided by the Compensation Fixation Committee (CFC) constituted under the chairmanship of Chief District Officer (CDO). Under section 15 of the act, the compensation for the Guthi Land (Religious Trust) is to be paid as per the provision made under the Guthi Corporation Act, 1976. The section 42 of Guthi Corporation Act authorizes GoN to acquire Guthi land and reimburse it by providing land instead of paying compensation if it wishes to do so.

Forest Act, 1993: Section 68 (1) of the Act empowers the government to permit the use of any part of government managed forest, community forest, leasehold forest, etc if there is no alternative except to use that area for the implementation of a plan or a project of national priority without significantly affecting the environment. According to this Act, Community Forest User Groups (CFUGs) will be responsible for the preparation of management plan which must include forest development, conservation, use and management.

Electricity Regulation, 1992: Article 12 and 13 of the Regulation state that the EIA report should address the environmental issues through measures required to mitigate the significant adverse impacts including socio-economic impacts, use of local labour, resources and equipment. These articles also specify that impacts on local land holders due to project implementation, and estimates of displaced population and resettlement and rehabilitation measures must be elaborated and clearly explained. This regulation has also made provision for the formation of Compensation Fixation Committee for compensation of the Right of Way (RoW) of transmission line.

8.5.2 World Bank Operational Policies

World Bank OP 4.12: Involuntary Resettlement: Involuntary resettlement may cause severe long-term hardship, impoverishment, and environmental damage unless appropriate measures are carefully planned and carried out. For these reasons, the overall objectives of the Banks policy on involuntary resettlement are the following:

- (a) Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.
- (b) Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.
- (c) Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

This OP describes World Bank's policies and procedures on involuntary resettlement as well as conditions that borrowers are expected to meet during operations involving resettlement of

affected groups. It requires an entitlement framework aimed at restoration, replacement, and participation of affected groups. A detailed social assessment and development of an action plan having list of measures for betterment/ restoration of lost assets/ income is required to be submitted to bank before start of project work. However where only a few people (e.g. about 100-200 individuals) are to be relocated at a particular location, appropriate compensation for assets, logistical support for moving and a relocation grant may be the only requirements but the principle on which compensation is to be based will remain same as for larger groups.

World Bank OP 4.10: Indigenous Peoples: This policy contributes to the Banks mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples. For all projects that are proposed for Bank financing and affect Indigenous Peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation. The Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples. Bank-financed projects include measures to (a) avoid potentially adverse effects on the Indigenous Peoples' communities; or (b) when avoidance is not feasible, minimize, mitigate, or compensate for such effects. Bank-financed projects are also designed to ensure that the Indigenous Peoples receive social and economic benefits that are culturally appropriate and gender inclusive.

This OP describes World Bank's policies and procedures for projects that affect indigenous people. The objective is to ensure that development benefits are socially and culturally compatible and that the indigenous people are consulted. Thus, an Indigenous People Development Plan is to be prepared as a prerequisite. Project will incorporate the IP component wherever necessary in the sub projects.

8.6 Probable Impacts

Adverse social impacts associated with the sub projects are mainly related to land acquisition carried out for substation sites; footing towers; and RoW for easement. The following are the likely adverse impacts in case of transmission lines and substations.

8.6.1 Transmission Lines

1. Temporary disturbance during construction and erection of transmission towers and stringing.
2. Loss of crop.
3. Drop in land prices.
4. Aesthetic appeal of an area is affected.
5. Temporary loss of access to common property resources.
6. Temporary change in land use intensity.
7. Restriction on the height of trees to be grown and no construction under transmission lines.

8.6.2 Substations and Footing Towers

1. Loss of land

2. Loss of house/structures/trees/crops
3. Loss of source of livelihood or livelihood due to acquisition of private agricultural land
4. Loss of common property resources due to acquisition of revenue land.
5. Loss of fodder and fuel wood due to loss of community forest land

8.6.3 Thermal Power Plants

1. Noise and Vibration

8.7 Eligibility for Compensation and Resettlement Assistance

Following category of project affected persons are eligible for compensation and assistance

1. An individual will be eligible to receive compensation and R&R assistance if the person has formal legal rights to land including customary; usufruct and traditional rights)
2. An individual who do not have formal legal title for the affected land at the time of census but claims such a legal title such as right derived from adverse possession; from continued possession of public land without official action for eviction provided that such claims become recognized under the laws of Nepal through an appropriate process.
3. Displaced persons in the above two clauses are also entitled to compensation for loss of other assets such as structures and crops. The absence to legal title to land will not bar them from getting compensation for assets and other resettlement assistance.
4. Those who are non-titleholders (encroachers or squatters) and do not fall under the first two categories are not entitled to compensation for loss of land, and structure. However, if such persons are occupying such land and have initiated the official process for land tile, such individuals will be considered for compensation.

All displaced persons occupying land on the start date of census survey are entitled to compensation for loss of assets other than the land, in particular, the structures and crops.

8.8 Institutional Arrangement

Timely establishment and involvement of appropriate institutions would significantly facilitate achievement of the objectives of the R &R program. NEA will be the primary agency to plan, implement and monitor all resettlement and rehabilitation related activities. The Environment and Social Studies Department (ESDD) established within NEA will be the core unit to undertake land acquisition and R&R activities.

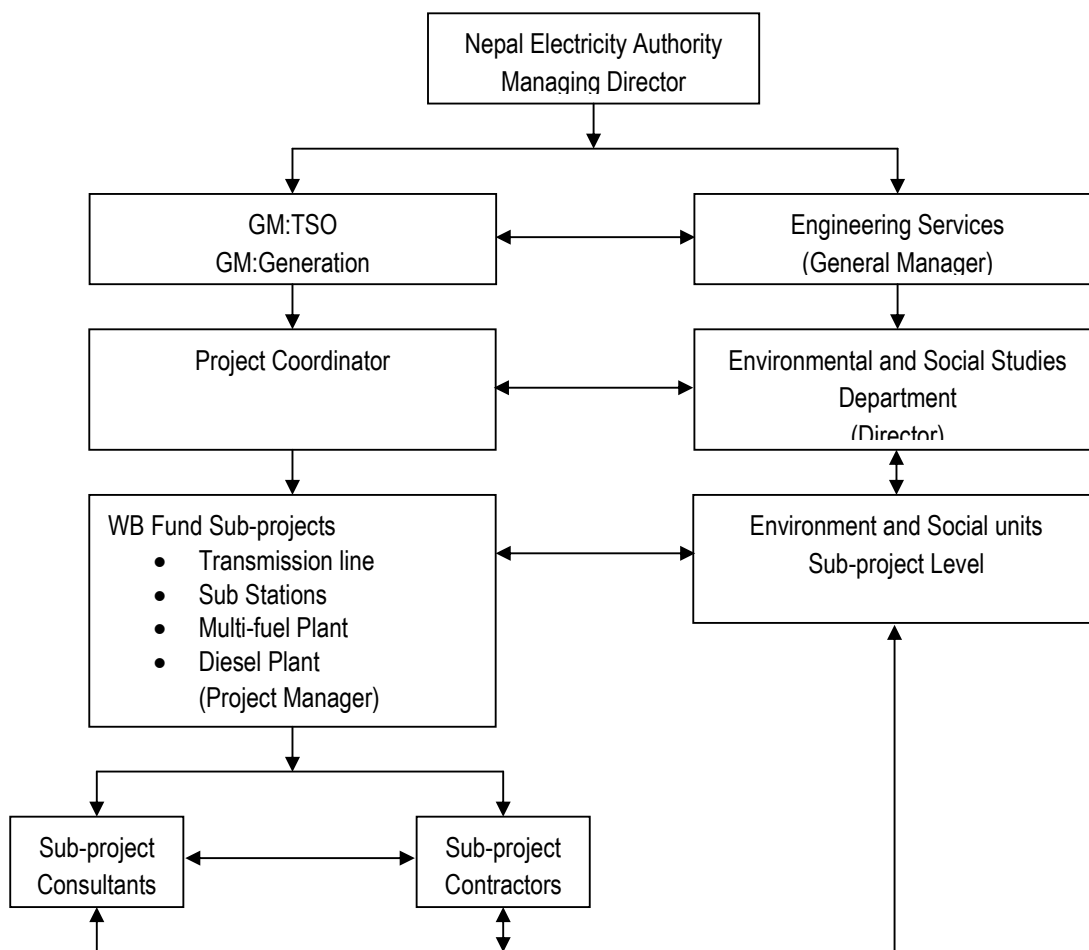


Figure 1: Organization Chart for Planning and Implementation of SIA Framework in Sub-projects

However, land acquisition and compensation will be the responsibility of Compensation Fixation Committee (CFC) to be established in the subproject at the district level. The ESSD and each Sub-project will have horizontal linkage and will enter into agreement to undertake the activities as required by the framework. These would include activities related to social screening; social assessment; socio-economic baseline survey; preparation of land acquisition plan; Resettlement Action Plan (RAP) and Vulnerable Community Development Plan (VCDP). The ESSD will set up offices at the sub project level with required number of experienced staff to implement the planned activities and also monitor them periodically.

At the local level, other local government organizations viz DDCs, VDCs, DFOs, CFUGs and NGOs will also be involved in implementation process. The specific role of each of these agencies will be detailed out in the RAP prepared for sub projects.

Grievance Redress Mechanism: The Project will establish effective mechanisms for resolving grievances during the implementation of subprojects, especially on complaints and issues related with compensation payment and resettlement programs. The Project Affected Person (PAP) will have access to both locally formed grievance redress committees and formal courts of appeal system. The local committees will comprise of subproject officials/ staff and representatives of local bodies and affected people. As a first step the complaint cases will be filed to the local committees which will be resolved through negotiation at the sub-project level. In case the issues remain unresolved appeal can be made to the CDO at the district level. In case issues not resolved even at the CDO level, PAP will have the provision to approach the court.

8.9 Entitlement Framework

The entitlement framework is designed to enable PAFs to replace the assets they have lost due to the project in the shortest possible time. The table 1 below presents the entitlements those will be provided to those affected by the project.

Table 1: ENTITLEMENT FRAMEWORK

Sr. No.	Type of Loss/ Impact	Entitled Person/s	Entitlement
1. Loss of Land			
a)	Land with formal legal title, or customary or usufruct rights	Non Vulnerable	<ol style="list-style-type: none"> 1. Cash compensation at prevailing market value as per LA Act 1977 2. Actual registration charges for purchase of alternate land for maximum of compensation amount within one year as per proof of purchased land. 3. Compensation at market value for crop damage; loss of fruit bearing, fodder, and fuel wood trees. 4. Negotiated amount as compensation for the land under the alignment of transmission lines.
		Severely affected families and Vulnerable PAFs	<p>Over and above the entitlements listed for non-vulnerable, the PAF is entitled for:</p> <ol style="list-style-type: none"> 1. Transitional amount equivalent to 6 months of agricultural wages. 2. Preferential employment at the construction site of sub project 3. Provision for agriculture inputs and / or livestock to help restore production levels 4. Training for skill upgradation
b)	Agricultural Land		
(i)	Tenants, Leaseholders	Non - Vulnerable	<ol style="list-style-type: none"> 1. 50% of the compensation as their share for loss of livelihood. 2. Preferential employment at the construction site of sub project 3. Reimbursement for unexpired tenancy/share cropping/lease period. <p>Note: This amount will be deducted from the compensation payable to land owners</p> <ol style="list-style-type: none"> 4. Training for skill upgradation 5. Vulnerable PAFs and SPAFs are also eligible for Transitional Allowance equivalent
		SPAFS and Vulnerable	<p>Over and above the entitlements listed for non-vulnerable, the PAF is entitled for:</p> <ol style="list-style-type: none"> 1. Transitional allowance equivalent to 3 months of agricultural wages
(ii)	Encroacher/Squatters	Non Vulnerable	<ol style="list-style-type: none"> 1. Prior notice of three months to harvest crop

		SPAFS and Vulnerable	<ol style="list-style-type: none"> 1. Prior notice of three months to harvest crops 2. Preferential employment at the construction site of sub project 3. Training for skill upgradation
2.	Loss of structure – both commercial and residential		
(i)	Titleholders,	Non vulnerable	<ol style="list-style-type: none"> 1. Cash compensation at replacement value 2. Affected Families will be allowed to dismantle structure and carry salvage whatever they can 3. Dislocation allowance equivalent to two months of average agriculture income. 4. If structure is partially affected, project may acquire the entire structure at a price mutually accepted by PAF and the project
		SPAF and Vulnerable person	<p>Apart from the provisions mentioned above, vulnerable and SPAF is entitled to:</p> <ol style="list-style-type: none"> 1. House construction allowance 2. Preferential employment at the construction site
(ii)	Tenant, leaseholder	Non vulnerable	<ol style="list-style-type: none"> 1. Reimbursement for unexpired tenancy/ lease period. <p>Note: The amount will be deducted from the compensation payable to land owners.</p> <ol style="list-style-type: none"> 2. Rental allowance equivalent to six months of rent
		Vulnerable and SPAF	<p>Apart from the provisions mentioned above, vulnerable and SPAF is entitled to:</p> <ol style="list-style-type: none"> 1. Dislocation allowance equivalent to two months of average agriculture income
3	Loss of livelihood		
i)	Wage /Self employment (both agriculture and Non Agriculture)	Each adult earning member (both men & women)	Assistance to be provided for inclusion in various State Government Schemes for self-employment.
4	Loss of standing crops/ trees		
i)	a) Crops b) Trees	Cultivator title holders	In either category compensation for the total loss of crop/tree as per LA Act during construction as well as during O&M**.
5	Loss of access to Common Property Resources (CPR) and facilities		
i)	Common property resources / Civic amenities.	Community	Replacement of CPRs/Civic amenities to ensure equivalent community resources and amenities or provisions of functional equivalence.

6.	Other Impacts related to loss of assets/ livelihood not identified.	Affected Families	Unforeseen impacts should be documented and mitigative measures have to be proposed with in the overall principles & provisions of this framewrok
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8.10 Public Disclosure, Consultation and Participation

Public consultation will be an integral part of the process throughout the planning and execution of the sub projects. The Environment and Social Studies Department (ESDD) of NEA will interact closely with PAPs / communities, project personnel, government departments, NGOs right from the early stages of the project preparation on a regular basis for developing and implementing the RAP. Though project does not envisage significant social impact, the project will ensure that community is made aware of the possible adverse social impacts. For this purpose public contact drives shall be organized by the ESSD and public awareness shall also be created through NGO's and other social organizations active in the affected areas. During the public awareness drives it will be ensured that only accurate information is given about the project and its possible social impacts. The opinion / suggestions made by the community / affected groups shall be incorporated in Resettlement Action Plan during the selection of route of the transmission line and substation and tower locations.

Annex I:

SOCIO-ECONOMIC SURVEYS

The impacts of transmission projects will be assessed through the census and baseline socio economic surveys (BSES). The BSES will help in assessing the extent of the acquisition of land and other immovable assets, magnitude of displacement, losses to be sustained by PAFs, needs of vulnerable groups, and finally provide the basis for preparing the Resettlement Action Plans (RAPs).

The census survey in case of sub projects involving land acquisition for sub stations and towers and right to way for easement will be conducted immediately after the social assessment followed by a baseline socio-economic survey to capture the detailed account of living standards.

Annex II:

OUTLINE FOR RESETTLEMENT ACTION PLAN

Acronyms

List of Tables

List of Figures

Executive Summary

1.0 INTRODUCTION AND METHODOLOGY

- ◆ Background of the sub project and salient features
- ◆ Profile of the Study Area - Geography; Demography; Social and Economic issues
- ◆ Objectives and scope of the study
- ◆ Approach and methodology
- ◆ Research tools and instruments
- ◆ Layout of the report

2.0 CENSUS DATA AND SOCIO-ECONOMIC SURVEY

- ◆ The objectives of census and socio-economic survey
- ◆ The process followed for social assessment
- ◆ Measures taken for minimizing impacts
- ◆ Acquisition of land and other assets
- ◆ Land Owners, Households, Families and Population impacted by acquisition
- ◆ Socio-demographic-economic and other Key Characteristic of the affected population
- ◆ Identification of Impacts – by type and its quantification
- ◆ Baseline socio-economic data
- ◆ Impact on community
- ◆ Vulnerable Persons from Project as per the framework
- ◆ Impact of the sub project on Vulnerable
- ◆ Identification of Impacts – by type and its quantification
- ◆ Socio-demographic-economic and other Key Characteristic of Vulnerable Groups

3.0 RESETTLEMENT POLICY AND LEGAL FRAMEWORK

- ◆ Review of existing legal process of land acquisition and resettlement
- ◆ R&R policy / Social Assessment Framework for the project
- ◆ Entitlement Framework specific to the sub project

4.0 COMMUNITY PARTICIPATION AND CONSULTATIONS

- ◆ Identification of key stakeholders
- ◆ Institutional mechanism for consultation and participation
- ◆ Key Issues raised during consultations
- ◆ Follow – up steps

- ◆ Continuation of consultation process
- ◆ Information disclosure

5.0 INCOME RESTORATION PROGRAMS

- ◆ Existing skills and employment pattern of PAFs
- ◆ Adverse impacts on employment pattern due to acquisition of land and other immovable assets
- ◆ Basis for individual income restoration schemes
- ◆ Feasibility analysis of income generation programs at the resettlement site(s) or at the existing locations during the life of the project and post project
- ◆ Training for skill upgradation
- ◆ Access to credit and micro enterprise support for affected families
- ◆ Institutional arrangement to manage IR programs at a sustained basis (including inter agency linkages)
- ◆ Institutions for implementing IR schemes
- ◆ Monitoring of IR schemes implemented

6.0 INSTITUTIONAL ARRANGEMENTS

- ◆ Detailed description of the implementing agency (with the entire reporting structure)
- ◆ Roles and responsibilities of each key player
- ◆ Resources available and its flow
- ◆ Need for capacity building
- ◆ Capacity building plan and its implementation (time frame)
- ◆ Need for NGOs / CBOs

7.0 GRIEVANCE REDRESS MECHANISM

- ◆ Establishing grievance redress cell
- ◆ Functions of the Cell
- ◆ Roles and responsibility of each member of the cell
- ◆ Mechanism for addressing grievances
- ◆ Timeframe
- ◆ Way forward

8.0 MONITORING AND EVALUATION ARRANGEMENTS

- ◆ Monitoring procedures and organizational set up
- ◆ Internal and External Monitoring
- ◆ Impact evaluation
- ◆ Indicators and process for monitoring

9.0 IMPLEMENTATION SCHEDULE

Prepare an action plan with a timeline to implement Resettlement Action Plan synchronized with the civil works. The implementation schedule should include:

- ◆ Time frame for
 - Land Acquisition

- Disbursement of compensation and R&R assistance
- Resettlement
- Income restoration
- Consultation process
- Miscellaneous activities
- Monitoring of RAP implementation
- Evaluation of RAP implementation
- ◆ Responsibilities of key players
- ◆ Community participation in implementation

10.0 COSTS AND BUDGET

- ◆ Assumption underlying the budget and estimated cost of resettlement under following heads:
 - Compensation measures
 - Rehabilitation assistance measures
 - Resettlement assistance measures
 - Loss of common property resources
 - Income generation program and training
 - Other economic opportunities for PAFs
 - Area/community development activities
- ◆ Source of funding and financing responsibility
- ◆ Budgetary process and timing of expenditure

Annex III:

OUTLINE FOR VULNERABLE COMMUNITIES DEVELOPMENT PLAN

Executive summary

Part 1. The Background

Chapter 1. INTRODUCTION

1. Overall description of the project affected area with map, indicating all habitations
2. Vulnerable Communities and Land use prior to the project

Chapter 2. VULNERABLE COMMUNITIES AND THE PROJECT

1. The area and the location of the sub-project.
2. Vulnerable communities (ethnic minorities and tribal groups) in the Project affected area, their economy and land tenure.
3. The effects of the sub-project on vulnerable communities:
 - influx of outsiders: Officers / others
 - labor/ contractors/ businesses
 - employment creation for local population
 - the break-up of social ties: communities/ joint families
 - the change in gender roles (men/women)
 - the changing economy (from subsistence to money economy)
 - from agriculture to wage labor
 - Change in nutrition/ health and the role of education
 - Other social groupings present in the project affected area (Stakeholders), their economy and land tenure.
 - Previous community assistance by the Project in the area

Chapter 3. SOCIAL DEVELOPMENT AND ENVIRONMENT

1. The environment and community welfare (quality) of life)
2. Resettlement based on material losses of individuals/households,
3. Community based groups with a common development purpose (CBOs)

Part 2. The Vulnerable Communities Development Plan

Chapter 4. THE PRESENT SITUATION - BASELINE INFORMATION
(VILLAGE WISE)

1. Based on secondary sources, observations, key informants, and focus group discussion
2. Characteristics of communities in the village (population)
3. Map of each village with physical infrastructure and communities living area
4. A list of Community facilities (infrastructure)
5. Assessment of Institutions' organizations/clubs/groups and Social Services in the locality
6. Status of Health and Literacy
7. Occupational structure and Poverty level

Chapter 5. FELT NEEDS - COMPONENTS OF COMMUNITY-BASED SOCIAL DEVELOPMENT

1. Based on focus group discussions and independent assessment
2. Infrastructure support
3. Economic support
4. Social support
5. Cultural support

Chapter 6. INSTITUTIONAL ARRANGEMENTS FOR SOCIAL DEVELOPMENT

1. Existing institutional capacity:

1. In the communities
2. In the promoting agency
3. In the Government
4. In NGOs

2. Strengthening institutional capacity for desirable role in **the** project:

1. Local government
2. The promoting agency
3. Non Governmental Organizations
4. Community Based Organizations
5. Village Level Voluntary Working Groups/village meetings

Chapter 7. PARTICIPATORY PLANNING AND IMPLEMENTATION

1. Strategy for community participation in planning and implementation
2. Community participation in formulation of this plan (focus group)

discussions)

3. Contribution of the communities via voluntary village working groups (Operation and maintenance)

4. Contribution of the promoting agency (financial/services)

Chapter 8. ISSUES IN IMPLEMENTATION

1. Flow of funds

2. Criteria and process for selection of Facilitating NGO

3. Criteria and process for selection of specific Social Development Activities

Chapter 9. MONITORING AND EVALUATION

1. Reporting and internal monitoring by promoting agency

2. Participatory Monitoring and Evaluation

3. External supervision and evaluation

Chapter 10. COSTS ESTIMATES FOR FUNNING AND FINANCING

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Annex 1

Official translation

Ministry of Law, Justice and Parliamentary Affairs, Law Books Management Board
(Note: It is recognized that there are some spelling errors in this official translation)

Schedule - 1
(Pertaining to Rule 3)

Proposals Requiring Initial Environmental Examination

A. Forest Sector

- 1) Plantation of indigenous plants of a single species on a single block of 50 to 100 hectares in the Tarai and 25 to 50 hectares in the hills.
- 2) Plantation of such imported species of plants as are deemed suitable for that purpose following their test in the concerned place, on a single block of 10 to 50 hectares in the Tarai and 5 to 25 hectares in the hills.
- 3) Handover of forests with an area ranging between 25 to 100 hectares in the Tarai and 5 to 25 hectares in the hills as leasehold forests.
- 4) Clear felling or rehabilitation of national forests with an area of not more than 5 hectares.
- 5) Establishment of saw-mills processing 5,000 to 50,000 cubic feet of timber per year.
- 6) Collection of 5 to 50 tons of forest products other than timber per year.
- 7) Establishment or expansion of national parks, wildlife sanctuaries and conservation areas, or environmental conservation zones.
- 8) Extraction of the roots of trees which have been felled, removal of leaves (in such a manner as to turn trees into stumps), extraction of seeds of lichens or orchids from trees, and collection of Sal (*Shorea robusta*) seeds.
- 9) Formulation of watershed management plans.
- 10) Construction of new botanical gardens or zoos outside forest areas in the public or private sector.
- 11) Resettlement of imported wild animals of different species.
- 12) Preparation of management plans of national parks, wild life sanctuaries, conservation areas, and their buffer zones, or launching of development and construction activities specified in such plans.
- 13) Establishment of medicinal herbs centers for the commercial production of medicinal herbs and aromatic plants in public scrublands.
- 14) Commercial collection or industrial processing of non-polluting medicinal herbs and aromatic plants.
- 15) Construction of forest paths up to 5 kilometer long, and of fire protection lines up to 10 kilometer long.

- 16) Collection of boulders, gravel and sand and extraction of coal and other minerals from forest areas.

B. Industrial Sector:

(a)

- 1) Production of alcohol by the process of blending and establishment of distilleries equipped with boiling and fermentation facilities, with a production capacity of 5,00,000/- liters per day.
- 2) Establishment of breweries and wineries equipped with fermentation facilities with a production capacity of 500,000/- liters per day.
- 3) Establishment of acid, alkali, and primary chemical industries with a production capacity of 100 metric ton per day.
- 4) Processing of hides not more than 5000 sq. ft. per day.
- 5) Establishment of Electroplating and Galvanizing industries.
- 6) Establishment of cooking, natural gas refilling, filling, production and distribution industries.
- 7) Establishment of boulder crushing industries.
- 8) Establishment of paints industries.
- 9) Establishment of dairy processing industries.
- 10) Establishment of industries producing lubricant by the process of blending reprocessing or reclamation.
- 11) Establishment of industries manufacturing foam.
- 12) Establishment of industries manufacturing dry or wet cell (battery).
- 13) Establishment of crude sugar or sugar industries with a production capacity of 3000 metric tons per day.
- 14) Establishment of thread and cloths dyeing, printing and laundry industries (including carpets) except traditional cottage industries.
- 15) Establishment of pulp and paper industries, except traditional cottage industries, with a production capacity of 100 metric tons per day.
- 16) Establishment of bricks and tiles industries with a production capacity of 10 million units per year.
- 17) Establishment of cement industries with a production capacity of 30 metric tons per hour based on lime-stone and with a production capacity of 50 metric tons per hour based on clinker.
- 18) Establishment of quick/ slaked lime industry producing 50 metric tons per day.
- 19) Establishment of pharmaceutical industries.
- 20) Establishment of industries manufacturing chemical fertilizers (blending) and pesticides (blending).
- 21) Establishment of plastic industries (bases on waste plastic as raw materials).
- 22) Establishment of matches industries.
- 23) Establishment of industries relating to auto workshop (except 2 wheelers).
- 24) Establishment of industries producing and processing coke and briquette from coal."

(b) Establishment of the following industries having investment of total fixed capital exceeding Rs. 1 million.

- 1) Plastic processing (except processing waste materials).
- 2) Processing and production of tyres, tubes and rubber.
- 3) Soap (including detergents and clearing shampoos).
- 4) Photo processing.
- 5) Foundry.
- 6) Production of cigarettes, bidi (tobacco rolled in leaf) tobacco, betel nuts.
- 7) Slaughter house.
- 8) Glass (plane glass)
- 9) Food processing.
- 10) Relating to metal (including remelting, rerolling, and fabrication).
- 11) Bitumen and bitumen emulsion.
- 12) Cold storage.
- 13) Threading.
- 14) Vegetable ghee, oil.
- 15) Herbal processing.
- 16) Production of different items from bone, horn and foot root
- 17) Rosin turpentine, veneer and catechu.
- 18) Fish and meat processing.
- 19) Production of packaging materials
- 20) Poultry feeds.
- 21) Machine shop.

C. Mining Sector:

(a) Excavation of mines through relocation and resettlement of permanent residence of not more than 100 people.

(b) Relating to Open Mine and Under Ground Mine:

- 1) Excavation of metallic minerals in small scale.
- 2) Excavation of the other industrial minerals in small scale except precious stones semiprecious stones and abrasive minerals from among the classified industrial minerals for the industrial purpose.
- 3) Excavation of non-metallic minerals in small scale.
- 4) Excavation of industrial precious and semiprecious stones and abrasive minerals with a production capacity of 50 to 100 grams per day.
- 5) Establishment of coal mines in small scale.
- 6) Excavation of construction oriented minerals materials in small scale.
- 7) Excavation of highly precious, precious, valuable stone and semi-valuable stone minerals with a production capacity of 50 to 100 grams per day.
- 8) Production of natural gases in very small and small scale.

(c) Relating to other Mines:

- 1) Extraction of 10 to 50 cubic meter of sand, gravel and soil from river beds per day.
- 2) Extraction of 50 to 100 grams of precious, valuable and semi-valuable stone minerals per day through placer or dredging techniques.

D. Road Sector:

- 1) Construction of the following roads:
 - (a) District roads
 - (b) Urban roads
 - (c) Rural roads
 - (d) Small feeder roads
- 2) Construction of 1 to 5 kilometers long ropeways.
- 3) Construction of 1 to 5 kilometers long cable car routes.
- 4) Construction of major bridges.
- 5) Construction of tunnels.
- 6) Improvement of the standard, rehabilitation and reconstruction of national highways and feeder roads.

E. Water Resources and Energy Sector:

- 1) Supply of electricity through the installation of transmission lines of not more than from 33 kV to 66 kV capacity.
- 2) Operation of rural electrification projects of 1 to 6 MVA.
- 3) Operation of electricity generation projects of 1 to 5 mw capacity.
- 4) Under the new systems of irrigation:
 - (a) Those irrigating 25 to 2000 hectares in the Tarai,
 - (b) Those irrigating 15 to 500 hectares in the hill valleys,
 - (c) Those irrigating 10 to 200 hectares in the hill and mountain areas with a steep gradient.
- 5) Under the rehabilitated systems of irrigation:
 - (a) Those irrigating more than 500 hectares in the Tarai.
 - (b) Those irrigating more than 200 hectares in the hill valleys.
 - (c) Those irrigating more than 100 hectares in the hill and mountain areas with a steep gradient.
- 6) Any water resources development activity which displaces not more than from 25 persons to 100 persons with permanent residence.
- 7) Control of floods through dams in the Tarai.
- 8) Control of rivers over an area of more than one kilometer.

Note: Any rehabilitation project which includes additional irrigated areas, new sources of water, watershed management or changed channel lines shall be considered to be a new system.

F. Tourism Sector:

- 1) Establishment and operation of hotels with 50 to 100 beds.
- 2) Extension of the areas of the existing airports.
- 3) Opening of new areas for the promotion of tourism.
- 4) Operation of rafting activities on any river having fish or other aquatic life.
- 5) Operation of new golf courses and organized water sports.
- 6) Promotion of tourism in a number exceeding 10,000 per year at an altitude above 5000 meters.
- 7) Disposal and management of waste emitted from trekking points.

G. Drinking Water:

- 1) Collection of rain-water in an area of not more than 200 hectares, and use of water sources (springs and wet-lands) located within the same area.
- 2) Surface water sources with not more than 1 cubic ft. safe yield, and supply of not more than 50 percent of the water during the dry season.
- 3) Processing of water at the rate of 10 to 25 liters per second.
- 4) Recharging up to 50 percent of the total aquifer for the development of underground water sources.
- 5) Construction of not more than one kilometer long tunnels for carrying water.
- 6) Displacement of not more than 100 persons for operating a water supply scheme.
- 7) Settlement of not more than 500 persons on the upper reaches of water sources.
- 8) Supply of drinking water to a population ranging between 2,000 and 20,000.
- 9) Supply of drinking water to a population ranging between 10,000 and 100,000, and connection of new sources.
- 10) Installation of more than 20 kilometers long electricity transmission lines for pumping or processing water, and consumption of more than one mw of electricity.
- 11) River training and diversion activities over an area of more than one kilometer.

H. Waste Management:

- 1) Waste management activities to be undertaken with the objective of providing services to a population ranging between 2,000 and 10,000.
- 2) Following activities relating to waste emitted from houses and residential areas:
 - (a) Filling of land with 100 to 1000 tons of waste a year.
 - (b) Activities relating to transfer stations and resource recovery areas spread over not more than 3 hectares.
 - (c) Selecting, picking, disposing, and recycling waste through chemical, mechanical or biological techniques in an area of not more than 2 hectares.
 - (d) Activities relating to compost plants in an area ranging between 1 and 5 hectares.
 - (e) Operation of sewerage schemes.

I. Agricultural Sector:

- 1) Clearing of national forests covering not more than 1 hectare in the hills and 5 hectares in the Tarai, and using them for agricultural purposes.
- 2) Following activities relating to construction:
 - a) !.....
 - b) Construction of 1 to 5 kilometers long agricultural roads.
 - c) Construction activities for farming 2000 to 5000 domestic fowls.
 - d) Construction activities for farming big cattle numbering between 100 and 500.
 - e) Construction activities for farming small cattle (sheep and goats) numbering between 1000 and 5000.
 - f) Establishment of agricultural wholesale markets in urban areas.
- 3) Following activities relating to toxic substances (only those which are listed):
 - a) Import of 1 to 10 tons of toxic substances.
 - b) Sale, supply, storage and disposal of 100 kg. to 1 ton of toxic substances.
 - c) Use of 100 kg. to 1 ton of toxic substances in a single area.
- 4) Establishment of the following agro-based industries which do not dispose of polluted substances mixed with dangerous toxins:
 - a) Milk-processing industries with a capacity of not more than 26,000 liters a day.
 - b) Such agro-based industries as those producing jam, jelly, squash and juice.
 - c) Cheese industries.
 - d) Baby food industries.
 - e) !.....
 - f) !.....
- 5) !.....
- 6) Commercial fish-farming in an area of more than 1 hectare.
- 7) Operation of any planning, project or programme of any development work, physical activities or change in land use except the proposals mentioned in Clause (A) to Clause (I) and those below the standards of such proposals as well as the proposals below the standards of those mentioned in Schedule-2 with a cost of Rs. 10 millions to hundred millions.

Annex 2

Official translation

Ministry of Law, Justice and Parliamentary Affairs, Law Books Management Board

(Note: It is recognized that there are some spelling errors in this official translation)

Schedule - 2

(Pertaining to Rule 3)

Proposals Requiring Environmental Impact Assessment

A. Forest Sector:

- 1) Plantation of indigenous plants of a single species on a single block covering an area of more than 100 hectares in the Tarai and 50 hectares in the hills.
- 2) Plantation of such imported species of plants as are deemed suitable for the purpose following their test in the concerned place, in an area of more than 50 hectares in the Tarai and 25 hectares in the hills.
- 3) Handover of forests with an area of more than 100 hectares in the Tarai and 25 hectares in the hills as leasehold forests.
- 4) Clear felling or rehabilitation of forests with an area of more than 5 hectares.
- 5) Establishment of saw-mills processing more than 50,000 cft. of timber per year.
- 6) Collection of more than 50 tons of forest products other than timber per year.
- 7) Formulation and implementation of forest management plans.
- 8) Clearing of public forests and establishment of new medicinal herbs centers for commercial production.
- 9) Rosin and turpentine, rubber, plywood and veneer, catechu, and timber-based matches, pulp and paper industries to be established within one kilometer inside the forest area which depend on forests for their raw materials and use processing techniques, and cardamom and medium and large tea industries which use large quantities of firewood.
- 10) Commercial and industrial processing of medicinal herbs and aromatic plants which emit garbage and pollution.
- 11) Establishment of saw-mills, bricks and tiles factories, and tobacco processing industries within 5 kilometers from the forest boundaries.
- 12) Establishment of resorts, hotels, safaris, educational institutions, hospitals and industries or other construction activities inside forest areas, national parks, sanctuaries, conservation areas, buffer zones, and environment conservation zones.

B. Industrial Sector:

- 1) Establishment of distilleries equipped with boiling and fermentation facilities with a production capacity of more than 500,000 liters per day.
- 2) Establishment of breweries and wineries equipped with fermentation facilities with a production capacity of more than 500,000 liters per day.

- 3) Production of primary chemicals such as corrosive acid and alkali etc. (except citric tartaric, acetic, acid etc.) with a production capacity of more than 100 metric tons per day.
- 4) Processing of hides more than 500 sq.ft. per day.
- 5) Production of chemical fertilizers and pesticides except produced through welding process.
- 6) Establishment of mineral based industries with a fixed investment of more than Rs. 50 millions.
- 7) Production of petro chemicals and processing (diesel, kerosene, lubricants, plastics, synthetics rubbers etc.).
- 8) Production of ferrous and non ferrous metals (except rerolling, remelting and fabrication) by the process of primary smelting.
- 9) Establishment of industry producing more than 3000 metric tons of crude sugar and sugar per day.
- 10) Establishment of cement industries with a production capacity of more than 30 metric tons per hour based on lime stone and with a production capacity of more than 50 metric tons per hour based on clinker.
- 11) Establishment of lime industries with a production capacity of more than 50 metric tons per day.
- 12) Production of asbestos.
- 13) Establishment of radio active emission (nuclear and automatic processing) industries.
- 14) Production of primary compound (Bulk drugs) for medicines.
- 15) Production of extremely hazardous substances such as Isocyanite, mercury compound etc.
- 16) Production of ammunitions and explosives including gunpowder.
- 17) Establishment of industries of pulp or paper with a production capacity of more than 100 metric tons per day.
- 18) Establishment of brick and tiles industries with a production capacity of more than 10 million pieces per year.
- 19) Chemical processing of bones.

C. Mining Sector:

- (a) Relocation or resettlement of permanent residence of more than 100 people for the purpose of mine excavation.
- (b) Operation of all underground mining activities located at the main boundary thrust and central boundary thrust Zone.
- (c) Relating to Open Mines or Underground Mines:
 - 1) Excavation of metallic mineral substances in medium and large scale.
 - 2) Excavation of non metallic mineral substances in medium and large scale.
 - 3) Excavation of other medium and large scale industrial minerals except precious stone, semi-precious stone, abrasive minerals from among the classified industrial minerals for industrial purposes.
 - 4) Excavation of medium and large scale coal mines.

- 5) Excavation of construction-oriented minerals in medium and large scale.
- 6) Excavation of highly precious, precious, valuable and semi-valuable minerals with a production capacity of more than 100 grams per day.
- 7) Production of natural gas in medium and large scale.
- 8) Excavation of radio active minerals in any scale.
- 9) Excavation of asbestos minerals in any scale.
- 10) Excavation of crude oil in any scale.

- 11) Excavation of industrial, precious, semi-precious stones and abrasive minerals with a production capacity of more than 100 grams per day.

(d) Relating to Other Mines:

- 1) Extraction of sand, gravel and soil at the rate of more than 50 cubic meters per day from the beds of river and rivulets.
- 2) Extraction of highly precious and semi -precious minerals at the rate of more than 100 grams per day through placer and dredging technique.

D. Road Sector:

- 1) Construction of the following roads:
 - (a) National highways.
 - (b) Main feeder roads.
- 2) Construction of more than 5 kilometers long ropeways.
- 3) Construction of more than 5 kilometers long cable car routes.

E. Water Resources and Energy Sector:

- 1) Supply of electricity through the installation of transmission lines of more than 66 kv. capacity.
- 2) Operation of more than 6 MVA rural electrification projects.
- 3) Operation of electricity generation projects with a capacity of more than 5 mw.
- 4) Generation of more than 1 mw diesel or thermal electricity.
- 5) Under the new systems of irrigation:
 - (a) Those irrigating more than 2000 hectares in the Tarai.
 - (b) Those irrigating more than 500 hectares in the hill valleys.
 - (c) Those irrigation more the 200 hectares in the hill and mountain areas with a steep gradient.
- 6) Any water resources development activity which displaces more than 100 people with permanent residence.
- 7) Construction of multipurpose reservoirs.
- 8) Inter-basin water transfer and use.

F. Tourism Sector:

- 1) Establishment and operation of hotels with more than 100 beds.

- 2) Establishment and development of new airports.
- 3) Rafting arrangements for more than 2000 persons per year on a single river.
- 4) Dispatch of more than 2000 tourists and their assistants per year for trekking in a single area.
- 5) Development and construction of any infrastructure for the promotion of adventure tourism in high mountainous areas.
- 6) Operation of house boats on lakes.

G. Drinking Water:

- 1) Collection of rain-water in an area of more than 200 hectares and use of water sources (springs/wetlands) located within the same area.
- 2) Surface water sources with more than 1 cft. safe yield, and the use of its entire part during the dry season.
- 3) Water processing at the rate of more than 25 liters per second.
- 4) Recharging of more than 50 percent of the total aquifer for the development of underground water sources.
- 5) Construction of more than 1 kilometer long water tunnels.
- 6) Displacement of more than 100 persons for the operation of water supply schemes.
- 7) Settlement of more than 500 persons on the upper reaches of water sources.
- 8) Supply of drinking water to a population of more than 20,000.
- 9) Supply of drinking water to a population of more than 100,000, and connection of new sources.
- 10) Over mining of biologically or chemically polluted point and non-point sources or underground water sources that may be affected by them.
- 11) Operation of multi-purpose projects relating to sources of drinking water using water sources at the rate of more than 25 liters per second.

H Waste Management:

- 1) Waste management activities to be undertaken with the objective of providing services to a population of more than 10,000.
- 2) Following activities relating to waste emitted from houses and residential areas:
 - a) Filling of land with more than 1000 tons of waste per year.
 - b) Activities relating to transfer stations and resource recovery areas spread over an area of more than 3 hectares.
 - c) Selecting, picking, disposing and recycling waste through chemical, mechanical or biological techniques in an area spread over more than 2 hectares.
 - d) Activities relating to compost plants spread over an area of more than 5 hectares.
 - e) Burying of waste emitted from an urban area with a population of at least 10,000.
- 3) Following construction activities relating to hazardous waste of the following nature in any scale:
 - a) Construction of a waste plant.
 - b) Construction of a waste recovery plant.

- c) Construction of a site for filling, accumulating or burying waste.
- d) Construction of a site for storing waste.
- e) Construction of a waste treatment facility.
- 4) Following activities relating to lethal waste:
 - a) Emission and management of any radio-active substance with a half age exceeding 25 years.
 - b) Emission and management of any lethal chemical with 30 lethal dose.
 - c) Final disposal management of biological lethal substances emitted from health centers, hospitals or nursing homes with at least 25 beds.
 - d) Any active relating to one hectare or more of land and energy for the purpose of incinerating or recycling any lethal substance.

I. Agricultural Sector:

- 1) Clearing of forests covering more than 1 hectare in the hills and 5 hectares in the Tarai and using them for agricultural purposes.
- 2) Following activities relating to construction:
 - a) !.....
 - b) Construction of more than 5 kilometers long agricultural roads.
 - c) Construction activities for farming more than 5000 domestic fowls.
 - d) Construction activities for farming more than 500 big cattle.
 - e) Construction activities for farming more than 5000 small cattle. (sheep and goats).
 - f) Urbanization plan in cultivable lands.
- 3) Following activities relating to toxic substances (only those which are listed):
 - a) Import of more than 10 tons of a toxic substance.
 - b) Sale, supply, storage and disposal of more than 1 ton of a toxic substance.
 - c) Use of more than 1 ton of a toxic substance in a single area.
 - d) Activities relating to insecticide plants or toxic substances.

J. Health:

- 1) Operation of hospitals or nursing homes with more than 25 beds, or medical profession (study and teaching also).

K. If any proposal is to be implemented in the following areas:

- 1) Historical, cultural and archeological sites.
- 2) Environmentally weak and wet areas.
- 3) National parks, wild life sanctuaries and conservation areas.
- 4) Semi-arid, mountainous and Himalayan regions.
- 5) Flood prone and other dangerous areas.
- 6) Residential, school and hospital areas.
- 7) Areas with main sources of public water supply.
- 8) !.....

- L. Operation of any planning, project or programme relating to any developmental work, physical activities or change in land use except the proposals mentioned in Clause (A) to Clause (K) and those below the standards of such proposals as well as the proposals below the standards of those mentioned in Schedule-1 with a cost of more than 100 millions.